Critical Practices in Architecture

The Unexamined

Edited by Jonathan Bean, Susannah Dickinson and Aletheia Ida

Foreword by Jane Rendell

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FOREWORD

CRITICAL SPATIAL PRACTICE: INTRODUCTIONS AND ADJUSTMENTS

JANE RENDELL

When I first introduced the term 'critical spatial practice' (Rendell 2003a, 221–33), to describe projects located between art and architecture, and the standpoints theory offered for playing out disciplinary definitions, I was keen to stress three particular qualities of these practices as the critical, the spatial, and the interdisciplinary. I proposed that the definition of the term 'critical' be taken from Frankfurt School critical theory, particularly those processes that involve self-reflection and the desire for social change, that seek to transform rather than to only describe. Where Max Horkheimer, arguably the originator of critical theory, distinguishes it from traditional theory, by arguing that traditional theory is a theory of the status quo designed to increase the productivity and functioning of the world as it presently exists (Horkheimer 1937/2002), according to Raymond Guess, in his later account of the work of the Frankfurt School, of which Horkheimer was a founder member, critical theories are forms of knowledge that differ from theories in the natural sciences, because they are 'reflective' rather than 'objectifying'. In other words, according to Guess, critical theories take into account and reflect upon their own procedures and methods: 'A critical theory, then, is a reflective theory which gives agents a kind of knowledge inherently productive of enlightenment and emancipation' (Geuss 1981, 2).

In my own work, I have argued for an extension of 'critical theory' to include the work of later theorists, poststructuralists, feminists and others whose thinking is also self-reflective and desirous of change, both to oneself and to society. For me, this kind of critical theoretical work provides a chance not only to reflect on existing conditions but also to imagine something different – to transform the world rather than to simply describe

it.[1] My intention has been to consider how the key qualities of critical theory – self-reflection and social transformation – might be transposed into practice. Drawing on the work of Michael de Certeau (2011) and Henri Lefebvre (1991), I have distinguished between those strategies (for de Certeau) or representations of space (for Lefebvre) that aim to maintain and reinforce existing social and spatial orders, and those tactics (for de Certeau) and spaces of representation (for Lefebvre) that seek to critique and question them, defining the latter as 'critical spatial practices'.

I later developed my understandings of the potential for critical spatial practices by examining a series of projects located between art and architecture, which sought to question and transform the social conditions of the sites into which they intervened, as well as to test the boundaries and procedures of their own disciplines (Rendell 2006, 1–2, 4, 6, 9, 12, 66 and 191; see also Rendell n.d; 2016, 16). I suggested that while multidisciplinarity could be described as a way of working where a number of disciplines are present but maintain their own distinct identities and ways of doing things, an interdisciplinary mode of practice was one where individuals operate between and at the edge of their disciplines and in so doing question the ways in which they usually work (Rendell 2006, 10–11).

Other theorists and practitioners have since worked with the term critical spatial practice, evolving it in different directions. For example, there was the reading group and blogspot initiated by Nicholas Brown in the early 2000s, which came out of discussions around Brown's own artistic walking practice (IPRH Reading Group. 2006–08; Senn 2006). In 2011, Nikolaus Hirsch and Marcus Miessen started a book series with Sternberg Press called *Critical Spatial Practice* which focused on architectural discourse and practice, and in the first publication they asked the question: 'What is Critical Spatial Practice?' (Hirsch and Miessen 2012). Hirsch and Miessen went on, in 2016, to set up a website site called *criticalspatialpractice.org* to archive their work in this area since 2011. And also in 2017, the *MaHKUscript, Journal of Fine Art Research* published a special issue on critical spatial practice, where many of the contributors describe critical spatial practices they have been engaged with that concern, above all, political and ecological issues (MaHKUscript 2017).

For me, looking back at the term now thirteen years on, many of the debates and practices around art and public space into which I proposed the

[1] For a detailed discussion of the various possibilities opened up by critical theory for thinking the relationship between theory and practice, see Rendell 2003b.

term have been reformulated in some important ways, and so I want to offer five adjustments to critical spatial practice for today. The first is perhaps the most obvious, but also the most complex, as it relates to the distinction between art and everyday life. This has been a key aspect of art criticism over at least the past 50 years, and although there is not the time nor space to get into the detail of this here, I do want to highlight how the term critical spatial practice, as I originally proposed it, may not pay sufficient attention to the ways in which distinctions can be made between practices that operate as art and those that are intrinsic to everyday life and less interested in their role as art. In Lefebvre's work, it is those practices of representational space, in offering forms of resistance, that might be thought of as closest to critical art practice, and it is through his understanding of different notions of the everyday, that we can also start to distinguish between specific kinds of life practice, from those that simply go along with dominant economic urban forces, to those which react against them, trying to offer change in multiple modes, from revolutionary political confrontation to more playful subversions. And it is this paying of attention to types of spatial practice that is important, from those that are critical in an aesthetic mode to those that are more questioning of economic 'function', the latter being more important in architecture where the category of use has such vital implications for people's lives. The essays in this book, and the critical spatial practices with which they engage, develop this aspect of the debate in some fascinating ways.

Second is an adjustment which explores relations between interdisciplinarity and trandisciplinarity. The presence of the unconscious in interdisciplinarity interests me, because it indicates how difficult such work is, not only materially and intellectually, but also emotionally. In demanding that we exchange what we know for what we do not know, and that we give up the safety of competence and specialism for the fears of inability and failure, the experience of interdisciplinary work produces a potentially destabilizing engagement with existing power structures, allowing the emergence of untested knowledges and uncertain understandings. Cultural critic Homi Bhabha has described interdisciplinarity in psychoanalytic terms as 'the acknowledgement of the emergent sign of cultural difference produced in the *ambivalent* [my emphasis] movement between the pedagogical and performative address' (Bhabha 1994, 163),[2] while Julia

[2] In an interview with W.J.T. Mitchell Homi Bhabha has distinguished the widely accepted 'Interdisciplinarity 1', where the 'foundational truths' of disciplines are put 'in proximity' in order to create a 'wider base', and the more problematic, 'Interdisciplinarity 2', which, 'posed at the point of our disciplines' liminality …

Kristeva has noted that 'interdisciplinarity is always a site where expressions of *resistance* [my emphasis] are latent', arguing that because of 'a tendency to jealously protect one's own domain. Specialists … do not … teach their students to construct a diagonal axis in their methodology' (Kristeva 1998, 5–6).

So if interdisciplinarity is concerned with working in a place *between* disciplines in order to question their edges and borders from a psychic as well as social perspective, transdisciplinarity is often described as a horizontal movement, concerned with moving *across* disciplines, transversally. Derived from the Latin preposition 'trans', meaning 'across, to or on the farther side of, beyond, over', the term can be used to give the sense of 'across, through, over, to or on the other side of, beyond, outside of, from one place, person, thing, or state to another' (OED 2019). But as philosopher Peter Osbourne points out in his important intellectual history of transdisciplinarity, where he traces the term back to its roots in systems thinking, the distinguishing feature of transdisciplinary work has been its way of connecting to disciplines outside academia (see e.g. Osborne 2015), this insight allows us to remember that these terms are historically generated and to reconsider the relation of practices both inside and outside academia and their associated disciplines in new configurations.

In this vein, I have been particularly interested in Gary Genosko's discussion of how, for the philosopher Félix Guattari, the interdisciplinarity (of 1968) was compromised: it relied too much on the disciplines between which it was located, and served to strengthen rather than question their dominance (Genosko and Guattari 2002, 24).[3] For Guattari, it is transdisciplinarity that holds the potential of radical critique, linked in his own philosophy to transversality, an 'unconscious source of action', that carries a group's desire, 'a dimension opposite and complementary to the structures that generate pyramidal hierarchisation' (Guattari 1964, 22). A key early question for Guattari concerns what becomes of transference in

requires us to articulate a new and collaborative definition of the humanities'. See Mitchell 1995.

[3] In many ways the problems of the interdisciplinarity of 1968 as recounted by Genosko, in terms of being 'team-based', adopting 'brain-storming' and the 'growing influence of the marketplace', resonate both with Homi Bhabha's definition of interdisciplinarity 1 and my characterisation of multidisciplinarity as I discuss above. However, a real interrogation of the relation between these three pairs of distinctions would need a much longer piece of research thoroughly embedded in the material conditions of the late 1960s in France and the mid/late 1990s in the UK and the US.

the institutional setting of the hospital, and it is transversality which for him provides the possibility of critiquing the 'institutional context, its constraints, organisation, practices, etc., all those things and relations which normally exist in the background' (Genosko and Guattari 2002, 71).

If critical spatial practice, as I introduced it in 2002 and 2006, prioritized the role of the interdisciplinary, that I defined as *a place between* disciplines, to provide a critique of existing methodologies – including artistic projects which adopt architectural processes, architectural works which draw on fine art approaches, as well as art/architectural collaborations – how might the *between* of interdisciplinarity might relate to the *across* of transdisciplinarity today?[4] If the between remains related to the points from which it is separated, then perhaps the across is more focused on the movement between these points and what lies beyond them,[5] an emphasis which is particularly useful when investigating the operation of critical spatial practice in and through time.

So the third adjustment I want to focus on concerns the importance of time in critical spatial practice. My experience of the time-based curatorial premise of *One-Day-Sculpture* curated by Claire Doherty and David Cross, encouraged me to think again about some key spatial terms and to ask: 'what occurs when time comes to the fore rather than space?' (Rendell 2009). The subtitle of geographer Edward Soja's *Postmodern Geographies* of 1989, 'the reassertion of space in critical social theory' refers to one of the main projects for cultural geographers in the 1970s (Soja 1989). A number of marxist geographers in that period took issue with the dialectical processes of historical materialism, where history was taken to be the active entity in

[4] My initial conceptualization of the 'between' drew on the radical move offered by Jacques Derrida's deconstruction as a critique of binary structures, to think 'both/and' rather than 'either/or', in order to invent a new term, like 'critical spatial practice', which operates simultaneously as both of the binary terms, and yet exceeds their scope. Yet I also drew inspiration from Gilles Deleuze's notion of the relay as important for thinking about the relation of theory to practice. See Rendell 2006, 9–10.

[5] Although current debate is full of references to multi-, inter-, trans- and post-disciplinary research and practice, there are very few accounts, which attempt to define the terms, or discuss on what basis an account of their differences might proceed. An exception is Isabelle Doucet and Nel Janssens (2011, 2), who have suggested that transdisciplinary knowledge in architecture and urbanism is distinguished by three features: the relation of discipline (theory) to profession (practice), an ethical dimension, and the experimental quality of design.

shaping social production, and space was considered merely as the site in which social relations took place.

Geographers such as Soja, as well as David Harvey and Doreen Massey argued for the importance of space in producing social relationships and in so doing had turned to the work of Lefebvre (Harvey 1989; Massey 1994) and his understanding of the two-way relation between the spatial and the social: 'Space and the political organization of space', he argued, 'express social relationships but also react back upon them' (Lefebvre 1991, 8).[6] The 'turn' to spatial theory in the late 1980s and early 1990s highlighted the importance of space in the postmodern period, when academics from all kinds of disciplines turned to geography for a rigorous and theoretically-informed analysis of the relationship between spatial and social relations, and of place and identity.

But more recently we have seen the valorisation of the relational and the performative, two terms that cannot be theorized or practised without reference to time. These emerging critical thematics are integral features of what is being called the 'performative turn'. Noticing time again has huge implications for spatial practice, practice is a process, it is nothing if not time-based: to practice is a verb, verbs are words of action – they make or take place over time. So what happens if we rethink Soja's call for the 'reassertion of space in social theory' as the 'reassertion of time into critical spatial practice'? It is stating the obvious that the spatial must be thought of in relation to the temporal; yet what we are considering here is not necessarily time only as history, but a rather fuller investigation into time's various modalities: flow, flux, duration, ephemerality and event.

Such 'a reassertion of time in critical spatial practice' (to paraphrase Soja) leads us to search for the temporalities of site-specificities. This time-based focus would seem to be particularly appropriate for thinking through my fourth adjustment, which is a reflection on how the dynamic of work in this area has been until recently at its most vibrant in relation to urbanism, from resistance to neo-liberal patterns of regeneration, including state-led gentrification to the ways of reconstructing after disaster, and to broader propositions for alternative forms of planning and practising 'otherwise'.[7]

[6] This quote from Henri Lefebvre, emphasized by David Harvey, is discussed in Soja 1989, 81, footnote 4.

[7] See the work of Doina Petrescu on altering practices and practising otherwise. For example, Petrescu 2007; Petrescu et al. 2010; and Petrescu and Trogal 2017.

Reflecting on the work of art-architecture collaborative muf, critic Kath Shonfield posed the following questions and observations: 'How do you develop a city-wide strategy when you are fascinated by the detail of things? And how can you make something small-scale in the here and now if you are driven by the urge to formulate strategic proposals for the future? muf's work … develops the particular to the general and back to the particular... It is expressed in the formula d/s = DETAIL/STRATEGY' (Shonfield 2001, 14). Shonfield frames the micro-macro interactions of muf's working processes through the spatial turn, as does my own term 'critical spatial practice'. However, it has become increasingly clear that the tactics and strategies – ambient, ambulant, direct, DIY, instant, insurgent – to name but a few, of this current phase of urbanism set the tone for a nuanced exploration of temporality, the need to include both the fleeting event as well as the patience required to ride out the long duration of planning, as in the work of the Austrian collaborative duo, transparadiso, and architect and visual artist, Apolonija Šušteršič, which span the making of temporary interventions and long-term engagements and projects (see e.g. Holub and Hohenbüchler 2015; transparadiso 2013; Šušteršič 2019).

But the fifth and final adjustment is perhaps the most important one, as it concerns the effectiveness of criticality to deal with the kind of challenges we currently face. Does a critical position contain within it the offer of an alternative, or is it simply a negation or rejection, of a norm? This attempt to position criticality in relation to the positive and the negative relates to current debates around both the post-critical and the question of the 'unexamined' in the title of this book. So I offer these thoughts as an opening into the book's content, perhaps as a lens through which to consider the different perspectives put forward here, all of which deal in practices that are forms of art, design or architecture, that offer not only critique as a rejection of practices and ideologies that are understood as unacceptable and unjust, but also alternative ways of doing things that affirm a set of alternative aspirational values and start to enact a path towards the futures to which they point.

The US version of post-criticality dominant in the architectural discourse of the early 2000s, exemplified by Robert Somol and Sarah Whiting's paper, 'Notes around the Doppler Effect and other Moods of Modernism', is something I took issue with in the introduction to *Critical Architecture* (Rendell 2007). While I agreed with Somol and Whiting's rejection of an autonomous form of disciplinary, previously advocated by critical architects like Peter Eisenman, I disagreed with their rejection of an oppositional dialectic, believing that there are certain things and ideas that

need to be opposed. My position then was to hold onto the basic tenets of the critical theory of the Frankfurt School – namely forms of knowledge that are self-reflective and emancipatory – and to argue for their transposition into practice (for a more detailed discussion, please see my chapter at the end of this book, which can be read together with this foreword). I still hold those views, but here I want to focus on the question of why opposing something and choosing to reject it might have been considered a problem in itself.

In an age of relentless positivity, where the demand is to see even problematic situations in terms of their potential 'going forward', one of the reasons to reject a critique which takes the form of opposition, may well be to do with the perceived negativity of such a position, and the problems neoliberal cultures have with the negative. For this reason alone, it is interesting to consider how to argue for the potential of the negative. In the *Work of the Negative*, the late French psychoanalyst Andre Green puts forward four specific thematics for considering how the negative operates in psychoanalysis – through absence, refusal, reversal or inversion, and nothing (Green 1999). He writes that the practice of psychoanalysis is a particular kind of work, one which makes the negative visible, and that this is because it concerns intersubjective confrontation, not just the address of another subject, but an experience in which the other subject must be included but not controlled. There is the confrontation of another without, he says, which corresponds to the self-confrontation of another within. This is a doubled confrontation with the other – without *and* within. Green called this method – where 'the positive' equates to 'the negative of the negative' – 'dialogical' (rather than dialectical) 'thinking' (Urribarri 2018, 66). Green's ability to complexify negativity, and to understand that it contains – as well as refusal – reversal, absence or even nothing at all, might offer a way of considering how the negative of the critical function is still relational and perhaps then even ethical.

Following a different philosophical trajectory, Rosi Braidotti has proposed 'that political agency need not be critical in the negative sense of the oppositional and thus may not be aimed solely or primarily at the production of counter-subjectivities. Subjectivity is rather', she writes, 'a process ontology of auto-poiesis or self-styling, which involves complex and continuous negotiations with dominant norms and values and hence also multiple forms of accountability.' She has argued that: 'Contemporary nomadic practices of subjectivity – both in pedagogy and other areas of thought – work towards a more affirmative approach to critical theory' (Dolphijn, and van der Tuin 2012, 19–37. And in their work on a post-

critical pedagogy, Naomi Hodgson et al, posit that this affirmation does not need to accept, but can take the form of caring and protecting what we love, and in so doing turn towards hope (Hodgson, Vlieghe and Zamojski 2017).

The post-critical is used here not to reject or negate criticality but to consider how work that occurs after criticality has been asserted can operate in dialogue with it in order to develop more possibilities. We could think of the post-critical here as a way, not of saying that because we come after the critical, that everything critical is over, but rather as an indicator that the critical has arrived, and that everything which occurs after this announcement, is in its midst, marked by it, and so a form of continuation with, or relation to, rather than breakage from, the critical.

The art critic Jan Verwoert, by suggesting that we need to enact refusals of options which allow us either a no or a yes, takes things one step further in opening up the space for other possibilities. He refuses to choose the negative nor to assert a positive: 'Maybe the secret of autonomous agency and the good life lies precisely in opening up the space of those other options through a categorical refusal to accept the forceful imposition of any terms, leaving us no choice but to choose between *either* yes or no?' (Verwoert 2017, 208). In this light, the work that is done through the 'unexamined' need not be understood as that which is not there, not examined, and so considered in the negative, nor as what is there, as a posited possible unexamined, but rather as a refusal of the existing options of yes or no, and instead a way of negotiating a space of multiple alternatives placing 'the affirmative potential of no alongside the dissident capacity of yes-saying as a species of refusal', as artist-writer Emma Coker has put it in *The Yes of the No* (Cocker 2016).

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INTRODUCTION

Critical Practices in Architecture: The Unexamined, embraces the idea that in today's complex, unsustainable world, multiple, emerging perspectives are critical to the design fields and the environment as a whole. This orientation to complexity, questioning, and self-reflection characterize critical practice. In opposition to conventional conceptions of architectural education and work, Jane Rendell's ground-breaking work defines critical spatial practice as "self-reflective modes of thought that seek to change the world." This mode of practice is reflected in the growing body of work done by socially engaged architects and artists across the world. This book extends a much-needed conversation on the built environment. It seeks to open up directions for understanding various aspects of critical practice as an expanded field encompassing architecture in all its entanglements, questioning the experience, agency, ethics, and the making of place—and what critical practice means in our changing times.

The book contributes to newly emerging and established dialogues occurring within today's art and design professions internationally. Focusing on the broad theme of critical practice and what that means for the work of architects, artists, urbanists, planners and social theorists in our complex, changing times, each chapter seeks to find places of convergence for the multiple strands that form around themes of practice, methods, theory, pedagogy, and representation across these disciplines. The goal is to engage and challenge readers from across countries and fields of study.

The chapters in this volume connect several relevant conversations under the umbrella of critical practice. For example, chapters in The Experience of Place relate to the kinds of conversations about social engagement, art, and design. The chapters on data mining, digital tooling, and soft materials relate to a growing interest in the intersection between the built environment and technology. *The Unexamined* builds on questions raised by several existing edited collections, including *Fast-forward Urbanism: Rethinking Architecture's Engagement with the City,* edited by Dana Cuff and Roger Sherman, *Beyond Shelter: Architecture and Human Dignity*, edited by Marie Aquinilo, *Expanding Architecture: Design as Activism* - edited by Bryan Bell and Katie Wakeford, and *Becoming Places: Urbanism/architecture/identity/power*, edited by Kim Dovey.

As noted in the acknowledgements, *The Unexamined* presents a selection of work from an international conference co-hosted with Architecture, Media, Politics, Society (AMPS) at the University of Arizona School of Architecture in February 2018. The conference was titled "Critical Practice in an Age of Complexity." It offered an interdisciplinary critique of the built environment and bought together global delegates from various fields and backgrounds, including artists, architects, community activists, designers, ecologists, film-makers, historians, landscape architects, media specialists, sociologists and urbanists. The conference call asked participants to question "whether in today's increasingly complex world, practice can be 'critical.' Can it understand the conditions it operates in? Can it challenge these conditions? Can it change them? Can it make a difference?"[1] Our faculty found these themes and questions especially pressing, as we had been grappling with them in the context of institutional pressure to keep an architecture program relevant to the shifting priorities of a land grant institution in the early 21st century.

The Unexamined continues and develops this initial line of questioning about critical practice, elaborating on theory, methods and practice. Inviting Jane Rendell to keynote the conference was a natural choice due to her stature and relevance to the concept of critical spatial practice. At the last minute she was not able to travel because of a strike across the United Kingdom that was opposing proposed cuts to pensions for those in higher education. Instead of traveling to the conference, she woke up in the middle of the night to give her presentation in Arizona by Skype so she could remain present in London to participate in the strike. The backdrop of the strike gave her lecture an especially memorable, critical context, which she related to her theories and experiences with ethics, research and teaching. What could have been a conference organizational disaster ended up being an inspiring lesson in personal character and ethics.

Since the conference the need to double down on our commitment to critical practice has grown even more apparent. The Intergovernmental Panel on Climate Change Special Report on Global Warming, released in the fall of 2018, made clear that the time we have to prevent the worst effects of climate change is dwindling rapidly. The pressures of migration and increasing political instability around the world have become impossible to ignore, especially from our location in Tucson, Arizona, close to the border with Mexico. We are reminded daily that architects, landscape architects, and planners are instrumental in creating the built environments that are the

[1] http://architecturemps.com/arizona/

backdrop for the global processes of late capitalism. There is a growing understanding in discourses about architecture and design that to be critical means not only to understand how our work perpetuates and accelerates global processes, but also to question how reframing the work of design might lead us to establish different trajectories for our culture and the built and natural environments we all share. This is an expansive definition of what it means to be critical, spanning education, practice, community engagement, and theory-building.

The work of the authors in this volume illustrates the potential of critical practice through a series of rich examples and theoretical inquiry. Building on Jane Rendell's work on critical spatial practice, many authors engage the discourse of contemporary design by expanding upon ideas that infuse political, social, and environmental agendas into art, architecture, and urban design. Critical theories of Marxist sociology introduced by Max Horkheimer in the 1930's can be traced from the first chapter onwards, registering in references to Noam Chomsky's disaster capitalism theories, and then again in Manfredo Tafuri's general critique of the architecture profession in the 1970's as a support mechanism for capitalist objectives. In many chapters, the authors cite concepts from materialist and assemblage theories, including those of Deleuze and Guattari, Michel de Certeau, and Kim Dovey, as well as the social complexity theories of Manuel DeLanda. The introduction of the aesthetic as a core value to be considered in contemporary practices arises in these writings by way of Maurice Merleau-Ponty's phenomenological position on direct individual experience as a means for understanding environmental conditions and human-nature relationships, is echoed through Graham Harmon's object oriented ontology and notions of enmeshing, and in Bruno Latour's arguments on the politics of science vs. the arts under contemporary climate change. Authors who are concerned primarily with the urban scale engage the reader with early thinkers, such as Walter Benjamin, who identifies architecture in the urban environment as a background that crafts life's social experiences. These ideas are echoed in the ideas of simulacra by Jean Baudrillard and in Henri Lefebvre's opposition of conceived and lived space. Experimental approaches to mapping urban conditions are addressed in several chapters, including Kevin Lynch's notions of human flows and interactions as a significant element of city form, Ian McHarg's ecological design theories informing contemporary GIS techniques, as well as William Mitchell's assessments of landscape and power and the emerging invisible conditions of technology pervading urban life. Many authors, in one way or another, tend to culminate their arguments around the reactions to late capitalism and technical determinism using the work of critical theorists, from the

significance of play by Miguel Sicart, to the optics of disciplinary methodologies by Henri Lefebvre, and the resistance to conformist operations of dominant culture by K. Michael Hays. The origins of such contemporary subaltern theories may indeed have roots in Michel Foucault's critiques of architecture and urban design, which make clear the instrumentality of these disciplines as mechanisms that serve authority and as an inherent form of social control. Yet the critique of the top-down influences from these critical theorists may be exactly why some chapter authors seek knowledge through theories of human psychology, such as those developed by Donald Broadbent and Amos Rappaport, or the feminist and sexual theories of Luce Irigaray. In sum, the diversity of theoretical discourse presented in this book reflects a common perspective with similar threads and echoes of thought in different contexts. At the same time, each chapter provides specific theoretical insights and nuance to spark our curiosities, raise questions, and engender hope for alternate possibilities to emerge.

Section 1, Working on the Ground, builds on the authors' first-hand experiences in design studios in Australia, in an informal settlement in Kenya, in the Ninth Ward in New Orleans, and in two redeveloped districts in Montreal. These chapters show how critical practice can shape pedagogy, community engagement, and research. In Chapter 1, Janet McGaw explains how she teaches a critical studio to engage international students in deeper exploration of the consequences of global flows. The techniques she uses, grounded in theory, set up the expectation that design is emergent and redefine difference as a "subjective and dynamic encounter between cultures which produces new hybrid architectures." Her approach helps students find a critical perspective to make sense of a changing world. In Chapter 2, Courtney Crosson and Kepha Ngito investigate the different ways access to water is controlled in an informal settlement in Nairobi, Kenya. Using Participatory Urban Appraisal as a method, they find that, despite past reform efforts and future plans to expand access to water, a critical perspective means considering how water distribution can be achieved effectively and equitably. Chapter 3, by Joern Langhorst, uses the lens of a built project in New Orleans's Ninth Ward to argue that the discourses of sustainability and resilience are built on fundamentally shaky ground. The design project described, a platform over the bayou, is used as a community gathering place. It reflects the concept of critical practice by providing a community a place to determine their own future. Chapter 4, written by Hélène Bélanger, Dominic Lapointe, and Alexis Guillemard, with Sara Cameron, discusses the rise of neighborhoods in Montreal where the techniques of tourism are reflected back upon the people the developers

and city planners hope to attract to the area. The authors question whether critical planning is possible and argue that public spaces should be designed in a way that is broadly inclusive, rather than that narrowly targets specific users and activities. These chapters set the scene for the rest of the book, illuminating the many ways the concept of critical practice can inform the work of design.

Section 2, Taking a Step Back, seeks to question the core assumptions behind how designers engage with the built environment. In Chapter 5, Eduardo Kairuz and Sam Spurr clarify the ramifications and complexities of coal mining in Australia. In defining mining ideology as a hyperobject, they engage with a form of resistance aesthetics, specifically with its scale and violence, looking at creative practice as a way to develop new forms of communication. In Chapter 6, Kathleen Kambic uses the example of the Colorado Compact to show how water resources have often been overlooked in the field of landscape architecture. The project has been managed and distributed through socio technical processes associated with capitalism and neoliberalism, often considered to be outside the boundaries of the traditional professional field. Yara M. Colón Rodríguez and Luz M. Rodríguez explore the situation after the Hurricane Maria disaster in Puerto Rico in Chapter 7, with a critique of the assumed irrelevance of the architectural profession to make transformative change. The chapter provides specific Puerto Rican architecture practices and case study examples that are pushing the boundaries towards the pluralist and critical place-making that the authors' positions aspire to. In Chapter 8, Najlaa Kareem ties together theoretical ideas to highlight and parallel a shift from the conventional praxis of architecture and urbanism which uses dualisms, to a more process-based, inclusive design methodology. Peter Eisenman's work as a theorist and practitioner is highlighted to explore these new directions in critical architectural practice. These chapters invite us to question our frameworks and propose a way to work toward change.

Section 3, Making in Detail, focuses on creative work that engages critical practice in the space between art and architecture. Each of the four authors locate their work in the field of critical theory and explain how this perspective has informed their practice's work. Julia Jamrozik presents her interactive public installations in Chapter 9, which engage multi-generational populations with acts of play and curiosity, offering a lens to view the concept of play as a socially liberating force in the public realm. In Chapter 10, Andrea Wheeler explores nontraditional relationships of humans and nature and the resultant ecological aesthetic and sustainable implications. She highlights the increasing need for the inclusion of

aesthetics and ethics in the field of sustainable design and narrates an exhibition of kites at the Venice Biennale, which reflects and anticipates these questions. Kathy Waghorn's practice is discussed in Chapter 11. She describes her work as an event marked by openness and change rather than something bounded and static. It is a process of exchanges. She puts her projects in conversation with the dynamism of assemblage theory as opposed to static concepts of the master narrative and plan. Beth Weinstein's work in Chapter 12 delves into the instruments, artifacts and laborers in our midst. It shows how her performances engage the senses and body in a series of multi-layered critical, spatial practices that challenge and reveal the seemingly at times invisible processes and their manifestations in our midst. These chapters put a spotlight on the significance of the moment of interaction—between people and people, people and objects, and objects and other objects—in critical practice.

Section 4, Transforming What's Next, brings the perspective of critical practice to bear on the technological changes transforming our world. In Chapter 13, Maya Przybylski discusses software-embedded design, where computation is key to the ongoing mediation between the designed object and the external world. Drawing from concepts in the field of Software Studies, she argues for a higher level of literacy, not just in computational techniques, but also in the qualitative and quantitative aspects of data quality. These "soft materials" profoundly transform the way space is designed, used, and experienced. In Chapter 14, James Brazil, Shruti Khandelwal, and Esber Andiroglu outline a proposal for a way the urban built environment could be better integrated with the food production system. Their concept uses a dynamic model to match the food needs of a given population with the affordances of different building types and locations. Chapter 15, by Celen Pasalar and George Hallowell, raises provocative questions about the implications of smart technologies that suggest a top-down, rather than bottom-up, implementation of technology with a primary focus on efficiency. The authors suggest planners work towards a human-centered perspective on how planners could evaluate the interaction between the implementation of smart technology and the goal of creating high-quality places for everyday experiences. In Chapter 16, Marantha Dawkins begins by describing landscapes as the result of power relations. Applying this lens to present-day Pittsburgh, she introduces the concept of the superorganism, returning agency in a landscape that has long been dominated by human activity to an ecosystem of plants. She describes a project called Behavioral Landscape, a collaboration with Nicolas Azel, that shows how critical practice works from theory to design. Together, the

chapters in this section show the role of theory in creating—and critically questioning—new futures.

Much of the work in this volume makes an explicit or implicit case for foundational change in the practice of design. Some see data-driven approaches as a way to advance the goal of equity, while others argue for a fundamental shift in the theoretical underpinnings of design. While critical practice resists a categorical definition, one shared element is a continual drive to challenge assumptions. Future work in the field should continue in this tradition, ensuring that we shape the conversation to engage students, practitioners, policymakers, along with everyday people, to engage as thinkers and makers of the built environment.

SECTION ONE:

WORKING ON THE GROUND

CHAPTER 1

USHERING IN A NEW ERA OF CRITICALITY: PEDAGOGIES FOR THE DESIGN STUDIO

JANET MCGAW

Introduction

The term 'critical' pervaded architectural theory and practice in the latter decades of the 20th century. Coined first by Marxist sociologist Max Horkheimer in the 1930s, critical theory sought liberation from injustice through a transdisciplinary interrogation of society from the social sciences – history, geography, economics, politics, psychology and anthropology (Horkheimer 1972, 188-242). Critical theory was adopted by architectural historian Manfredo Tafuri in the 1960s (Tafuri 1980), but it did not became common parlance in the discipline until the 1980s and 1990s through K. Michael Hays' essays and editorship of *Assemblage* from 1986, which challenged the ideological apparatuses that shaped disciplinary practices. According to Jane Rendell in her introduction to *Critical Architecture*, interdisciplinarity was the key mechanism for bringing a 'critical outside' to bear on spatial and environmental practices in architecture (Rendell 2006, 1). Anthropology, philosophy, feminism and ecology have all cast critical light onto the discipline, illuminating many of the shadows in which dogma, presumption and traditions of the Modern era lurked. The design studio was an important testing ground. Over the same period 'integrated world capitalism', a term coined by Felix Guattari (Guattari 2000), has continued to flourish and we now find ourselves in a world that is thoroughly interconnected through trade, the internet and intercontinental travel. Universities around the world have become key nodes in the global flow of people and capital.

The rise of capitalism might appear to signal the end of criticality even in the academe, the place that traditionally fostered it. But this paper will argue that a different form of criticality has silently crept into our studios. International students bring with them perspectives that have the potential

to bring new meaning to the term 'critical outside'. Architects in the 1990s turned to other disciplinary perspectives to shed light on their disciplinary blind spots, but the 21st century brings 'hybridity, ambivalence and difference' (Huddart 2006) into the design studio itself, challenging educators to develop new pedagogical approaches. This paper presents a strength-based teaching model for masters-level design studios. That is, one that capitalizes on the knowledge, motivations and often unrecognized criticality of international students. Students are both informed about and personally motivated by ecological, economic and political challenges they have witnessed in their home countries. Using three graduating design projects as case studies this paper demonstrates pedagogical techniques including multi-scalar critical mapping, collaboration and material thinking, that enable students to lead architecture into new lines of critical inquiry.

Age of Complexity: The changing spatial, temporal and social conditions of the architecture studio

Over the past three decades the spatial and temporal conditions of the architecture studio have changed as a result of fundamental shifts in university education and the geo-political and environmental challenges faced globally. Five million tertiary students were enrolled in universities outside their home country in 2014: around 20 percent in institutions in the USA, the most popular destination for international students, followed by 10 percent in the UK and 6 percent in Australia, where they make up around a third of all students (Zong and Batalova 2016). In Australia, transformations have been particularly marked. Prior to the mid 1970s, fewer than 200,000 local students went to one of the dozen universities in the country. After 1974, universities proliferated as higher education was made free to Australian citizens. Free tertiary education was a radical social experiment by a Labor government that lasted 15 years from 1974-1989. By the 1990s student numbers had tripled and the cost of providing university education at no cost to the student was deemed prohibitive. Government loans and deferred fees were introduced first, and then, in 2000, full tuition-paying places were opened to international students. After the introduction of full fee places for international students, enrollments spiked again. There are now over 1.2 million tertiary students enrolled, 30% of whom are international.

The number of universities has grown in response to the demand, but not as rapidly as student numbers so the spatial footprint available to students has diminished markedly and there is no longer space allocated for

permanent studios in many institutions that deliver architecture programs. Degree time frames have also been compressed, with 5 year undergraduate architecture degrees replaced by 3 year degrees followed by graduate studies, which allow students greater flexibility to select electives and non-cognate subjects alongside their architectural education. Where once students learned informally, through play and experiment in studios with their peers between formal tuition, now they 'hot desk' in corridors and libraries, occupying studio spaces briefly during formal tuition times. The social space of the studio has also transformed. Not just with the international make-up of students, 30% of whom speak English as a second language, but with the presence of laptops as a non-human participant in the classroom. Digital technologies have facilitated collaboration between students who are spatially separated outside of class times, but are often social disrupters to collaboration when students are working side by side.

As a consequence, many of the dominant studio teaching techniques from the latter part of the twentieth century no longer work in the contemporary studio:

- the pin-up and crit by the studio leader, because this favors confident, extroverted students whose first language is English;
- allowing relationships to evolve naturally, because students, like any other social group, tend to first seek out friends who are similar, eschewing difference;
- learning through osmosis from peers, because this requires shared workspaces that can be inhabited over long durations; and
- learning through indoctrination from practicing architects, because lessons from Western post-industrial contexts are not necessarily useful for emerging industrial economies in Asia or for an environmentally fragile world.

These and other changes within universities reflect broader societal and environmental changes: population explosion, rapid urbanization, climate change, global mobility and the dominance of integrated world capitalism.

While design studios in architecture schools in the latter half of the 20th century were politically charged critical spaces where ideology and dogma of the Modern Era were critiqued, contemporary architectural practice is largely complicit with global capitalism and design studios often follow suit. Architecture is an active participant in the design of new urban agglomerations, and, despite the move to developing more sustainable building practices, the building industry is a significant contributor to

climate change (Abergel, Dean and Dulac 2017). Many of the world's contemporary celebrity architects – Frank Gehry, Daniel Libeskind, Rem Koolhaas and others - who had been educated in the critical studios of the 20th century have been co-opted by the global higher education market. "Starchitecture" is now traded as important symbolic capital and used for branding cities and institutions as destinations of choice (Knox 2012). Examples include OMA's Milstein Hall, at the University of Columbia (2011); Gehry's Sydney University of Technology's new business school (2015); and Libeskind's Ogden Centre for Physics in Durham (2013-16). Students need to be re-equipped to see architecture as a tool that can positively intervene in politically charged and ecologically damaged environments, rather than simply be a tool of the market.

Architectural and urban design academic Ashraf Salama has argued that it is time to develop a 'trans-critical' pedagogy in design studio teaching that responds to the complex conditions of our age (Salama 2015, 15). What he means by this is a studio culture in which critical reflection is equally transferred between students and educators, and where knowledge is drawn from transdisciplinary contexts. It is a shift away from a mechanistic teaching style to a systemic pedagogical approach in which educators eschew didactic lecturing in favor of a less hierarchical and more fluid model. He imagines studios as a place where students and teachers alike share and reflect on their own varied histories and knowledges through dialogic, collaborative and transdisciplinary learning grounded in the social and environmental issues that will confront students when they graduate (Salama 2015, 311-312).

Pedagogical Approaches for the Contemporary Critical Studio

I have been running a Masters of Architecture 'Thesis' (graduating) studio since 2016 (in 2017 eco-scenographer Tanja Beer co-taught it with me). In this studio, students were asked to intervene spatially and materially in sites where there is an intensity of global flows - of people, material, data and capital. Architectural materials now flow freely across spatial borders, capitalizing on weak labor laws and low currency values in newly industrialized countries. Yet people are not allowed the same freedoms. Border patrols are becoming more stringent and digital surveillance is ever increasing. Nationalism, terrorism, materialism, and global warming dominate media headlines. Global manufacturing grows apace powered by burning fossil fuels, despite concerns about climate change. Architects

enjoy the availability of many of these materials for the structural and decorative freedoms they afford at low monetary costs with little awareness of the materials' hidden social and environmental implications. I challenged the students to find possible spatial and material ways out of global dilemmas. What are the inferior categories? Where are the fault lines in our urban condition? What unexpected materials might become precious? Following Ashraf Salama's trans-critical pedagogical model, I imagined my role more like a conductor than composer. I resisted setting a brief or choosing a site or giving too many answers. Rather, the studio posed questions and challenges and then scaffolded the students with techniques to focus their inquiry in order to draw out the best performances of each player in the room. While the questions were undeniably "wicked problems" (Buchanan 1992, 5-21)—ones without answers, without stopping rules, and with a multitude of solutions—the techniques enabled students to perceive them as generative opportunities. The techniques, which will be summarized briefly and then elaborated on with more specificity using case studies as examples, are strength-based approaches that capitalize on students' prior knowledge and concerns and the social and cultural complexity within the design studio itself.

The first challenge to overcome is fostering collaboration in studio groups characterized by social and cultural (and often language) differences. I use two techniques in the first two weeks of the semester: small group work with very tight time frames and a 'speed dating' style peer-peer crit session.

The small group work is set on the first day of class. Groups of three students are set tasks to develop a group presentation within 3 hours on an unfamiliar topic. Two topics are transdisciplinary: global populations in transition and the global refugee crisis, which requires research into unfamiliar contemporary geography discourse, as well as current affairs. A third line of inquiry is into disciplinary precedents, but ones that are generally unfamiliar to students: architectures of detention and innovative contemporary alternatives. Because of the time frame and newness of the content, students cannot retreat to their corners and work independently. Nor do they have enough time to procrastinate as they need to have a presentation ready for the last hour of the class. An individual task is set for students to work on before the next class to consider the presentations they had heard and prepare a 90 second statement about a specific 'global flow' that either concerns, intrigues, frightens or enlivens them and to uncover a social, environmental, economic, political and a technological issue related to it. It has proven to be a very effective approach for demonstrating the

value of collaboration as each group needed to hear the research from the other groups to prepare for the next class.

During the 'speed date crit' half, the students are lined up along one side of a long table, and the other half sits facing them on the other side. Every student has to introduce themselves, present their initial response to the challenge to the student opposite them in 90 seconds, and then that student is required to introduce themselves a give a 'P,M,I – plus, minus, interesting' response in another 90 seconds, before moving on. The rapid fire presentation, repeated 15 times, enables students to become clearer about their thoughts. It also makes each student converse with every other student in the class, disrupting the usual process of formation of smaller cliques. Sharing their work in a more intimate context is also less confronting than a pin up to the whole class. The effect is that students start the journey of becoming more connected to each other's concerns.

By the end of the second week students have identified a global flow that they are interested in or concerned about and have a growing awareness of the social, environmental, economic, political and technological issues related to it. The next three weeks are oriented toward spatializing that knowledge and allowing a specific research question to 'emerge' that could be addressed through architecture or urban design on a real site.

Emergence is a term used across a range of disciplines – philosophy, biology, mathematics, economics – to mean the process by which new and coherent patterns or structures spontaneously form in complex systems. It has come into the architectural lexicon over the past decade through the work of Weinstock, Hensel and Menges, where it has been primarily associated with generative digital design techniques. But, as architectural theorist Michael Tawa has argued, these technologies explore a particular strand of emergence – usually formal or spatial pattern formation - ignoring other registers, such as the emergence of "ingenuity, innovation, novelty, creativity, originality and intentionality" and the emergence of social complexity as articulated by Manuel DeLanda (Tawa, 2012, 1-2). Much like the appropriation of philosophical concepts of deconstruction in the 1980s[1]

[1] Peter Eisenman's collaboration with philosopher and literary deconstructionist Jacques Derrida for the Parc de la Villette design competition in 1982 spawned the term used to describe a wave of geometrically angular and structurally complex architecture that defied the cartesian grid of the Modern Era (Derrida and Eisenman 1997), along with the *Deconstructivism* exhibition at the Museum of Modern Art New York, 1988, curated by Philip Johnson and Mark Wigley. Feminist architectural theorist Jennifer Bloomer argued that their approach may have deconstructed the

and smoothness in the 1990s, emergence has been more often used by architects as a tool for generating geometric complexity rather than the percolation of other forms of complexity – social, political, ecological, or economic – in design thinking.[2]

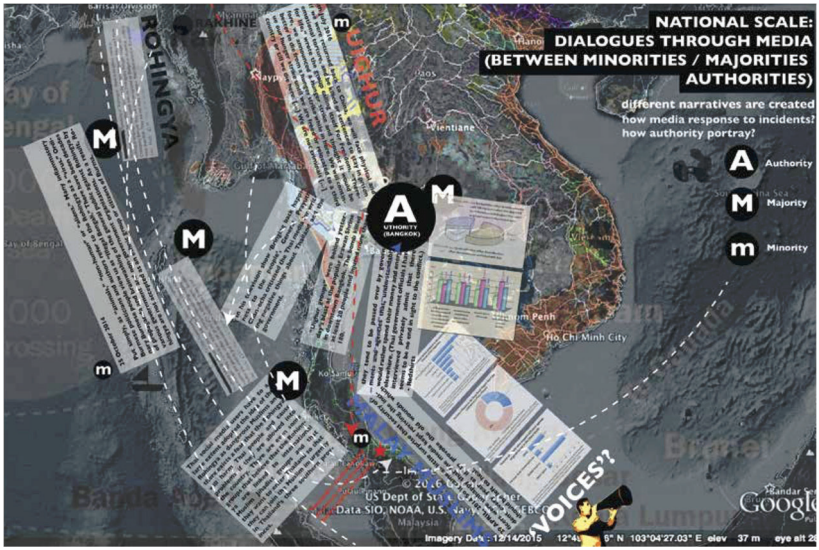

Fig. 1-1. Yanisa's text-net.

The next two weeks introduce emergent design research techniques to continue to broaden their enquiry into other disciplinary modes of thinking, and to spatialize their discoveries. These techniques are 'text-nets' and multi-

design tropes of the architectural cannon but it failed to deconstruct other power relations in the discipline, a core ambition of philosophical deconstruction (Bloomer 1993). Derrida himself expressed similar reservations (Derrida 1990, 6-13). Smoothness, half of a conceptual pairing, with striation, are terms coined by philosophers Gilles Deleuze and Felix Guattari to describe the forces (political, physical, structural etc.) that produce space (Deleuze and Guattari 1987, 474-500). But again, Eisenman takes the term and interprets smoothness in its most literal formal sense, using the newly developed NURBs surfaces in computer aided design to design a curvilinear forms which he describes as smooth surfaces (Eisenman, 1999).

[2] Exhibitions like "Architectures Non-Standard at the Centre Pompidou, Paris", 2004, and publications by Hensel (2004), Weinstock (2010), and Menges, Weinstock, and Hensel (2010), as well as educational projects such as the "Emergent Technologies and Design Program at the Architectural Association" have been key disseminators of emergence to the discipline.

scalar critical mapping. The first is a technique for exploring the literature, and the second for spatializing the global flows and finding a site. The text-net is a tactic I have developed for thinking laterally, allowing new knowledge to emerge and keeping a track of the research journey. In contrast to a mind map, which hierarchically spreads outwards from a central theme in many directions, a text-net is a collaged network of key references which are interconnected. It includes scholarly discourse across different disciplines, news reports, poetry, and any other kind of writing pertinent to the research issue. It also includes images from art, architecture or other creative precedent.

The multi-scalar critical mapping is a technique based on landscape architect Christophe Girot's technique of finding a project through close readings of a site (Girot 1999).[3] Instead of working on the scale of a site, students are required to do four maps: a global one, a national one, a regional one and a local one.[4] In each map the social, historic, environmental, and economic stories connected to the global flow need to be made evident. This process ensures that students hold in mind the complexity of the issues they are exploring. Projects emerge from this complexity that are relevant to real world problems at a variety of scales, such as rising oceans due to climate change, the flow of terrorism, and overconsumption of resources. Students are encouraged to hone in on 'sites of intensity' that relate to their evolving area of interest, first at a national scale, then regional, and finally at the scale of site. I resist defining 'intensity' too specifically, but students usually understand it to be a region on the map where events around their research topic intensify, prompting intrigue, curiosity, and a personal emotional response. At the national scale I have found that the issues tend to be political and cultural. At the regional scale the intensities seem to become more often social or cultural events, enabling students to start imagining programmatic interventions they could make. Once students reach the scale of a site they are encouraged to explore it for material potential. What unexpected materials emerge from the site? What materials have cultural value? What materials are abundant? What materials might have been overlooked? With varying levels of interest, depending on the scale of their projects, students engage in material experimentation and research. As the students continue to develop their text-nets, a process of writing and reflection evolves, following Paul Carter's theorization of material thinking

[3] It is comprised of landing (arriving prepared to discover), grounding (reading a site through successive encounters), finding (through a mixture of methodical study and serendipity) and founding (where all three come together to form a project).
[4] This is a technique I have adapted from a method used by landscape architecture academic and colleague Jillian Walliss.

(Carter 2004). Despite the enormity of the initial concerns, I have found through this process a design projects invariably emerge for each student that is place specific and personally significant. This paper will focus on the work of three students as case studies to illustrate the approach in more detail: Yanisa Niennattrakul from Thailand, Lian Chen Ng from Malaysia, and Minhui Huang from China.

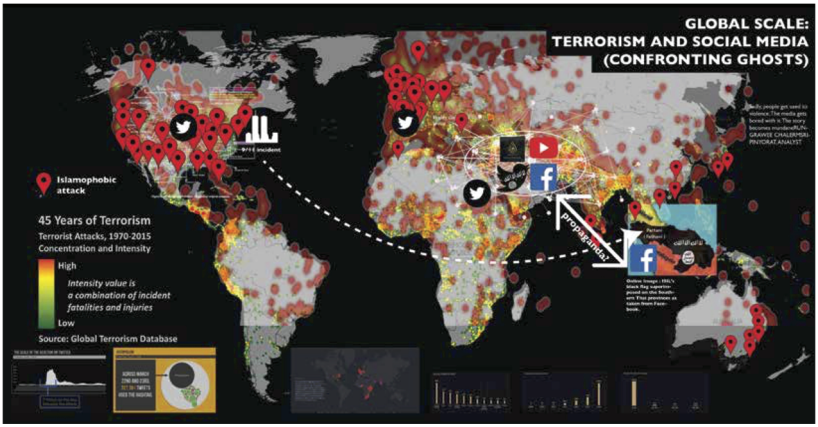

Fig. 1-2. Yanisa Niennattrakul's global map.

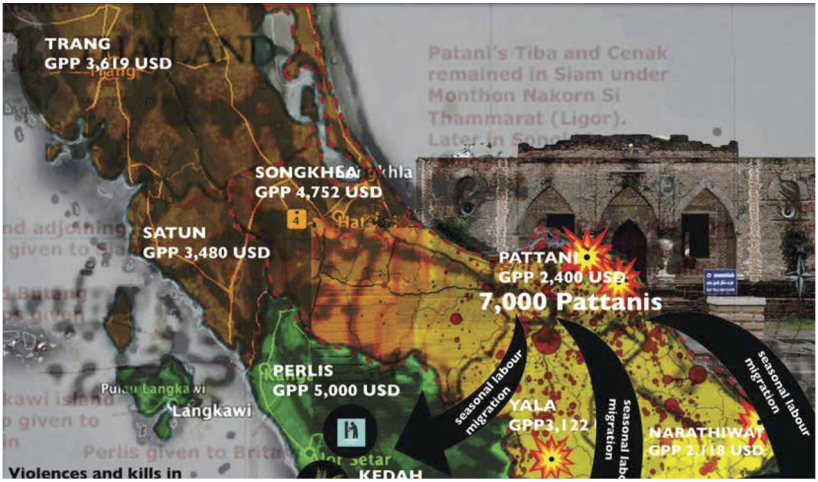

Fig. 1-3. Yanisa Niennattrakul's regional map.

Fig. 1-4. Yanisa Niennattrakul's local map.

Fig. 1-5. Yanisa Niennattrakul. Annual installation of salt blocks in the wall of the anti-memorial before the monsoon, where they slowly wash away.

Fig. 1-6. Yanisa Niennattrakul's anti-memorial for the victims of the Krue-se mosque massacre in Pattani Bay. The pavilion, inspired by the vernacular architecture in the area, is inaccessible during the monsoon season.

Niennattrakul began her search for a design research project through an exploration of terrorism and its relationship to the global flow of media. She mapped Islamaphobic terrorist attacks across the world for the past 45 years and the flow of propaganda related to it via social media. The following week Niennattrakul followed an intensity she perceived on her map to Thailand, her own country of origin. She continued her research into media and terrorisms and found different narratives promulgated by Thai authorities reflecting the cultural values of the Buddhist majority, to those told by the Rohinghya and Uighur Muslim minority groups that live near the Malay border. The massacre by Thai authorities of thirty-two Muslim militants who hid in the Krue-se mosque, the oldest in Thailand and a symbol of Muslim identity, had been memorialised with a giant, bullet-shaped monument. She asked: whose loss should be memorialised and what kinds of memorials are appropriate? Zooming in to the local area Niennattrakul discovered that the bay adjacent to the Pattani mosque had been damaged by industry resulting in the loss of green mussels and mangroves. The local salt farming industry was disappearing, too. In response Niennattrakul decided to design a new community-based salt

production workshop and an ‘anti-memorial’ to those who were killed in the Krue-se mosque in Pattani Bay incorporating salt blockwork. The salt blocks are produced in the workshop for an annual pilgrimage along a boardwalk through a regenerated mangrove edge and out to the armature of a pavilion in the bay where they are laid down as walls. When the monsoon comes, the water rises in the bay and access is no longer possible. Instead viewers witness the salt bricks gradually wash away to expose the armature once again.

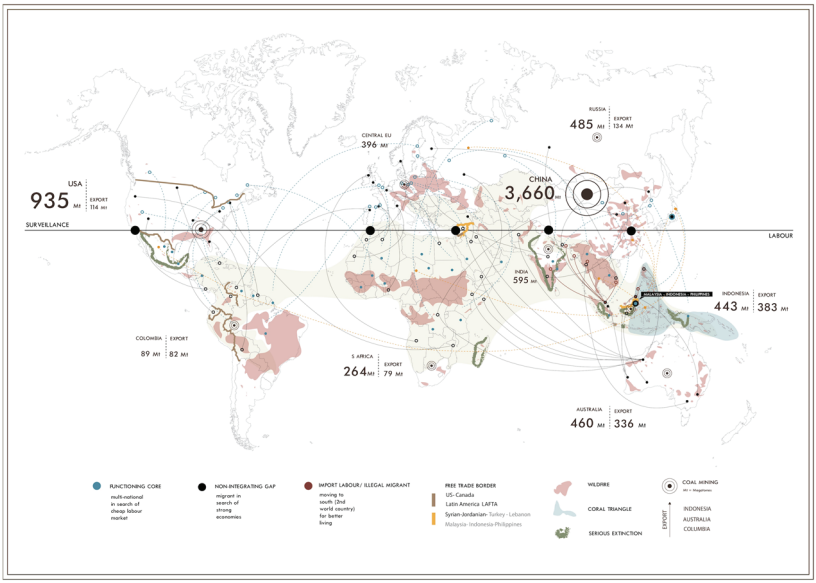

Fig. 1-7. Lian Chen Ng’s global map.

Ng began with an interest in the global trade of coal. She mapped the volumes and trajectories of coal trade, the porosity of borders between nation states, the human workforce involved and three key environmental conditions that were vulnerable to trade on land and sea: species extinctions, the south-east Asian coral triangle, major forest regions, and key areas of species extinction. The human workforce was broken into categories: multi-national companies in search of cheap labour; migrants in search of stronger economies; illegal immigrants escaping failing economies. Zooming in to regional scale the following week she focused on the Malay-Polynesian archipelago and the seas within which they lie. Like Niennattrakul, she was drawn to the region of the world that she came from. In this region, different

forms of trade became important to consider in addition to coal: tuna and palm-oil. The environmental factors related were carbon-monoxide concentration from burning forests and coal. Complex social issues around borders included a long simmering insurgency since 1970 related to the southern Philippines civil war leading to piracy, kidnapping, and extortion; illegal immigration from Indonesia to Malaysia in search of work, and stateless sea gypsies engaged in illegal trade. The next level of detail she explored was the Indonesian-Malaysian border on the island of Borneo where endemic forests are being burned to make way for palm oil trade on one side of the border and small scale trade is suppressed on the other. Ng found that there was significant waste fibre from the palm oil industry that had the potential to be used in building products. Through this process she located a site at a river mouth on Malaysian-Indonesian border in Borneo where she decided to design a transnational free trade hub for both nations and sea gypsies alike. The architecture straddles the boundary and bridges the river mouth providing not just an economic zone but an opportunity for new social relations to evolve. The architectural form and decorative motifs on the wall panels she designed reference textile traditions that are shared across both nations.

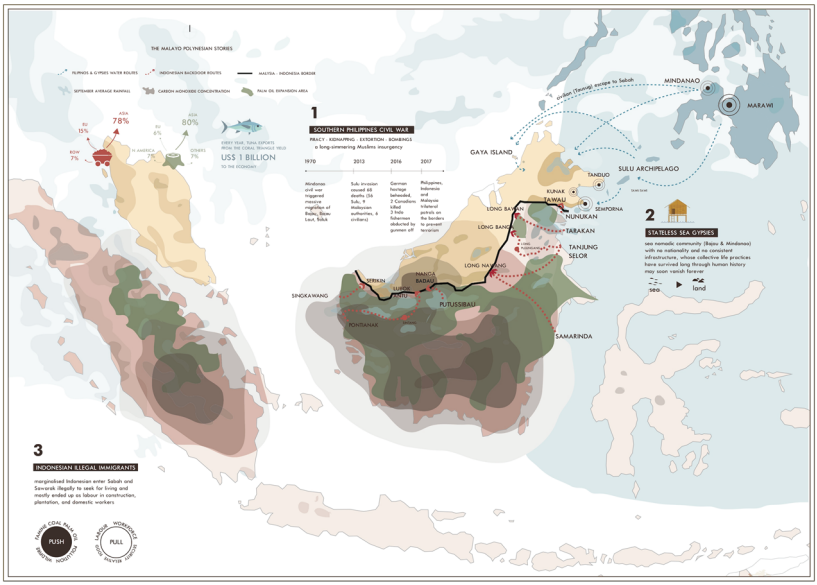

Fig. 1-8. Lian Chen Ng's regional map.

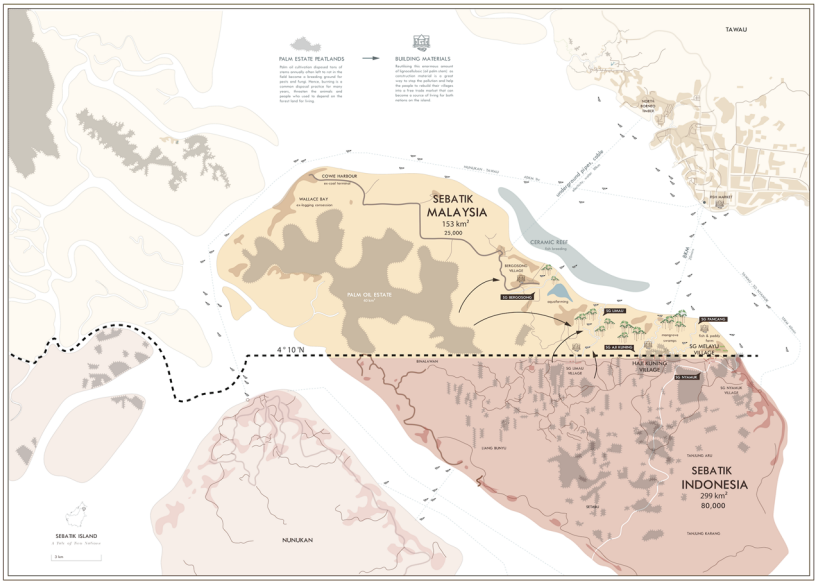

Fig. 1-9. Lian Chen Ng's local map.

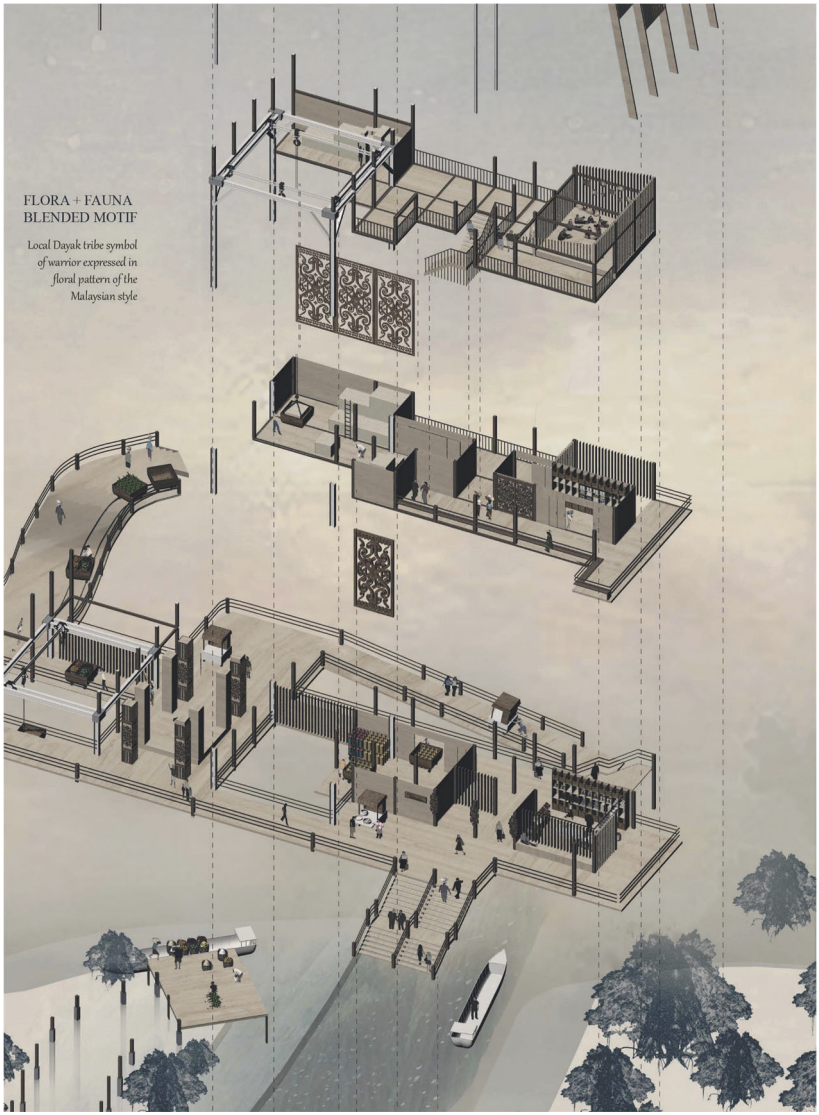

Fig. 1-10a. Lian Chen Ng's final design for the free trade hub in Borneo on the Malaysian- Indonesian border.

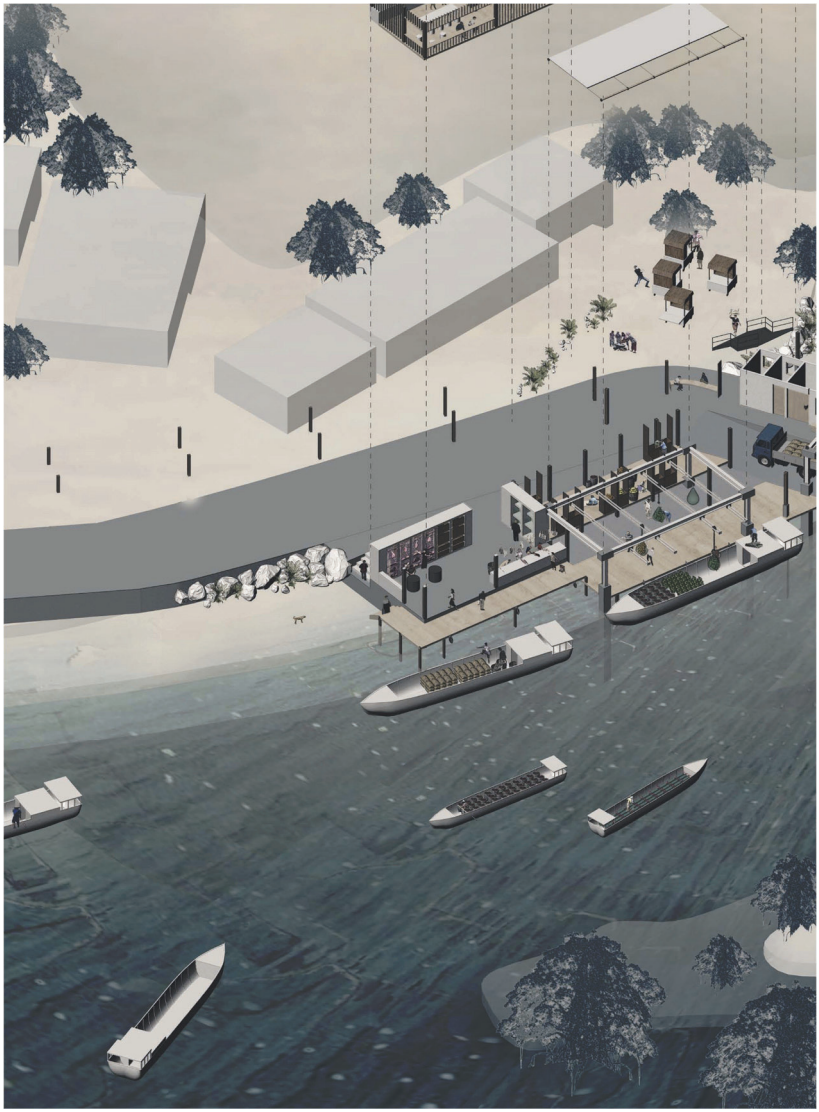

Fig. 1-10b. Lian Chen Ng's final design for the free trade hub in Borneo on the Malaysian- Indonesian border.

Fig. 1-11. Lian Chen Ng's Malind'or.

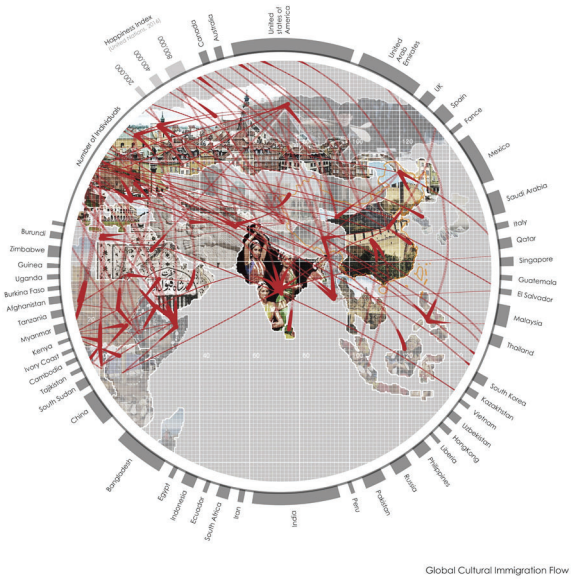

Fig. 1-12. Minhui Huang's global map.

Huang's global map was concerned with population size, multiculturalism, and performance on the United Nations happiness index. She discovered that, unlike some dense, multi-cultural countries, China performed poorly on perceived happiness of its citizens. Huang, who came to Melbourne from mainland China, focused on south-western China, where she mapped internal cultural migration of minority groups. Huang discovered that Kunming city has 26 minority groups, the Bai being the largest. Bai children were being cared for by grandparents because their parents had left for work in urban centres and formal education opportunities were scarce. There was also little opportunity for children to learn about their own culture in a supportive environment or for elders to be supported in caring for the children. She explored Bai cultural practices, tracked down and interviewed Bai students on campus, researched Bai vernacular architecture and village design. Zooming in further, she discovered agricultural practices involving burning which were exacerbating the problems of air pollution in China. Through this process she decided to design a Bai cultural centre adjacent to the Dianchi Lake in Kunming City where key seasonal events—the Bai torch festival, March market, tye-dying, and the polygonaceae flower festival—could be celebrated. During other times the centre would operate as a kindergarten where elders could come together and teach their

grandchildren cultural knowledge as a way to invigorate and value cultural difference through a place-based intervention.

Interestingly, while all students chose a part of the world to which they had cultural ties and about which they had some prior knowledge, they also chose specific areas in their home countries that they had never visited. They were captured by regional socio-cultural and environmental concerns, but were equally willing to use the design research tools we taught them to take them on a journey of discovery and reflection. Yanisa took a path of resistance, developing a design response that directly challenged the Thai government's violent repression of an ethnic minority in her home country, a region where ethnic tensions continue to simmer. Ng too was motivated by social concern for minority groups in Borneo and its surrounding seas but also the environmental consequences of large scale rapid deforestation of endemic rainforests, which are replaced with introduced palm plantations, the oil from which is paradoxically used to make bio-fuels. Huang's consideration of the plight of China's Indigenous peoples by designing spaces where difference is fostered is quietly radical. All three developed complex programmatic responses which were also socio-culturally, economically, and politically subversive. All three also demonstrated concern about ecological devastation in their homelands: the air pollution in China, mangrove degradation in southern Thailand, and the species loss and ecological devastation in Borneo. Subsequent material thinking unfolded—experimentation, research, and critical reflection—to test the latent potential of unexpected building materials. Throughout the semester, students found problems that are global in nature have local effects, and as the scale sharpened around geographies that they knew, their personal investment in applying their disciplinary skills to the problems increased.

These spatial journeys levelled unexpected critiques at architectural and urban design practice too. Students developed novel programmatic responses to the issues they chose to address; they investigated unexpected materials for use in construction; and they developed hybrid aesthetic approaches that were informed equally by vernacular traditions and contemporary architectural design practices. And the varied interests in the studio group and the collaborative approach meant that we all—educators included—learned from each other about social, cultural and environmental issues that are unfolding in parts of the globe we knew little about. Engagement with a range of other disciplinary discourses remains a core aspect of critical thinking, but students' active sharing of the knowledge that arises from their own varied personal histories introduced a different 'outside' into the studio context.

Transformative and critical pedagogies: the Critical Outside Is Within

Homi K. Bhabha's theory of the way colonisation suppresses minority cultures and the way, in turn, minority groups resist cultural hegemonies is helpful for understanding the studio culture that evolved. Many studios operate on a model of cultural assimilation, or indoctrination, into the dominant culture. This includes architectural design's disciplinary techniques, but also dominant aesthetic mores from Western post-industrial design contexts. When this happens the international tertiary institution becomes a new colonising force—not by operating within a nation, but by transforming its citizens through inculcation into Western dogmas while they are studying abroad. Students struggle through education in an unfamiliar language, they learn the construction systems used in the Global West, and are assimilated into its dominant aesthetic sensibilities. But there is often an ambivalence that resists the smoothing processes of indoctrination. The global flows studio actively encourages students to embrace this ambivalence and use 'difference' as a path to a critical practice. 'Difference' is not the fixity of a cultural stereotype, rather it is a subjective and dynamic encounter between cultures which produces new hybrid architectures.

All three students discussed in this chapter developed hybrid designs that reflected their international education but also their regional knowledge—aesthetically, materially, and typologically. Ng's decorative motif for her transnational free trade hub derived from the different batik traditions in Indonesia and Malaysia, and the draped roof form was inspired by the traditional selendang shawl. These are shared textile traditions across both nations, but they are also distinct. The Indonesian batiks use fauna in their designs, while the Malaysian design is floral, reflecting their different religious histories. Ng developed a hybrid building design that symbolically links the two nations in a new node for economic trade and cultural sharing. But there is also evidence of her incorporation of knowledge she has learned in her architectural education about construction methods and formal manipulation using digital design tools. Yanisa's design drew on the vernacular building typology of southern Thailand with its light weight construction, elevated foundations and wide, gently sloping gabled roofs. But it is also transformed into something entirely new after her encounters with contemporary discourse on performative art practices and critiques of memorialisation. Huang's hybrid typology brings together education for children and a museum that records cultural histories and contemporary

practices to create a dynamic, living, cultural centre enlivened by daily use and cyclic, seasonal events. She too has studied Bai architecture and the traditional arrangement of Bai villages to inform her hybrid formal and material approach.

Conclusion

Embracing the diversity that international students bring to design studios demands different teaching approaches. This paper has explored a strength-based approach used in studios led by the author (one in collaboration), which produced 'critical' architectural and urban design practices. Case studies of three students have been used as examples to demonstrate the capacity of students to lead their own explorations of geo-political and environmental instabilities that are global in reach but have local specificity and to develop design interventions in response. The students were scaffolded early in the semester with teaching techniques to encourage collaboration that helped with peer-peer learning and were taught design research techniques—text-nets, multi-scalar critical mapping and material thinking—to enable independence in developing their projects. The outcomes were rich, critical and diverse. International students arrive with their own particular knowledge and concerns. If given the opportunity they can choose unexpected sites and invent programmatic and material responses that challenge the ideological apparatuses of disciplinary practice. As neoliberal agendas increasingly shape universities and architectural practice, we would do well to embrace the new 'critical outside' that has crept into our studios.

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CHAPTER 2

INFORMAL WATER SERVICE PROVIDERS: WATER ACCESS AND QUALITY IN KIBERA INFORMAL SETTLEMENT IN NAIROBI, KENYA

COURTNEY CROSSON AND KEPHA NGITO

Introduction

One of the key services of governments worldwide is to provide water to the population. The informal settlements in Nairobi, Kenya are characterized by infrastructural disorder, creating an obstacle to the provision of basic municipal services such as water, electricity, housing and sanitation. The resultant failure in municipal water service delivery has led to the propagation of Informal Water Service Providers (IWSPs) (Crow and Odaba 2009). IWSPs govern pirated or existing water taps or wells to manage the delivery of water to residents. Although recent efforts have been made by the Government of Kenya to reform water policy to provide more efficient and consistent distribution (e.g. Kenya Water Act of 2002 and 2016), IWSPs remain the dominant method of water distribution in informal settlements. Absent or inefficient formality has paved the way for informal systems to govern water resource distribution.

Until recently, the study of urban water has been focused on centralized piped supply with the goal of universal service throughout a city. Katherine Bakker (2003) observes that this single network model for water distribution is rooted in the context of typical urban development in the Global North. In many cities in the Global South, the ideal of a single water and sewerage infrastructure has been abandoned. Instead, a multiplicity of formal and informal providers service a diverse urban population (Graham and Marvin 2002, Bakker 2003, Ranganathan 2014, Meehan 2014). In Bakker's words, "In cities in the South, in contrast, networks are often partial; water and wastewater are metabolized through a complex temporal and spatial weave

of water use practices and methods of disposal (Bakker 2003, 337).” Instead of a homogeneous supply over the urban landscape, water providers overlap, interpenetrate, and provide alternating services (Bakker 2003, 337). Because of the spatial and temporal layering of IWSPs, there is a hypervisibility to the water infrastructure in Nairobi settlements, which bares stark contrast to the paradigm of a single network quietly hidden from city life. Nikhil Anand (2017, 17) argues that “against the normative expectations of infrastructure’s invisibility, the hypervisibility of infrastructure in cities of the Global South is often taken—by scholars and administrators alike—as evidence of pathological breakdown, of ‘not-quite’ modernity.” In place of the modernist ideal of large technical systems and integrated networks, IWSPs rely on people as infrastructure in the delivery of water (Simone 2004, 407-429). The fixed assets of water mains, pipes, pumps, reservoirs, and sewers are augmented by a dynamic system of informal providers working to make an urban living.

Recent studies of water infrastructure in the Global South have produced new terms to describe the unique spatial registry of water service operations. Stephen Graham and Simon Marvin (2002) have characterized the fragmentation and uneven development of infrastructure in cities in the Global South as splintered, with a multiplicity of formal and informal provision mechanisms. Bakker (2003) specifically characterizes the water infrastructure of cities like Nairobi where there has been a move to shift power away from central government. She employs the term “archipelago” to describe the spatially separated but linked islands of networked supply. From this analysis, Bakker further argues for greater attention to be paid to urban informality and the broad range of community and cooperate organizations involved in the supply of water. These water archipelagos can be mapped through two axes. One axis spans from cooperate to community control, while the other extends from artisanal to industrial technologies. This chapter specifically focuses on IWSPs, which mainly inhabit the community control and artisanal quadrant of Bakker’s classification (Bakker 2003).

Building on Graham, Marvin, and Bakker, this chapter investigates the management of water supply and distribution conditions in Kibera, an informal settlement home to around 450,000 residents in the southern part of Nairobi, Kenya (UN-Habitat and the Government of Kenya 2004). The estimated half million inhabitants of Kibera informal settlement continue to lack essential water services distributed by a credible, legal and efficient state-sponsored body. The population is served by IWSPs who provide water and maintain control in the settlement, often through illegal

mechanisms. Consistent with existing literature, the study finds that households in Kibera pay almost four times the price for water and face greater frequencies of water shortage and outage than other households in Nairobi (Water and Sanitation Program 2005, 6). The over-burdened formal sector cannot reliably supply water in informal settings like Kibera. Within its infrastructural disorder, IWSPs are able to address this water service gap. IWSPs offer a partial solution, but at a much higher consumer price due to the absence of government regulation. This study asks: do IWSPs provide the most efficient, coordinated, and sustainable solution for water delivery in informal settlements, such as Kibera?

To answer this question, the study used Participatory Urban Appraisal with eight key leaders in Kibera to locate issues of importance within water service provision and IWSPs throughout Kibera. The jurisdiction, origin of authority, and common tactics used to maintain control over operational territory of IWSPs are mapped for the twelve villages of Kibera. To clarify the complex methods of operations of IWSPs, the study uncovers an important distinction between an informal setting-legal service provision versus an informal setting-illegal service provision. The study concludes that the illegal type of IWSPs appear to push the poor further into exclusion by sidestepping the regulations that normally safeguard the public health and price equity of water. The IWSPs that operate through a legal framework appear to most successfully provide reliable service and stable pricing to Kibera residents.

According to the World Bank, there are approximately 650 water providers in Kibera, of which 98% are private informal-illegal vendors and about 20 providers are informal-legal non-governmental organizations (Water and Sanitation Program 2005, 5). As municipal water infrastructure does not extend inside homes or businesses within Kibera, free-standing water taps alongside public paths are the distribution points for the municipal water supply to the community. Many of the informal-illegal vendors maintain control over municipal water taps or water points through illegal means. Nairobi Water and Sewerage Company (NWSC) is slated to install 1,000 new water taps within the Kibera settlement and a total of 9,180 taps in informal settlements throughout the county in the next five years in an attempt to fill identified water provision gaps (NWSC 2016). If the current system of management continues, IWSPs will be highly likely to govern these new taps. This chapter begins with a review of recent water reform in Kenya and other narrow attempts to address IWSPs in Nairobi settlements. Then, the research methods and findings are discussed. The study concludes with the benefits, risks, weaknesses and opportunities of

this type of informal service to inform the future governance of the forthcoming expansion of taps.

Water Reform in Kenya

A recent recognition of the need for alternative approaches to water governance has emerged in cities throughout the Global South (Bakker 2013, 390; Ranganathan 2014). The failures of the internationally enforced Structural Adjustment Programs of the 1980s and 90s, recent global financial crises, and global anti-privatization protests have spurred this international shift in urban water reform. During the early 2000s, Kenya joined this trend with the *Water Act of 2002* and the *Water Act of 2016*, discussed in further detail below. Additionally, this new international focus on water governance and a universal right to water was highlighted by Article 43 of the 2010 Kenyan Constitution, which declared the right of "Every Kenyan to clean and safe water in adequate quantities (Government of Kenya 2010)."

Expansion of Kenyans' access to safe and affordable water can be traced through a series of national legislative reforms that have sequentially devolved water service from a wholly public to a shared public and private model. The *Water Act of 2002* divided water governance into two arms: a Water Resource Authority that oversaw water delivery and a set of Water Services Regulatory Boards that managed the financial responsibilities of water services. The Water Resource Authority protects and regulates the use of water resources including the enforcement of standards, policy development, and setting and collecting water use permits. The Water Services Regulatory Boards hold the mandate to approve tariffs, monitor and enforce water service standards, and issue licenses to Water Service Providers. The division served financially to isolate the water utility from the Government of Kenya, thus paving the way for greater private involvement.

In informal settlements in Nairobi, the role of municipal government in water provision and other basic services had been historically limited. The *Water Act of 2002* permitted a new focus on expanded water provision in the non-traditional settings, including informal settlements, which house the majority of Nairobi's population. In Nairobi, the Athi Water Service Board manages the physical assets of water services while the Nairobi City Water and Sewerage Company (NWSC) administers delivery. Soon after the establishment of NWSC in 2003, a separate Informal Settlement Department was formalized with a discrete mandate.

The *Water Act of 2016* addressed several blind spots in the 2002 act that resulted in duplicate authority. The devolution of governance to the county level in the 2002 act permitted a more flexible, diverse view of water services. However, the redistribution of power to counties and service boards also caused many conflicting roles (Dill and Crow 2014, 187-200). The *Water Act of 2016*, which repealed and replaced the 2002 act, addressed these conflicts and created clearer lines of governance for water infrastructure and policy. The 2016 act also brought government water services into alignment with the ratified 2010 Kenyan Constitution by formally recognizing every Kenyan's right to safe and adequate water access.

Water service provision in Kenya has been historically embedded in politics and has arguably been used as a tool to maintain power (Binale 2011, 167). The creation of the NWSC and Athi Water Service Board governance structure under the *Water Acts of 2002 and 2016* ensured that water service provision was removed from the control of politicians in government to the shared control of private stakeholders who can make decisions apart from political motivations. The new NWSC was still owned by the Nairobi City Council, but the revenue from water provision was now protected and no longer available to the municipality for other purposes. Despite these reforms, current water service in Kenya remains inconsistent, particularly in informal settlements like Kibera. The water agency remains racked with corruption. The NWSC board of directors was forced to resign in 2009 (Dill and Crow 2014, 197). Additionally, burst water pipes that go unrepaired, bills that go unpaid, water meters that are vandalized as well as the informal groups which take over the supply and distribution are a manifestation of the technical, technological, human resource and policy breakdown at the coordination and management level (Ledant et al. 2013).

Previous Efforts to Address Informal Water Service Provision in Kibera

Several previous efforts to stabilize water service delivery in Kibera evidence the consistent challenges faced in the settlement. The history of water provision in Kibera is dotted with both government and non-government projects working to support successful water service provision (Meredith, MacDonald, and Alabaster 2014). Since the 1980's, the World Bank, United Nations Development Programme, United Nations Human Settlement Programme, and the Government of Kenya have made major efforts to implement water projects in the area to ensure a coordinated

supply and distribution of water is sustained. These attempts at coordinating and formalizing water services are deeply interlinked with the formation and current status of IWSPs in Kibera. Indeed, in the face of decades of persistent attempts to find alternative approaches to water delivery in informal settlements and institute water reform, the operations of IWSPs have proved enduring and stable, despite their variable service to their constituents. Physical assets and management structures from these series of failed attempts are integral pieces to the operations of IWSPs today (K'akumu and Appida 2006, 320). The first Water and Sanitation Programme by the World Bank was rolled out in 1988 and ear-marked Kibera as one of the project's targeted pilot areas. IWSPs emerged from the failures and challenges of formal water supply and distribution infrastructure.

As with other cities in the Global South, a recent focus on community-based approaches frame recent attempts by governmental and non-governmental organizations to reform water services in Kibera (Dill and Crow 2014, 194). The next paragraphs discuss two approaches, specifically in the context of failed attempts to decrease the dominance of illegal IWSPs in Kibera: Maji Bora Kibera and the Kenya Slum Upgrading Project. The first scheme tried to engage directly with the existing IWSP structure. The second attempted to build new community-based organizations around new pipe and meter. Despite the initial success of these programs, however, they aid the foundations for the continued operations of the IWSPs these programs sought to replace.

The World Bank's Water and Sanitation Program explored an innovative partnership with the existing IWSPs in Kibera, leading to the creation of Maji Bora Kibera in 2004 (Castro 2009). Maji Bora Kibera was a community-level project created in partnership with the World Bank and the United Nations Development Programme and consisting of about 500 IWSPs owners (WSP 2005). Nearly 80% of the traders in Kibera joined the association. It was an effort to formalize water service provision in Kibera by involving local actors and regularize relations between local actors and NWSC. From the onset, the IWSP owners shared common grievances of illegal connections, water shortages, vandalism of pipes, corruption and lack of sewerage services (WSP 2005). However, the network soon developed internal challenges including corruption (implicating NWSC officials), mistrust among its members, and constant harassment by security agencies (WSP 2005). It was also discovered that some members of the network were still operating illegal connections and using their positions of privilege to become gate-keepers of water provision. Artificial shortages, bribery of the NWSC employees, and vandalized water meters ensued (Dill and Crow

2014, 187-200). As a result, trust between the NWSC and Maji Bora Kibera broke down and NWSC sought the help of the security agencies and Kenya police to crack down on the offenders and conduct mass disconnections. The resultant situation led to the collapse of Maji Bora Kibera in 2007. The case of Maji Bora Kibera presents a valuable insight on the merits of public-private partnership in securing efficient water supply and distribution in the informal settlement. It also demonstrates the inherent challenges of reliance on IWSPs as the major driving force to ensure efficiency and sustainability of water service provision. A key factor that stands out in the entire process was the lack of transparency and accountability – a constant characteristic of the IWSPs, which led to mistrust and perpetuated corruption. The innovative approach relied on powerful IWSPs owners, many of whom also owned structures and were de facto landlords. Maji Bora Kibera remains the most successful example of a public-private sector partnership attempt at water service provision in Kibera (Dill and Crow 2014, 187-200).

The Kenya Slum Upgrading Project (KENSUP), a partnership of the UN Habitat and the Government of Kenya, presents an example of a community-based water governance initiative. According to the Government of Kenya, the aim of KENSUP is to improve the livelihood of 5.3 million urban slum dwellers (1.6 million households) countrywide by 2020 (UN Habitat 2015). KENSUP was initiated in 2001 and was piloted in the Soweto East village in Kibera. One of the challenges that the project had to deal with in its early stages was the water and sanitation problem. KENSUP constituted a Settlement Executive Committee consisting of selected village representatives and local opinion leaders. Their role was to facilitate the project acceptance among the residents and to fine-tune a list of beneficiaries. The project began by piping water into the targeted areas, building water points, public toilets and drainages. They then handed these facilities to local community networks for maintenance and management. As in the case of Maji Bora Kibera, KENSUP's water and sanitation strategy ended up creating more IWSPs, rather than coordinating an efficient system of distribution. This phenomenon was also observed in the final handover of new blocks of houses where the majority of beneficiaries were the members of the project's local SEC and their preferred surrogates. These members have since taken over control of the basic water and sanitation services including garbage collection and water vending (UN Habitat 2015). Compared with other cities in East Africa, such as Dar es Salaam, community-based organizations in Nairobi have taken a less prominent role in water service delivery. However, their role has increased since the water reforms of 2002 and 2016.

Participatory Urban Appraisal Methodology

The study uses Participatory Urban Appraisal with key leaders and residents living in the twelve villages in Kibera to map the location and territory of operation of the IWSPs. Participatory Urban Appraisal is an approach most commonly used in international development projects and social geography to engage the knowledge of local residents toward the improved planning of their community (Pain 2004, 652-663). Participatory Urban Appraisal sessions were conducted with eight selected local leaders in separate villages in Kibera near clustered water points. The participants drew on printed water and sanitation maps and made rough notes on the distribution of informal water services in Kibera to map the magnitude of informal water service provision (Map Kibera 2010). The maps were from the Map Kibera project which uses Geographic Information System (GIS) software and technology to put coordinates on the functioning water taps throughout Kibera (*Fig. 2-1*).

The Participatory Urban Appraisal sessions were held in each respondent's settings – often in their neighborhood meeting spaces such as social halls and community spaces and involved walking to the locations of the water taps under discussion. Some of the sessions attracted small crowds. Each map was completed under the direction of the respondent (*Fig. 2-1)*. The eight respondents gave a comprehensive picture of eight distinct service areas where the magnitude of the spread of IWSPs was high. From the Participatory Urban Appraisal maps, it was possible to demarcate the specific areas of focus which can be delineated as Sarang'ombe (villages: Kianda, Gatwekera, Soweto West); Makina (villages: Kambi Muru, Kichinjio, Makina); Laini Saba (villages: Mashimoni, Lindi, Laini Saba) and Soweto East (villages: Silanga and Soweto East) regions. The Participatory Urban Appraisal sessions revealed unique dynamics and distinct challenges for each area of focus using the following questions as a basis for discussion:

What is the history of water service provision in Kibera informal settlement?

How widespread are the IWSPs?

Which groups are involved in the informal water service distribution?

What is their source for water?

What is the perceived quality of the water that each group provides?

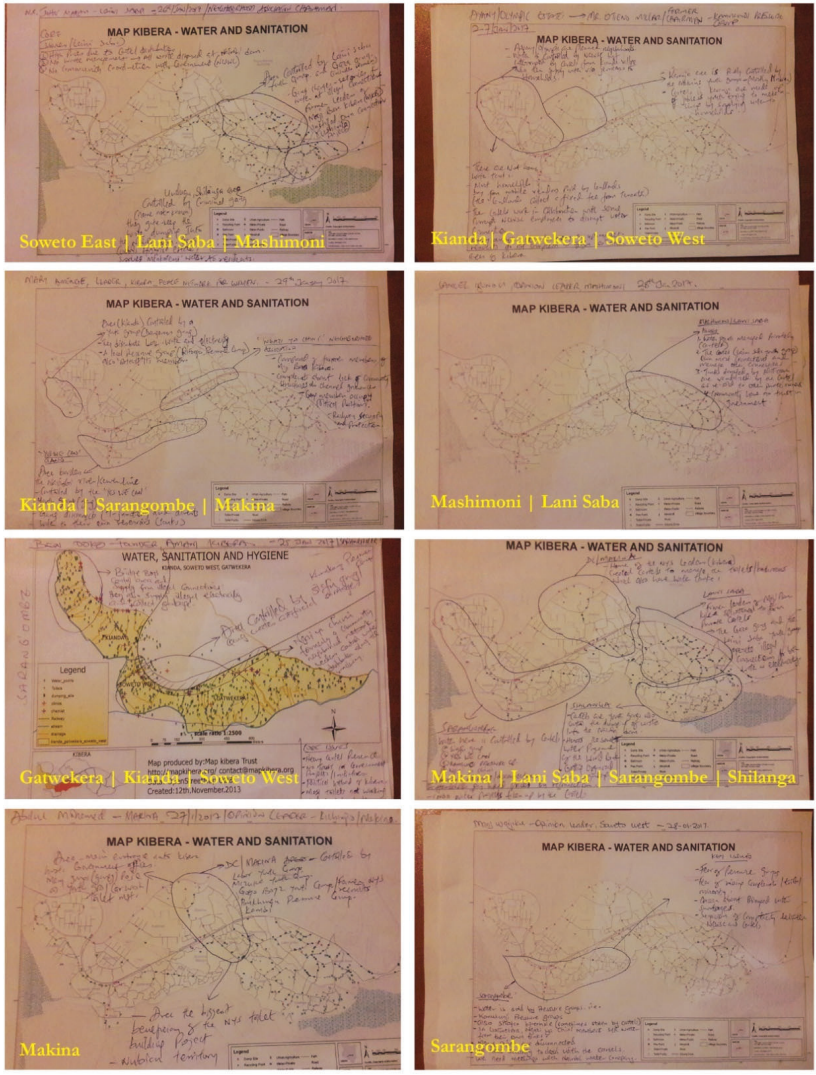

Fig. 2-1. PUA maps used to locate water points and the distribution of informal water service providers.

Do these groups provide other services than water? If so, how has their reputation evolved within the community?

Are there any methods/tactics used to influence or control the authorities and/or the consumers/customers?

How much does a jerry can (five gallon container) of water cost on average from each group?

Are the operations of these groups perceived as legal or illegal by the community?

The information provided in these Participatory Urban Appraisal sessions was codified into a diagram of the location, origin of control, and tactics to maintain control of the twelve main IWSPs discussed (*Fig. 2-2)*. This Kibera-wide diagram was validated by the eight leaders in a follow-up session. Finally, to better understand the complex definitions of legal and illegal within the IWSP's operations, a second Participatory Urban Appraisal was conducted in the Sarang'ombe area (villages: Kianda, Gatwekera, Soweto West). The two area leaders from the first Participatory Urban Appraisal and residents that coalesced around the studied water points were engaged (*Fig. 2-3)*.

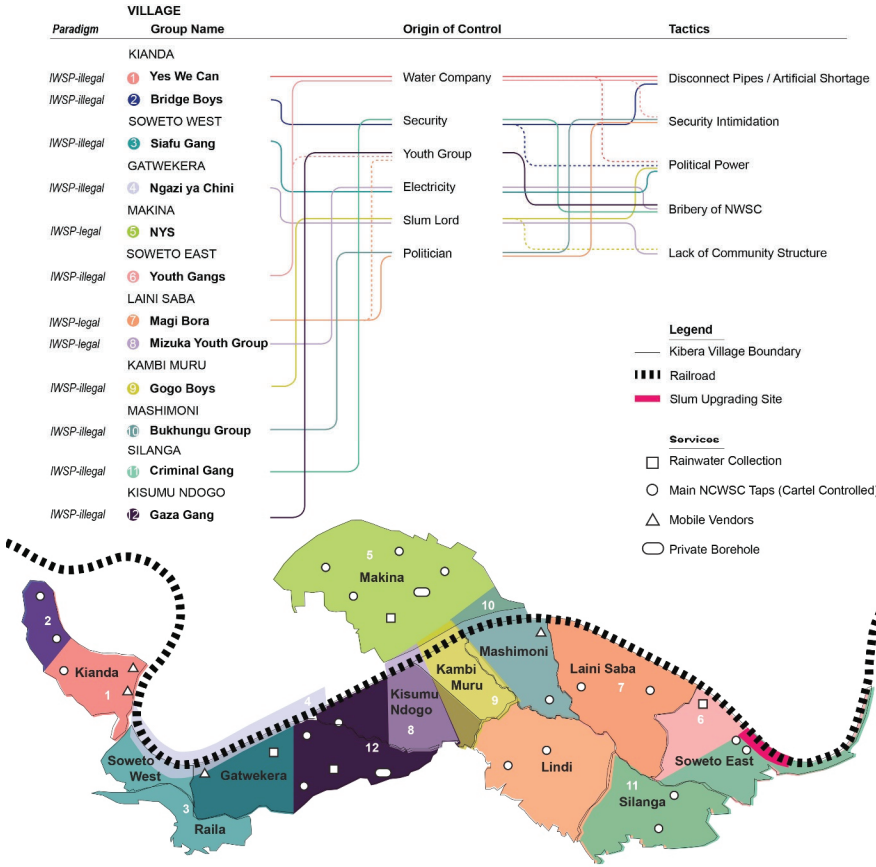

Fig. 2-2. The connection between the IWSP's origin and sources of power as well as tactics used to sustain business (Crosson with map underlay by MapKibera)

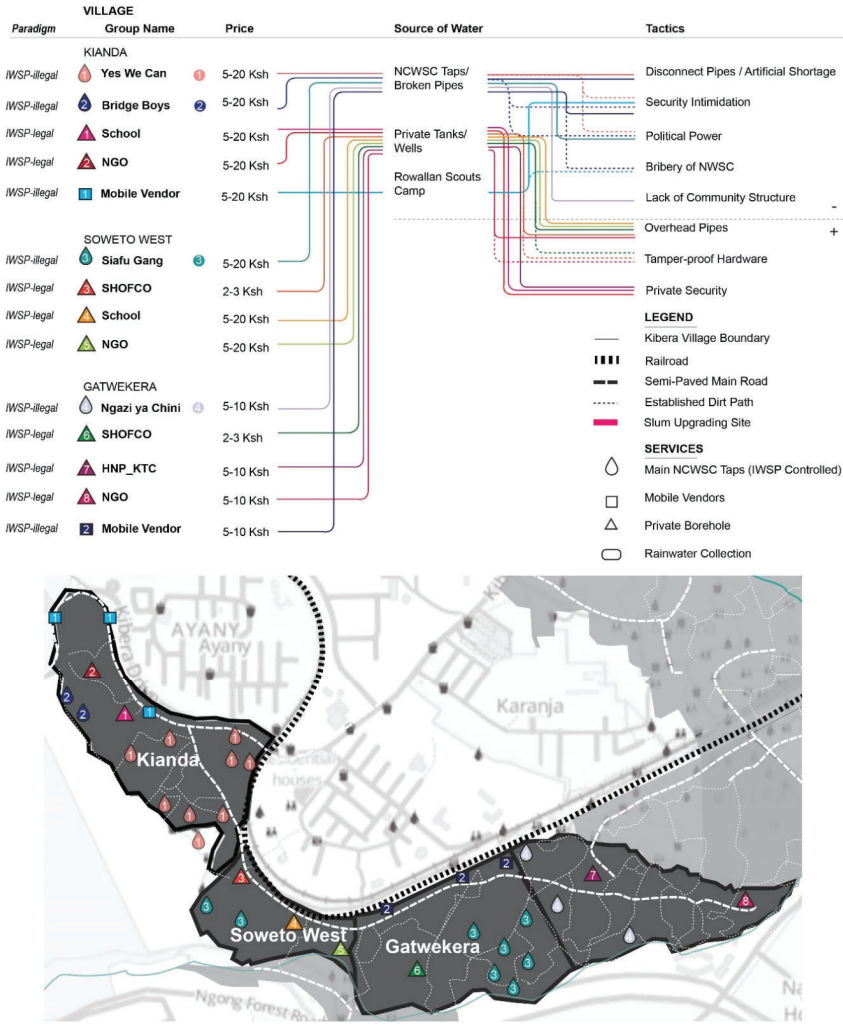

Fig. 2-3. Multi-village examination of water prices, sources of water, and illegal or legal classification. (Crosson with map underlay by MapKibera)

Findings

The debate over whether IWSPs are accessible, safe, and sustainable methods of water and sanitation service delivery in Kibera informal settlement is yet to be fully understood. The results formulated from the Participatory Urban Appraisal demonstrate the wide variability in the consistency and quality of service by IWSPs. More importantly, the need to understand the complex relationship between the IWSPs' scope of operation, their source of power or influence as well as their tactics remains a central theme of this study. It is illuminating to see how some of the IWSPs named in the study were connected to powerful entities such as politicians, slum lords, youth groups, electricity service providers and, more surprisingly, their illicit rapport with some NWSC officials. Some of their tactics included disconnections to cause artificial water shortages, intimidation, political power, bribery and corruption – all catalyzed by the lack of formal community structures which could allow for a structured solution-finding process (*Fig. 2-2 and Fig. 2-3*).

While investigating the role of IWSPs in contrast with NWSC, the need was found to expand the scope to include the 'legal' IWSPs such as NGOs, churches, and private businesses. A clear boundary was laid between these legal IWSPs and the 'illegal' IWSPs such as the water cartels (e.g. "Bridge Boys"), youth groups (e.g. "Gaza Gang"), and errant NWSC employees (e.g. "Yes We Can") (see *Fig. 2-3*). The legal IWSPs have better regulated water quality, are more affordable, and are more transparent – characteristics which are in deep contrast with the illegal water vendors and cartels. Examples of legal IWSPs included non-governmental organizations (NGOs) who operate successful water distribution initiatives. One prominent case is Shining Hope for Communities, an NGO whose private water well and overhead tank serves hundreds of families in and around the Sarangombe area. Shining Hope for Communities' water project was completed in partnership with Kenya's biggest mobile phone operator, Safaricom. Its overhead tank and aerial piping works provide a tamper-resistant method that makes it difficult for the 'cartels' to disconnect or divert. Another NGO, Kibera Town Centre's Human Needs Project, has its own private water well that services a community facility that includes public bathrooms, public toilets, and a public laundry area. Five key findings are outlined below.

1. *Limits of Legal Providers and Centralization*: Due to lack of resources, NWSC has been unable to effectively promote water and sanitation awareness in informal settlements. Without such

education and awareness campaigns, it is challenging to enhance community vigilance. The successful *Mulika Mwizi* (Expose a Thief) campaign deployed by the Kenya Power and Lighting Company is a great example of how radio and TV media campaigns helped reduce the cases of transformer vandalism by electricity cartels in Kenya. Greater resources are needed to educate residents on the definitions of vandalism, water rights, and legal water provision.

2. *The Need for Greater Engagement with Potential Customers*: Inhabitants of informal settlements are often not perceived as a business opportunity but rather as a business burden or risk (Luque-Ayala 2016, 180). The presence of IWSPs in urban informal settlement provides an indication that these areas constitute an important market for water kiosks as well as for domestic and commercial connections. A willingness by the local utility (NWSC) to work with residents, local organizations and local authorities is needed. The onus is on NWSC to respond to the specific needs of slum dwellers by studying local conditions. Such steps would enable NWSC and other legal providers to design and distribute water and sanitation services in packages that are friendly to the slum residents, thereby reducing the number of illegal IWSPs.
3. *Limits of Informal Providers and Decentralization*: IWSPs provide context-friendly water services due to their informal nature. However, they lack the capacity to provide services to a broader population base and struggle with territorial conflicts and leadership wrangles, all factors that lead to artificially increased water prices and shortages. IWSPs thrive on the weaknesses of the NWSC governance. NWSC is yet to embrace effective technology that reports leakages, disconnections and shortens their response time to repair and address illegal connections. New and inexpensive sensor technologies could provide greater transparency in the functioning of the urban water network.
4. *Partnerships between Formal and Informal Providers*: Meaningful and accountable partnerships between NWSC and the illegal IWSPs have proved challenging. There is the risk of illegal IWSP operatives infiltrating community-government partnerships like in the case of Maji Bora Kibera. Strong, transparent public-private partnerships are needed with clear structures for resolving conflict toward community benefit.
5. *IWSP Tactics to Maintain Control*: IWSPs are supported by allies from similar informal service provisions (e.g. electricity, garbage, security). Their presence is known but protected and sustained by the

communities around them. They have been known to sometimes use violence as a tactic to keep consumers dependent on their services. They also use disconnection of water pipes, diversion of water and collusion with the government utility (NWSC) to create artificial shortages to maximize on the high prices that follow. To replace these inefficiencies, expansion of the legal IWSPs is needed to provide a consistent, competitive alternative to the artificial shortages and prices that exploit the poorest sectors of Kenyan society.

Conclusion

This study's findings refute the hypothesis that IWSPs provide an efficient, coordinated, and sustainable solution to the existing problem of water service delivery. The study finds that households in Kibera pay almost four times the price for water and face greater frequencies of water shortage and outage than other households in Nairobi. The study argues that rather than solely a cause of infrastructural weaknesses, these gaps in service are regularly induced by the IWSPs to artificially increase water prices. Vandalized water meters, perceived bribery of government officials to temporarily shut off services, and burst pipes that go unrepaired are a manifestation of the technical, technological, human resource, and policy breakdowns that permit IWSPs to maintain control over price and delivery of water in Kibera.

In the next five years, Nairobi Water and Sewerage Company (NWSC) plans to install 1,000 new water taps within the Kibera settlement and a total of 9,180 taps in informal settlements throughout the county. These new installations are part of an increased attempt to fill identified water provision gaps (NWSC 2016). If these taps are installed within the current status quo, IWSPs will be highly likely to govern these new taps. This study offers key insights into how the current management of water taps by IWSPs in Kibera results in a reduction in accessibility to potable water. NWSC needs to devise a new structure of support for the community governance of water taps to maximize the efficacy of water service in informal settlements in Nairobi and promote equitable resource delivery. In conclusion, informality in water service provision remains a deep-seated reality in Kibera's informal settlement. Its dynamic networks and entrenched practice support the survival of IWSP in legal and illegal forms. Legal IWSPs currently evidence the most viable option in securing an efficient, transparent, far-reaching,

cost effective, and sustainable means of providing water services in Kibera's informal settlement.

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CHAPTER 3

DECOLONIZING SPATIAL PRACTICE: CRITICAL INSIGHTS IN THE AGENCY OF LANDSCAPE IN POST-DISASTER RECOVERY

JOERN LANGHORST

Spatial design and planning professions and disciplines, among them Architecture, Landscape Architecture and Planning, have a long history of being aligned with or instrumental to systems of hegemonial power. Various authors have critiqued these entanglements and complicities from a range of ideological and disciplinary positions.[1] These critiques, at least to a large degree, share a concern for space as an instrument or medium for establishing direct or indirect influence on people's behavior and ability to assert their own ideas and identities. More recent critiques, in particular in the field of political ecology and cultural / urban geography have been addressing this through the frame of colonialism / post-colonialism[2] and taking critical positions toward contemporary rhetorics of sustainability and resilience.

This chapter, focusing on the post-hurricane Katrina recovery of the Lower 9th Ward (L9W) in New Orleans, explores the agency of small-scale tactical spatial interventions in the imagination, development and implementation of alternative socio-ecological futures in post-disaster communities, and models "critical spatial practices" (Rendell 2006) that are capable of developing viable alternatives to the capital-hegemonial-colonial processes of redevelopment.

[1] see e.g. DeCerteau 1984, Lefebvre 1996, Harvey 1973 and 2008, Smith 1984, Mitchell D. 2003, Mitchell WJT 1994, Cosgrove 1998, Peluso 1995, Habermas 1989, Fraser 1990.

[2] e.g. Swyngedouw 2004, Kaika 2017, Slater 2014

All disasters, even the ones labelled as natural disaster, have a human component: Whilst non-human processes may be the immediate cause, human systems and their performance frequently play a significant role in occurrence, severity, impact and the corollary damages in the aftermath. Erikson and Yule (1994) frame environmental disasters "caused by the invisible hand of man" as a "new species of trouble" that is particularly hard to bear for the communities affected.

Within disaster recovery there are two conflicting agendas, described by Olshansky and Johnson (2010) as the dilemma of deciding between "speed and deliberation" or between "rebuilding and betterment": the urgency of immediately rebuilding critical infrastructure, housing and facilitating economic recovery, and secondly, looking at disaster as an opportunity to fundamentally improve systems, processes and conditions. This betterment is regularly cast in terms of sustainability and resilience and masks a set of multi-layered normative practices located in existing power geometries and their challenges, and frequently operates as a spatial and spatialized rhetoric that camouflages the reconstruction of the root causes of disasters, rather than developing alternative future scenarios.

The most significant mid- and long-term impacts of disasters are based not so much in the physical destruction and loss of life and livelihood, but lie in the post-disaster conditions and recovery processes that reveal underlying patterns of uneven development, of systemic and systematic discrimination, marginalization and the disenfranchisement of particular neighborhoods, communities, and demographics (see Campanella 2007, Landphair 2007).

The Lower 9th Ward (L9W) in New Orleans, arguably one of the most complex and contested landscapes and neighborhoods, presents an outstanding case to study the various responses to disasters, and approaches to the recovery and rebuilding. The L9W lies at the intersection of human and non-human contributions to disaster, of water and land, but also of hegemony and margin, of neoliberal order and long-standing resistance and self-sufficiency – Lewis (2003) called it "an inevitable city on an impossible site".[3] As such it not only provides critical insights into the post-disaster recovery of marginalized communities, but also is a location to investigate alternatives to the typical practices within spatial design and planning professions, arguing that such small-scale spatial interventions and other

[3] For a more detailed analysis of the history and development of New Orleans see Lewis 2003 and Campanella 2008.

transgressive operations may take advantage of different states of exception between the permanently real and the wholly imagined, and produce alternative socio-ecological futures that disrupt the status quo. Based in the four-year involvement of the author and his students in the post-Katrina recovery, redevelopment and rebuilding of the Lower 9th Ward the following describes and discusses alternative approaches, actions and practices, and theorizes how such decolonized approaches can inform a fundamental rethinking of how critical practice in an age of complexity may operate.

"Bring New Orleans Back" Plan

The responses to the destruction wrought by hurricane Katrina as well as proposals for the rebuilding and recovery, in particular the "Bring New Orleans Back" plan, exemplify most accepted and well established practices of planning and design professions. The plan, proposed by the "Bring New Orleans Back Commission", developed by Wallace Roberts Todd (WRT, Ian McHarg's old firm), and sanctioned by state and federal authorities, was to manage the process of recovery and rebuilding.[4] Its key element was the conversion low-lying and flood-prone residential neighborhoods, among them large parts of the L9W, into parks and wetlands to serve as retention and flood control areas. From a physical planning perspective this seems like a more than reasonable proposition. A fact unacknowledged in the plan – these neighborhoods were occupied predominantly by poor blacks and had an unusual high level of home ownership – is responsible for a highly contentious reception that took the plan's authors by surprise.[5]

The 95-page plan, while providing the neoliberal master narrative for the creation of a new (and allegedly better) New Orleans, did not mention how to address social and racial inequalities in housing and access to basic infrastructure., and how the proposed parks and other infrastructural

[4] This plan was supported by the American Society of Landscape Architects (ASLA) 2008: "ASLA Supports Rebuilding Plan Proposed by Bring New Orleans Back Commission: The plan, drafted by Wallace Robert & Todd, LLC, calls for a comprehensive parks system, reconstruction of decimated wetlands, and substantial transit reforms". ASLA News "ASLA Supports Urban Planning Report From The Bring New Orleans Back Commission: Residents Deserve Best Information to Make Decisions About Rebuilding", Jan 18, 2006, https://www.asla.org/newsreleasedetails.aspx?id=6446, accessed Jan. 27. 2019.

[5] See Langhorst 2012 for a detailed description.

elements would ameliorate or exacerbate those inequalities. Consequentially, the ensuing public debate focused on how

> (…) reducing the urban footprint, reintroducing wetlands into the city in the form of new urban parks, or building mixed-income housing in low-income neighborhoods continues long histories of past insensitivities and systematic discrimination, by means of urban renewal and interstate highway and park construction, which caused their own devastation in mostly black residential neighborhoods. (Breunlin and Regis 2006, 74)

The proposed creation of wetlands, parks, and greenspace was equated with acts of racism, and since then the terms park and greenspace are fraught with suspicion and negatively connoted among New Orleanians. It is clear that the plan's emphasis on landform, hydrology, and other tangible, measurable, physical and hard qualities of landscape, and a total lack of engagement with the soft socio-cultural aspects of place is largely to blame for its failure.

A much more comprehensive analysis of the complex entanglements, manifested in the socio-cultural, economic, and environmental histories, and of the development of landscape-community relationships over time, is necessary to understand the current landscape as the product of complex human-human and human-environment interactions over time. Equally critical is the building of trust with members of traumatized communities: Without that trust, many narratives and histories that may prove critical in determining appropriate design and planning responses will remain hidden. Traditional maps and easily accessible historic data are not sufficient, as they tend to be biased,[6] and, because of their narrow instrumentality, are mostly ignorant of conditions, events, and processes central to the identity and functioning of a neighborhood. As a result, they often obscure the actual socio-economic-political processes that form a large part of the root causes of disaster impacts and consequences.

Counter-mapping, trust-building and insurgent planning

In January 2006, a group of professors and students of landscape architecture at the University of Colorado conducted a workshop in the Lower 9th Ward, asking "How can one live here?"[7] while making a

[6] For critical perspectives on the agency and instrumentality of maps, see Harley 1988, Corner and Cosgrove.

[7] This question developed after students' initial attitude of "nobody should live in this place" encountered the reality of the Lower 9th Ward and met some of its

commitment to accompany the neighborhood and community in their struggle for recovery for the next three years. They appropriated alternative methods and approaches, such as counter-mapping[8] (more at home in critical geography and ethnography than landscape architecture, planning, and architecture), and were able to build trust with a community that was otherwise profoundly suspicious of anybody associated with design and planning professions or local, state, and federal agencies and authorities. Without these approaches and patient and careful engagement with residents, critical aspects of the L9W as a place, landscape, and community, central to their successful recovery, would have never been discovered. A much more nuanced, complex, diverse and contested read of the L9W emerged, amending and often counteracting the simplistic physical-topographical-hydrological understanding underlying the "Bring New Orleans Back" plan that perpetuated and exacerbated long traditions of marginalization and discrimination.

The Lower 9th Ward in New Orleans is a product and instance of marginalization and spatial(ized) apartheid. It very much sits at the margin as it is surrounded on three sides by water: the Bayou Bienvenue to the north, The Mississippi River to the south, and the Inner Harbor Canal to the west. It is largely below sea level and separated from the bodies of water by levees. To the east, Jackson Barracks, a former Army barracks that stretches from levee to levee, effectively blocks all access to the land downstream.

The only connections to New Orleans upstream and St. Bernard parish downstream are Claiborne Ave. and St. Claude Ave. Both have drawbridges across the Inner Harbor Canal, and both can be closed off by gates at Jackson Barracks. The Lower 9th Ward can be effectively blocked off with minimal effort, an effort that was exercised in the aftermath of Hurricane Katrina.

residents. In hindsight, it was exactly that moment where prejudice, assumption and othering did not survive the encounter with the "strange" and the "other".

[8] For a detailed explanation of the method of "counter-mapping", see Peluso 1995.

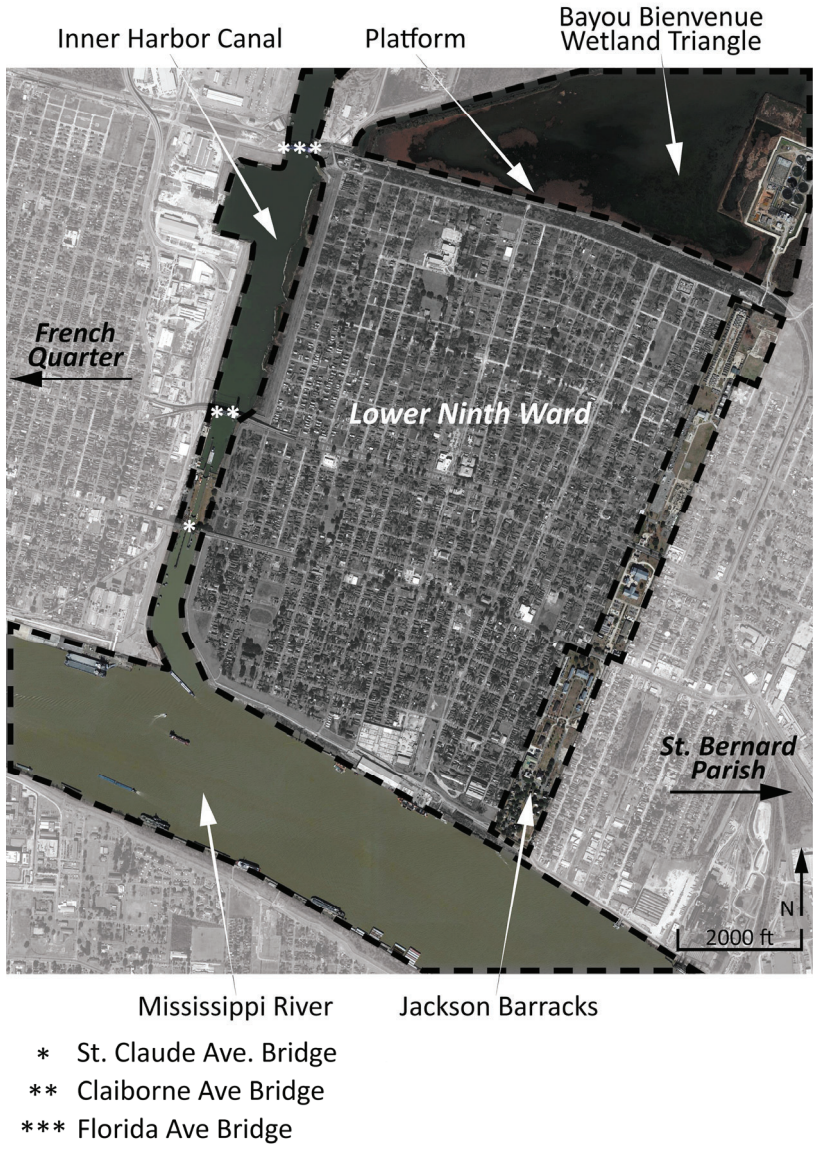

Fig. 3-1. Lower 9th Ward and patterns of spatial isolation. (Image Google Earth Pro / EarthExplorer 9.12.2017, annotations by Langhorst / Patin).

The inaccessibility, the hydrological and economical precarity that made this area so attractive to escaped slaves in the eighteenth and nineteenth century also exacerbated and enabled a spatial apartheid, resulting in a long history of remaining isolated and being systematically disenfranchised, discriminated against, underfunded, and undersupplied with even the most basic infrastructure and civic amenities. The following complaint from the Ninth Ward Civic and Improvement League, filed with the city in 1955, illustrates the conditions drastically:

> Specifically,' the complaint read, 'we refer to poor housing and overcrowded conditions of our schools; the disease-breeding septic tanks, cesspools, outdoor toilets, stagnant water in the gutters; the flooded and muddy streets; the uncollected trash and garbage and the foul odors in the air.'[9] Upon researching the conditions alleged in the petition, an incredulous Councilman Fred J. Cassibry responded, 'It is almost unbelievable that some of the things listed in your complaint do exist.' (Landphair 1999, 1)

Among other factors, the systematic indifference of city officials toward the quality of human life made sure that the Lower 9th Ward became a critical location in the civil rights struggle, and one of the first examples of school desegregation, continuing its long tradition of neighborhood activism.

This indifference, prevalent among city, state and federal officials, did not change in the aftermath of hurricane Katrina. Several post-Katrina courses of action, including the "look and leave" program, as well as the "Bring New Orleans Back" plan, raised serious questions about the validity of the very existence of this neighborhood. The New York Times quotes Colonel Terry Ebert, Homeland Security director for New Orleans, as having claimed: "There's nothing out there that can be saved at all" (Landphair 2007, 844).

The L9W was and is still suffering from a lack of return of its former citizens (as of 2019 only about one-third of its pre-Katrina population is back), so the challenge to an already traumatized community to prove its viability, its right to exist in place, and to its own identity and self-determination cannot be overestimated. The residents of the L9W responded to this challenge by connecting to a part of their almost forgotten history – the L9W as a place on the margins of New Orleans that started as a colony of escaped slaves and continued to become a location of resistance against the political and economic elites controlling the mechanisms of spatial

[9] New Orleans Times-Picayune, 9 November 1955, cited in Landphair 1999.

production. This aspect of its history and identity relates closely to a much larger tradition of spatial and spatialized resistance and assertion in the black communities in New Orleans: the subaltern and transgressive uses of public space. As throughout the history of New Orleans black communities have been forced to live on ecologically and economically marginal lands, they developed a range of what DeCerteau (1984) labels "spatial tactics":

> (…) for as long as black New Orleanians have been marginalized, they have also created their own organizations that formed a subaltern mainstream. For hundreds of years, African-American communities have organized themselves into social clubs in the New Orleans second line tradition, participating in a long-standing socio-political tradition of self-help, mutual aid, and resistance to structures of oppression. (Regis and Breunlin 2006, 746)

One of the most visible expressions are the performances known to locals as "second-line" parades. They can be best described as moving street festivals, sneaking through New Orleans' poorest neighborhoods, and frequently involve anywhere from 3000 to 5000 people. These parades truly transform urban space, "creating an alternative social order that the social and pleasure clubs actualize by 'taking to the streets' ordinarily dominated by the quotidian order of inner-city poverty and spatial apartheid" (Regis 1999, 472). A key element and spatialization of this expanded and alternate public sphere is the occupation of the wide median strips typical of many streets in New Orleans during and outside of second line parades by local residents. These are locally referred to as "neutral grounds," and challenge any claim to ownership and control by the (white) hegemonial elites. Second lines and neutral grounds locate a complex of rituals and practices and "provide a place from which to speak both of, and as, the minority, the exilic, the marginal and emergent" (Bhabha 1990, 300).

The ability to reclaim their past as a necessary precondition to establish their identity and participate in the processes and discourses for its future is particularly critical for communities traumatized by disaster.[10] For the L9W the memories of Katrina are layered on the flooding and destruction from Hurricane Betsy in 1965 and exacerbated by the aforementioned systematic and systemic neglect. This long tradition and experience of resistance and resilience gave direction to a series of projects that addressed a wide range of issues in the context of rebuilding and re-imagining a sustainable L9W.

[10] See Huyssen 2003.

Finding and founding: discovering a critical resource

In order to avoid the narrow instrumentality and scope of inventory and analysis typical for plans such as the "Bring Back New Orleans" plan, students and faculty approached the understanding of L9W's past and present with a framework targeted at discovery and making visible the multiple and often contested stories[11] and narratives. Christoph Girot's (1999) "Four Trace Concepts in Landscape Architecture" establishes four "phases" of discovery and the development of multivalent and multivariant understandings of a place: Landing, Finding, Grounding and Founding. His framework governed the overall approach and allowed to integrate a wide range of methods and methodologies, and to engage audiences, processes and factors that are excluded in the typical planning and design practices. Without the counter-mapping and the building of trust with people in the L9W, the existence and historic importance of a former cypress swamp to the north of the neighborhood would have not been discovered. In 2006 it was completely invisible from within the L9W, hidden behind a triple barrier of undergrowth, rail lines and a six-meter-tall wall of steel sheet piling. It had also vanished from memory, save for the recollections of some elderly residents over the age of sixty, who helped to find a way to the bayou. Subsequently, other long-term residents confirmed the bayou, now called Bayou Bienvenue, as one of the very sources of their livelihood, a resource for fishing, shrimping and other activities. John Taylor recalls his childhood, before Hurricane Betsy hit in 1965 and the sheet piling was erected, when

> (…) the bayou was still freshwater and I'd go out fishing among the bald cypresses – in fact the stumps of the old trees can still be seen sticking up out of the water. Back then you couldn't even see across to the other side of the bayou because the woods were so dense. And the water was covered with lily pads. (Taylor in Tonnelat, 2011, 1)

These activities formed important rituals that were a key part of the neighborhood, going back to the first dwellings by escaped slaves and established the identity and sense of belonging of the community.

Beyond, the Bayou performed a critical function to keep the L9W and upstream areas of New Orleans safe from floods and storm surges, and served as ecological infrastructure. Taylor describes that:

[11] See Cronon (1996) on the causes and problems of alternative and conflicting environmental narratives.

> Every mile of planted bayou can reduce the flood in case of a hurricane by two feet. The bayou used to stretch all the way to the sea, 75 miles from here. So you do the math. If the bayou had still been alive in 2005, the Lower Ninth wouldn't have got flooded when Katrina hit. (Taylor in Tonnelat 2011, 1)

Recent research into the efficacy of coastal wetlands confirms Taylor's assessment and understanding of coastal and delta ecologies and hydrology: The saltwater intrusion following the building of the Mississippi-to-Gulf-Outlet canal (MRGO), which killed all Bald Cypress trees so central to the ecological and hydrological functioning of freshwater cypress swamps in Bayou Bienvenue did not just take away a source of livelihood, but increased the environmental precarity of the L9W and other communities in New Orleans extremely. [12]

The fact that the site of such a momentous and consequential environmental disaster was hidden by a wall of sheet piling exacerbated how the community of the L9W was separated from critical knowledge on the dynamics and dangers of the landscape they have been inhabiting, and moreso from developing solutions and responses beyond the centralized and technocratic approaches that favored the building of levees.

John Taylors insights into and experiences of the workings of an exceedingly complex and precarious landscape created by the entanglements of human and non-human processes over time are a prime example for the kind of critical knowledge that is dismissed as non-expert and non-relevant by the traditional processes of design and planning. It is nothing short of ironic that the application of expert knowledge and ignorance of indigenous and local experience created the exact conditions that made possible the disaster of hurricane Katrina.

[12] For a longer excerpt of the interview with John Taylor and his critical insights see Tonnelat, 2011, 1. It is important to clarify here that people like John Taylor would be dismissed as uneducated and irrelevant in traditional planning processes with their prescribed forms of public participation. Taylor's astounding depth of insight, experience and knowledge rivals that of most coastal ecologists and hydrologists. Critical practices would need to ascertain that these kinds of insight and knowledge, and the people that possess it, are not just incorporated into any deliberation about the future of places like the L9W, but play a central role.

Fig. 3-2. Bayou Bienvenue in context, looking south-east. (Aerial photograph: Darryl Malek-Wiley.)

Fig. 3-2 shows the L9W to the right of the image, the sewage treatment plant is on the far end of the triangle and the Gulf of Mexico can be seen in the background. The red dot denotes the location of the platform. In the context of the neighborhood's precarious position at the interface between coastal wetlands and human settlements, the L9W "might be said to embody the breadth of the build/no-build line between land to be abandoned and land to be maintained that is so well described by Richard Campanella in his book *Bienville's Dilemma*" (Tonnelat 2011, 2).

This line is physically inscribed into the landscape by the aforementioned sheet piling, separating not just the L9W from a resource that was critical to its cultural identity and economic survival, but also the site of a human disaster from the site of an ecological disaster, both integral parts and signifiers of the catastrophe of Katrina. Any place can be described as "simultaneous ruins of culture and nature" (Langhorst 2014, 1116), but there are very few that have both expressions of the continuous renegotiation of human and non-human processes neatly separated by a wall of steel.

The residents, their high level of activism, and the identification of coastal wetlands as the most critical element of alternative strategies for flood control (relying on non-human processes and performances as critical infrastructure), has put the L9W even more at the center of discourses on sustainable futures in the region. As a result, overcoming the sheet piling wall between Bayou Bienvenue and the neighborhood became a centerpiece for recovery, rebuilding and reimagination, its potential agency and efficacy extending beyond its immediate spatial context.

Building the Platform

Access to the Bayou became the first priority - as a place to experience the thick and thin edge that defines life in the region and to visually and viscerally understand how human settlements are nested within non-human systems. This access was not just limited by the sheet piling wall, but by an impenetrable thicket of vegetation, and a freight rail line.

In 2006 and early 2007 the team of landscape architecture students and faculty developed multiple plans to reconnect the community to the Bayou Bienvenue and decided on a location for an observation deck straddling the sheet piling to facilitate visual and physical access. After testing numerous design alternatives, the design studios decided to prefabricate the platform frames and ship building materials and tools to the L9W as building materials were in scarce supply in New Orleans. A construction date in July 2007 was decided as the New Orleans Levee Board, the administrative body in charge of the floodwall, granted approval to the construction. In preparation, students and neighborhood organizers cleared a path through the thick vegetation. After students drove a truck with supplies from Denver to New Orleans and a larger group of students had flown in to start construction, the Levee board withdrew its approval the evening before construction was to begin and threatened arrest and legal action against students, faculty, the university, and residents if they pursued construction. The faculty made the difficult decision to not carry out the construction under these circumstances. Students felt victimized by a hegemonial-political system they did not understand and personally experienced what had become commonplace for the residents of the L9W and New Orleans in general. After six months of interventions by the neighborhood association, a well-known local architect, and many others, and after assurances that construction would not impact the levee, the New Orleans Levee Board decided to look the other way. The students and faculty came back from Colorado in late January 2008, during their winter break, to build

the platform within less than 48 hours, supported by residents and local volunteers, battling the possibility of the levee board reconsidering its position again.

Fig. 3-3. Construction of Platform by students and community volunteers (photograph: Joern Langhorst)

The Agency of Landscape

In various ways, the Lower Ninth Ward has become a symbol in the discourses on rebuilding post-Katrina, struggling with proving its viability as a neighborhood after still only about a third of its pre-Katrina inhabitants (as of 2019) have returned. However, the residents and their high level of activism, as well as the media portrayal of the L9W as a microcosm of the contested cultures of New Orleans, are deemed reason enough for its reconstruction (Regis, Breunlin, and Lewis 2011). The identification of coastal wetlands as the most critical element of alternative strategies for flood control (or, in other words, of non-human processes and performances as critical infrastructure) has put the L9W even more firmly at the center of discourses on sustainable futures in the region. The L9W's highly visible role in these discourses has made overcoming the sheet-piling wall between

Bayou Bienvenue and the neighborhood a critical element of the recovery, rebuilding and reimagination, its potential agency and efficacy extending way beyond its immediate spatial context[13].

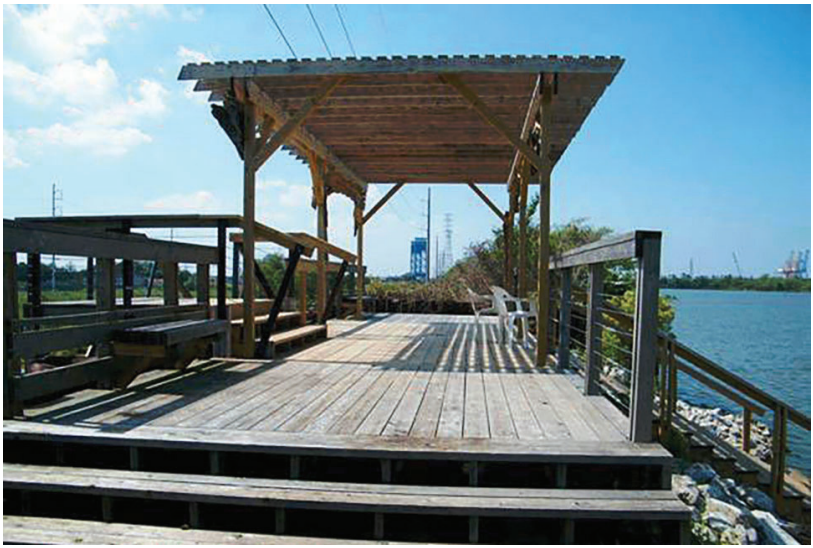

Fig. 3-4. Finished platform with repairs, 2011.

Almost immediately after its completion, the platform became an important location in the Lower 9th Ward. Its prominent location and visibility attracts casual visitors as well as residents and facilitates first-hand experiences of the position of the L9W in relation to the bayou, and of coastal and delta ecologies. Explaining to visitors that they are standing on a coastline provides a powerful reminder of the precarious environmental situation, and an equally powerful visual argument for the restoration of coastal wetland systems in the Bayou Bienvenue and beyond. The platform has catalyzed and located a whole suite of initiatives and project to restore water quality, the cypress swamp, coastal wetlands, the closure of the

[13] "…this seawall, which has separated us from the bayou, cut us off from its riches, but above all (…) has kept us from seeing its gradual demise. Before this deck, most of the neighborhood folks, the ones younger than me, didn't even know the bayou existed." (John Taylor, interview with Stephane Tonnelat, April 2010, in Tonnelat, 2011: 1)

MRGO canal, the rerouting of freshwater effluent and many others – down to the floating islands with wetland vegetation and other plantings below the platform to show visitors the momentous tasks and small steps involved in making and stabilizing the precarious edge between water and land, flood and dry, inhabitable and home.

The platform, or "deck" in local parlance, has emerged as a central location for all conversations on wetland restoration, flood control, delta and coastal ecologies, rebuilding and re-imagining, resilience and vulnerability, self-determination and victimization. Its $30m^2$ are the location were many of these "contentious liminalities" (Bhabha 1990) coincide, intersect, and collide. When the deck burnt down in an accidental fire in June 2009, it was promptly rebuilt and enhanced by the addition of a pergola as well as steps leading down to the water of the bayou. It has become a local landmark, with a high level of visibility and is a required stop for visiting dignitaries, such as Bartholomew, the Greek Orthodox Patriarch in Istanbul, who came to see the progress on the project and to bless the waters in autumn 2009, and Nancy Sutley, Chair of the White House Council on Environmental Quality, who came to assure residents of the US president's support.

The deck allows the Lower Ninth Ward community to directly experience and engage something of critical importance for its past, present and future. Its location and presence on the levee, on the very edge of the negotiation between human order and non-human processes, has turned it into a crucial symbol[14] for the struggles for survival of gulf coast communities. "In fact, by making the bayou visible, the deck has also helped make the neighborhood viable" (Tonnelat, 2011, 8)

[14] Aaron Viles, Deputy Director of the Gulf Restoration Network, states that 'the wetlands viewing platform is quite possibly the most important education / outreach element we have got in the city' (Viles, personal communication with Tonnelat, 14 February 2012).

Fig. 3-5. Local resident John Taylor and Patriarch Bartholomew on the rebuilt platform, 2009 (photograph: Keith Calhoun).

A polyphonic narrative, based in this and other immediate experiences of a complex environment, and in the histories and narratives that created the identity of the L9W has replaced the hegemonial master narrative that ultimately created the landscape conditions responsible for the Katrina disaster. It now allows a marginalized community to imagine alternative landscapes and put itself back at the center of the discourse on its own future (Bhabha 2003), challenging the neo-liberal and external rhetoric of resilience by a range of alternative socio-ecological futures clustered around provocative ecologies.

The platform has become a public space in both senses of the word: as a space accessible to everyone, and as a forum in which to discuss the future of the neighborhood and of the city in general, and how to live in an environment characterized by recurring and violent negotiations of human and non-human processes. It is one of the very few public spaces in the L9W that is not implicitly owned by a particular group or organization, or has a history or current practice of privileging certain users to the point of implicitly or explicitly excluding certain publics and people.[15] As such, it

[15] see Fraser 1990 and Habermas 1989 for an analysis of the relationships between public space and multiple alternative and subaltern publics.

finds itself expressing the concept of “neutral ground”. “Now, at least until the next disaster strikes, no-one in the neighborhood, in the city, or in the United States will question the L9W’s claim to be a fully-fledged part of the city" (Tonnelat 2011, 8).

The space itself, and the processes of its conception and building, exemplify the potentials of empowering communities to participate in decisions on their futures and the places and landscapes they inhabit, by helping them to expose the underlying mechanisms of their marginalization, to propose alternative future scenarios, and, first and foremost, to make visible and politicize their long tradition of systemic and systematic disempowerment and disenfranchisement. And, perhaps above all, it allows marginalized and traumatized communities to become co-authors of the landscape they inhabit instead of being cast as or self-identify as merely victims of hegemonial agendas, thus reasserting their ‘right to place’ and identity.

This participation relies on the inclusion of narratives and knowledge habitually excluded and suppressed as ‘non-expert’ to imagine and enact alternative future human-environment relationships and to enable critical hermeneutic exchanges. Homi Bhabha most potently conceptualized and proposed the “right to narrative” as a key element of an individual and collective right to identity (Bhabha 2003) and by extension of the right to place and landscape.[16]

Theorizing Critical Spatial Practices and Assembling Dissent

The concepts of sustainability and, even more so resilience, have and continue to play a central role in the discourses on the future development of human settlements in general, and in particular in the conversations and processes of rebuilding and recovery after disasters. While they are generally considered positive and benign, they are far from innocent and de facto layered with neoliberal, capitalist, and neo-colonial agendas. “Sustainable Urbanism” and “resilient cities” are buzzwords and concepts that so far have only rarely been critiqued fundamentally. The redevelopment

[16] This “right to place” or “right to landscape” can be conceptualized as analog to, and an extension of, Lefebvre’s (1996) and Mitchell’s (2003) “right to the city”. See also Harvey (1973, 2008) and Staeheli et al. (2002).

of New Orleans post-Katrina lies open the darker side of these approaches and agendas. As Slater (2014) states:

> Resilience so easily supports not only austerity, but the territorial stigmatization that so often precedes strategies of dislocation ('that community is just not resilient enough, so we need to break it up and scatter its residents').

Resilience in particular, even if just considered an analytical framework, ignores critical questions about the contradictions of capital accumulation, "uneven development" (Smith 1984), enabling political structures and "state strategies of 'growth machine' branding" (Slater 2014) – in fact, it ignores the very processes and underlying conditions that create increased precarity and vulnerability (environmentally, socially, economically, culturally etc.). The underlying irony was not wasted on many New Orleanians, and residents of the L9W in particular who suffered through countless public hearings explaining to them how they would need to become "more resilient" in order to continue to live in their neighborhoods. The victimization by the planning and design professions, even twelve years after the "Bring New Orleans Back" plan, continues with a slightly changed rhetoric.

The geographer Maria Kaika (2017) is one of the few scholars who critiques the underlying values, systems of signification and research agendas as the deployment and implementation of resilience-based schemes and rhetoric as based in deliberate ignorance or obfuscation of systemic root causes off vulnerability and precarity. She suggests that:

> (…) despite a conceptual shift in what cities are (…), when it comes to the how of making cities 'safe, resilient, sustainable and inclusive' appear already to have been hijacked by the same research agendas and the same policy and methodological frameworks of the past. (…) What if, alongside changing the conceptual framework within which we understand cities, we also changed our research questions, our methodological tools and our institutional frameworks? But in order to change tools, methods and questions, we need to change interlocutors. We need to focus on who has been silenced in the design and delivery of past sustainable development agendas and goals, and why." (Kaika 2017, 94)

In 2014 posters with the inscription "Stop calling me resilient" appeared all over New Orleans. These were the visible aspect of the public campaign Tracie Washington of the Louisiana Justice Institute launched and disseminated across New Orleans.

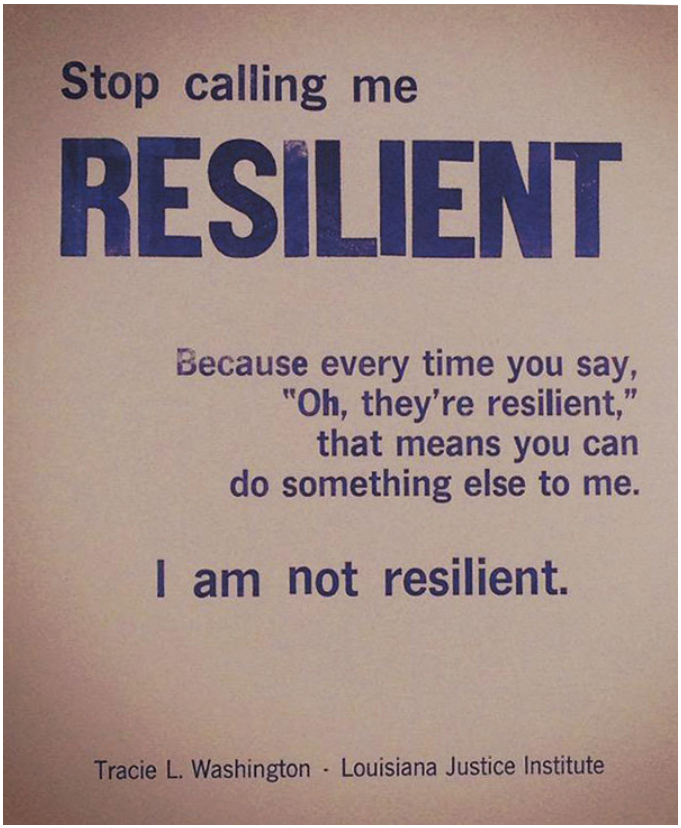

Fig. 3-6. "Stop calling me resilient" signs appearing in New Orleans in 2014. Signs were created by local letterpress printer John Fitzgerald.

Objecting to the way the media and policymakers continuously praised her community for its resilience after hurricane Katrina and the BP oil spill, Washington explained:

> (…) every time you say, "Oh, they're resilient, [it actually] means you can do something else, [something] new to [my community]. … We were not born to be resilient; we are conditioned to be resilient. I don't want to be resilient …. [I want to] fix the things that [create the need for us to] be resilient [in the first place]. [emphasis added]. (Washington, cited in Kaika 2017, 95)

Washington clearly objects to the cynical focus of the resilience rhetoric that is so deeply ingrained in the current practices of the spatial design and planning disciplines and professions, and the focus of the rhetoric on how to make citizens more resilient:

> (…) no matter what stresses they encounter", as this would only mean that they can take more suffering, deprivation or environmental degradation in the future. If we took this statement seriously, we would need to focus instead on identifying the actors and processes that produce the need to build resilience in the first place. And we would try to change these factors instead. (Kaika 2017, 95)

Instead of changing these factors, the focus of established design and planning practices is on changing the people that are vulnerable, on building buildings and infrastructure that can resist or recover from catastrophic or near-catastrophic events - on "techno-managerial solutions" (Kaika 2017, 95) to deliver socio-environmental justice. In other words, in the discourses on resilience and sustainability the self-determination and empowerment of communities needs to become a critical element. However, the playing field is uneven, as New Orleans and the aftermath of Katrina so glaringly exposed: the hegemonial power of state and non-state actors, their ability to decide on the future of established communities and neighborhoods, to require them to prove their viability (as the post-Katrina recovery planning processes required) and their ultimate ability to decide who gets to continue to live in their neighborhood and who does not puts a very different lens on the regularly fetishized consensus-building so central to resilience and sustainability planning. Tracie Washington's frustrations are just the tip of the proverbial iceberg – many of the residents of New Orleans compared the recovery planning processes to the discriminatory practice of redlining.[17] The attempts to be create inclusivity and "get everybody on board" are fraught with suppression and can in fact be seen as working in the traditions of colonialism: residents in New Orleans that participated in the public planning processes

> (…) realized that this only legitimized the injustice of existing practices and reproduced fixed roles and power positions. When invited to be "included", there was already a clear role assigned to them: not that of the equal co-decision maker in setting development goals and allocating resources, but

[17] "green-dotting" was a term coined to describe the green dots that marked neighbourhoods to be turned into parks, wetlands and greenspace in the Bring New Orleans Back plan. The term references the historic practice of "redlining" which marked predominantly poor and black neighborhoods to facilitate discrimination in terms of access to loans, home ownership and investment in infrastructure.

> that of the subordinate subject, who is only allowed to choose from a set menu of monetary or other compensatory practices in return for the destruction of her/his livelihood and environment. (Velicu and Kaika 2015, cited in Kaika 2017, 96)

A truly critical practice then would need to shift its focus from the manufacturing of consent to the mapping of dissent. Following Mitchell's (2003, 211) postulate "to be effective, politics must be made visible in public space", the role of critical practices in architecture, landscape architecture and planning would be to make difference visible as a first step to the inclusion of any and all people, actors, agendas, values and interests instead of prioritizing stakeholders defined and established a-priori by the powers that are and the processes they prescribe. Assemblage theory may offer some productive frameworks and approaches to manage ways to identify, to engage diversity and dissent, and to decolonize spatial planning and design.[18] Truly critical spatial design and planning practices then will need to engage in "exposing, proposing, and politicizing" (Marcuse 2009) these processes and actors, and make these steps a critical and central component of the design (or other constructions) of space that are democratic and public in the very sense of these words.[19] The platform may serve as a model for some of the alternative methods, approaches and frameworks that could facilitate the co-creation of spaces by many and diverse actors and forms of action that may operate outside of the specific circumstances of post-Katrina New Orleans and post-disaster conditions. It could be argued that post-Katrina New Orleans merely rendered the complexities involved in the production and construction of public urban space more visible, allowing for and requiring a more deliberate engagement of actors and agendas often hidden. Focusing on revealing dissent instead of the hegemonial manufacturing of consent then might become a central element of critical spatial practice.

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[18] See e.g. Latour (2005), Tampio (2009) and McFarlane (2011).

[19] For a more detailed description of a framework to achieve this see Langhorst 2018.

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Chapter 4

Central Neighborhoods Revitalization and Tourist Bubble: From Gentrification to the Daily Life Touristification in Montreal

Hélène Bélanger, Dominic Lapointe and Alexis Guillemard (with the collaboration of Sara Cameron)

Introduction

Urban revitalization, rehabilitation, renewal and (re)development alter the built environment. Different programs, projects and policies help improve run-down areas and make them more attractive for private investors, tourists, workers and for the middle and upper classes. Old working-class neighbourhoods witness the arrival of wealthier residents increasing social mix (at least in the beginning) which is considered a value in urban planning for its population integration virtues (Lupton and Tunstall 2008). The influx of new residents and tourists with greater consuming power favour commercial diversification in areas often seen as food desert although mostly "'in place of' stores that serve the poor" (Zukin et al. 2009, 48). With new activities and increasing property values, fiscal revenues, the first source of local funding for Canadian cities (Carrier and Tremblay 2014), increases facilitating reinvestment into communities. Not surprisingly, this new attractiveness is the main objective of most planning initiatives because the end results are expected to be positive for everyone; who doesn't appreciate improvement of his/her living, working, leisure environment? Unfortunately, the high price paid by people pushed away by gentrification processes is too often concealed.

Our previous and current studies (Lapointe and Bélanger 2017, Guillemard 2017, Bélanger and Cameron 2016) show that neighbourhoods' spaces under study were staged, secured and standardized to provide an experience, a landscape, a way of life, thereby producing a space (Lefebvre 1974) that conforms to the needs of capital (Harvey 2001). Space transformation excluded marginalized populations, poor residents and their private market affordable housing (Bélanger 2014). Traditional private rental market is shrinking and replaced by a new one, with higher rent and less protection for renters (see Gaudreau et al. 2018). Housing is now a commodity for small and big investors who target middle and upper middle classes contributing to speculative bubbles and gentrification (Rosen and Walks 2015). But our works highlight a new phenomenon in these dynamics that deserves further study: the new housing market shows an "hypercommodification of urban life" (Brenner, Marcuse, and Mayer 2012) where potential residents are targeted as if they were tourists of their own daily life, what we call the daily life touristification.

This chapter revisits previous works on two neighbourhoods in the city of Montreal (Canada): the *Quartier des spectacles*, a cultural district, and Griffintown, a private development in a rundown area. We assume that urban planning tools allow, if not encourage, daily life touristification. In conclusion, this paper discusses how urban planning practices should go beyond these neoliberal approaches.

Daily Life Touristification

Touristic and daily life territories co-construct themselves. From a socio-constructivist perspective, as defined by French geographers, a territory is "an economic, ideological and political (therefore social) space appropriated by groups, which gives them a particular representation of themselves, their history, their singularity" (Di Méo 1996, 40—our translation). Thus, territoriality by space appropriation is framed by economic, sociopolitical and cultural structures at different scales. Klein et al. (2008), from a different angle, insists particularly on cultural structures dimension in his definition of territory which brings us to a people (individually and collectively) perspective. Territory, for Klein et al., is "a delimited space, shaped and occupied by a community, which is both instrument and medium of its reproduction and acts as the cement of the social bonds between those who occupy it" (Klein et al. 2008, 42—our translation). From the individual perspective, territory definition is linked to daily activities (Certeau 1990), but also to different layers and flux of

feelings, memories and identity (Mallet 2004). Home is such a territory of concern in this research, although not the focus of the present chapter. Here, home is understood as a collection of significant spaces (Wise 1999) which are geographically fluid between the dwelling and surrounding spaces, what is sometimes called home territory (Madanipour 2003). Yet, people individually and collectively with their own interests, capabilities and abilities are sharing more or less fairly the power to shape and act on their territory. In turn, territories spur economic and socio-spatial practices of people that inhabit or visit it. Our interest is in this dual territoriality of tourism (or spectacular) in contrast to home (or daily life), how they overlap, influence each other, even blend.

In the search for Barcelona's success or the so-called Guggenheim effect (see for example Smith 2005, Plaza 2006), growth coalitions work for the materialization of large revitalization/revitalizing projects, following the same recipe. May it be, to name a few, the rehabilitation of historical sites, a new transport infrastructure or the construction of a completely new wealthy neighbourhood on a brownfield site, the goal of public and private stakeholders is to render the city competitive at the regional or global scale in order to attract new capital. This type of development strategy can also take the form of standardized "tourism bubbles" that have basically the same urban amenities (Fainstein and Judd 1989): a convention centre, a professional sports franchise, huge shopping centres/areas, a casino and architectural landmarks. In these tourism bubbles, public spaces are also conceived in order to answer the needs and expectations of tourists. Their design, layout and furniture take into account tourists' sensibilities regarding the desirable aesthetic and everything is done to increase safety perception including police surveillance (Lofland 1998; Iveson 2007). This form of territory production can be witnessed in cultural districts such as *Quartier des spectacles* in Montreal which is by itself a spectacular territory and a site of spectacles (Bélanger and Cameron 2016). It can also be witnessed in aestheticized/museified historical sites such as Old Quebec, a World Heritage City where

> [t]he urban landscape has not been recreated as it was before, but as it should have been (…) The end result smooths out the "inconsistencies" of the real history and shows a perfect "product", in fact more perfect than reality itself. (Gravari-Barbas 1998, 188—our translation).

This form of territory production represents the ideal type of a space out of daily activities designed for tourists in search of entertainment out of their ordinary life. But touristic spaces are rarely disembodied from host societies

and individual practices of the visited such as producing, exchanging, feeding, clothing or educating. Tourists are in a complex relationship with otherness as visitors and also as consumers of host alterity (McCanell 1976, Kuhn 2002). But tourism is now blurring the boundaries between living a daily life like a tourist and living in the daily life of someone else, therefore calling for some scrutiny of otherness in the lived space. Today, in cities and metropolises, tourism bubbles expand to appropriate everyday spaces and lifestyle practises in what Russo and Scarnato (2018) call the "tourismification of the quotidian." In these tourism bubbles, public spaces are staged and their authenticity "pasteurized" (Germain, Liégeois and Hoernig 2008). In some cases, new romanticized authenticities are even created/invented for the pleasure of tourists and visitors (Bélanger 2005). And now, boundaries between tourism and daily life are becoming more blurred with Airbnb slogan "Living like the local" and the pasteurization of the very private dwelling into a deterritorialized link of hotel-like apartment (Roelofsen and Minca 2018). While Russo and Scarnato (2018) discussed "tourismification of the quotidian" as the recuperation of everyday life elements, we argue that this territorial appropriation by tourism goes beyond everyday spaces and lifestyle practises. It now affects local residents in their mode of dwelling in the Heideggerian sense where "dwelling for the be-ing is therefore to build oneself within a world by the very construction of it" (Hoyaux 2002—our translation). In other words, we witness a *daily life touristification*[1] where local residents are becoming tourists of their own life.

The image of the tourism bubble reflects what is happening in most cities: a real estate and financial speculation around facilities which are in some way economically, socially or culturally disconnected from its surroundings. These bubbles do not seem about to burst, on the contrary, they even inspired other sectors of activities than tourism to take advantage of the experiential economy. This is the case in residential real estate. Looking back in the 1970s, Neil Smith (1996) had identified the return of capital in run-down centres of US cities through real estate development aimed at middle and upper classes, these "urban pioneers" who chose then urban life rather than the suburban one. The "return to the centre" is now facilitated by the creation of a new experiential housing market. Indeed, new residential developments in central neighbourhoods seem to evoke more

[1] To put it in other words, in order to clarify the differences in the terminology used, while Russo and Scarnato focus on tourism (actions and processes) in their work on "tourismification of the quotidian," our perspective is on the individual, the resident not "the tourist" although the resident that is becoming a tourist of his own daily life.

and more tourists' way of living in luxurious hotels. Obviously, the hotel way of life is not new and had already caught the attention of researchers of the Chicago School (see Wirth 1926; Burgess 1928) and more recently of architectural historians (for example Groth 1994), urban and cultural geographers (for example McNeil 2008) and of the cultural theorist Siegfried Kracauer ([1927] 2004) to name a few. Discussing Kracauer's work Katz (1999) wrote:

> Like the self-contained superblock, the privatized space of the metropolitan hotel could be said to have turned its back on the city. And yet, at the same time, the hotel recuperated urban life on terms that extended its own ability to manufacture desire. The hotel was not just an airbrushed city within the city; it also sold the city outside, the dirty city, a distinctly cosmopolitan self-image. (p. 137)

The grand hotel lobby would then be a cosmopolitanism metaphor as suggested by McNeil (2008), maybe even what Elijah Anderson identified as a "cosmopolitan canopy" where

> people of different backgrounds [have] the chance to slow down and indulge themselves, observing, pondering, and in effect, doing their own folk ethnography, testing or substantiating stereotypes and prejudices or, rarely, acknowledging something fundamentally new about the other. (Anderson 2004, 25)

But the grand hotel lobby also provides a self-segregation mechanism based on identity and consumers' tastes (McNeil 2008). Hotels are not the only consumer playground. Urban "space (and the leisure activities it supports) represents a commodity available to purchase, sale or rent to anyone with adequate financial resources" (Lloyd and Auld 2003, 339). And this is taking place with the complicity of public authorities through their planning initiatives pursuing economic growth objectives (Zukin 2010, also see Lloyd and Auld 2003). The urban leisure lifestyle is also mimicked by the new housing market that take advantage of this experiential economy. In this perspective, neighbourhoods become leisure environments, not necessarily for the benefit of long-term residents and their ordinary daily activities.

Driven by biopolitical marketing approaches (Zwick and Ozalp 2011), the new housing market dwellings' characteristics are overshadowed by sites for the "consumption of pleasure" (Prosser 1993 quoted by Lloyd and Auld 2003): sets of exclusive collective amenities, pasteurized neighbourhoods' authenticity and cultural buzz. There, buyers are not as much residents, part of a local community than consumers/tourists in their own residential

environment. Housing is reduced to a commodification for the production of spaces of high market values participating in daily life touristification. The question is then, to what extent there is emergence/existence of this process of daily life touristification? To what extent this is happening, not only in spectacular territories such as in cultural districts but also in residential ones?

This critical analysis of daily life touristification and its gentrifying dynamics use Lefebvre's (1974) triad conception of space, focusing on the conceived space, dominant in a society, and the lived space which includes the physical space through the symbolic use of its artefacts. Without neglecting the materiality of the perceived space, we first seek to understand how symbolic construction, values renewal, new spatial practices including dwelling (to dwell) and the discourses of dominant actors, produce urban spaces where the boundaries that separate the touristic from the daily life are increasingly blurred. Second, we want to explore how planning tools may contribute to this transformation. Cities and metropolises play a central role in the expansion of the neoliberal productive model, based on the flexible accumulation of capital by processes of creative destruction (Brenner and Theodore 2002). At the same time, cities and metropolises' growth result from this expansion. In other words, "process of city making (…) is both product and condition of ongoing social processes of transformation in the most recent phase of capitalist development" (Harvey 1989, 3).

The omnipresent pro-tourism discourse has largely remained dominant, though allowing for adjustments mostly in the purely symbolic realm of marketing and representation, where growth and the uniqueness of every place is stated (Brouder 2018). But pro-tourism discourse is seldomly done in terms of redistribution policies and "hard" planning (Colomb and Kalandides 2010; Ryan 2002; Schilcher 2007). Yet this production of space is carried by discourses and space representations which also contribute to the daily life touristification. Tourism discourse, as discourse of power (Dann 1996), does not solely describe tourism practises but also social control in and of the space, control of what can or cannot be done by tourists and, most importantly in the framework of this exploratory research, what can and should be offered to tourists as well as to future residents/gentrifiers that real estate developers want to attract.

The two cases explored here, the *Quartier des spectacles* and Griffintown, were both subject of a Special Planning Program. This local planning tool makes possible to adapt planning rules to different projects in

different contexts, based on a revitalization vision, with different levels of private stakeholders and civil society participation. This tool is used, for example, for special redevelopment programs, detailed land use identification, or properties to be acquired by the City.

The Quartier des spectacles

The first project for the creation of the *Quartier des spectacles* was presented by the local administration to Montrealers in 2002. According to the City of Montreal, the project was generally welcome as a possible trigger for Montreal (re)development, and good for its international city image (Ville de Montréal 2007). The coordination and development of the district were delegated to the *Quartier des Spectacles* Partnership, a non-profit organization with more than 50% of its members coming from the cultural milieu (Quartier des spectacles Partnership 2018). Other members include non-profit corporate leaders and the president of the local concertation table. One of the two chairmen of the Partnership is a director of a large private equity firm specializing in real estate. This same firm was also involved in the Griffintown redevelopment program. The City of Montreal's representatives and members of the executive committee are invited to attend non-voting board of directors' meetings. Members of the Partnership were involved in the conception of the two Special Planning Programs which cover the area, the first one in 2008 for the *Place des arts* area and the second one in 2013 for the Latin Quarter.

The first Special Planning Program took place on an almost completely abandoned area with open spaces serving as parking lots, empty plots and buildings adjacent or nearby the *Place des arts*, a major performing art centre. This area was then appropriated by marginal populations with perceived problems of incivility and drug use, symbolizing physical and socioeconomic degradation of Montreal central neighbourhoods (Morin et al. 2008). The *Quartier des spectacles* partnership engaged in a radical redesign of the area's physical environment, including the creation/revitalization of eight public spaces accommodating cultural activities of which *Place des festivals.* The Partnership estimates that seven million visitors attend the 40 festivals taking place in the *Quartier des spectacles* yearly (Quartier des spectacles 2015). The creation of this cultural district also triggered a real-estate boom; 60 property development projects were built between 2007 and 2019, which represents an investment of 2.2 billion [CAD] (Fig. 4-2 and Fig. 4-3). Many of these projects are luxurious condo developments which are (small) flats in a collective building which are individually own and where the owners

share collective property of common areas and amenities, targeting a clientele of small households of professionals.

Residents of the *Quartier des spectacles* were interviewed regarding the transformation of their living environment in two previous studies. In both studies, informants voiced their appreciation regarding the physical improvement following the Special Planning Program and subsequent private investments. Surprisingly, neither gentrifiers nor gentrified had voiced a feeling of invasion of their home territory, despite the increasing population or some irritants arising from festival activities (Bélanger 2014; Bélanger and Cameron 2016). In both studies, the *Other*, the outsider is not the visitor nor the tourist. In the first study (see Bélanger 2014), although some criticized the overflow of festival activities into more residential areas and the loss of community life, tensions were clearer for some residents (a minority) against marginalized populations, now more visible with pasteurized/sanitized public spaces. In the second study, the phenomenological enquiry allowed to go deeper in the understanding of the lived experience of residents (see Bélanger and Cameron 2016). The *Other*, the outsider, for the informants, is the one who challenges the establishment when the establishment is trying to maintain control. The *Other*, the outsider, is the resident who criticizes the festivals or the revitalization projects and their impacts. The *Other* is sometimes the City, with its bureaucracy and the lack of public consultation on projects that affect them personally. The *Other* is the developers and its workers who have an impact on daily lives because of the disturbances cause by construction sites. Finally, the *Other* is responsible for the expropriation of residents and moms and pops shops. Even without knowing their possible impacts, the *Other* is not, for the informants, the visitor nor the tourist because the *Quartier des spectacles* is a territory of cultural consumption. In the light of these results, Bélanger and Cameron (2016) wondered if residents identify themselves more with tourists than with critical residents. We can question then the role of the housing market (who the targeted consumers are, thus the new residents) in the perception of who is the *Other*.

It is true that Montreal's housing market is considerably changing, leading to what Rosen and Walks (2015) identify as condo-ism. More and more, new condos are bought by (small) investors who rent them. Today, about 25% of condos are rented in Montreal at a price higher by 50% of traditional renting dwellings contributing to a radical spatial polarization and fragmentation of the rental market as Rosen and Walks (2015) observed in Toronto. This shift in the rental market includes (but is not made of) short-

term rent purpose such as Airbnb, and medium-term rent purpose targeting wealthy students.

The observation made by Bélanger and Cameron (2016) on this cultural district, in the light of its changing housing market, seems to indicate blurred distinctions between tourists and residents that need to be investigated. We can question if the same blurred distinctions are to be found in old run-down industrial neighbourhoods such as Griffintown.

Fig. 4-1: Sainte-Catherine Street in the heart of Quartier des spectacles (on left, the edge of Place des festivals) (source: Alexis Guillemard)

Fig. 4-2: Laurent & Clark condos under construction (view from Parterre public space) (source: Alexis Guillemard)

Fig. 4-3: Maestria condominiums under construction (in the background centre is Place des festivals) (source: Alexis Guillemard)

Griffintown

Griffintown was one of the largest industrial districts in North America during the second half of the 19th century. This success was based on the Lachine Canal, which, through the St. Lawrence River, connected the Atlantic Ocean to the Great Lakes. The district, mainly an Irish working-class neighbourhood had about 20,000 inhabitants in 1881. But the closure of the canal to navigation in 1964 led to the abandonment of the area. Only 800 inhabitants were still living in Griffintown in 1971. Until the 1990s, the neighbourhood remained neglected.

The installation of the *École de technologie supérieure* (Superior technological school) in the 1990s and the close proximity of downtown and the Old-Montreal (one of the city's main tourist area) made the area attractive for real estate developers when the City made the decision to hand over the redevelopment of the area to private investors. Prioritizing the clean slate rather than rehabilitation, the first (re)development project for Griffintown was proposed by Devimco, a real estate management company specializing in large projects. The $1.3 billion [CAD] project occupying nearly 60% of the entire neighbourhood was endorsed by the City of Montreal.

Fig. 4-4: The Quartier des spectacles and Griffintown in Downtown Montreal.

Furthermore, the City of Montreal even granted a two years land reserve to Devimco, prohibiting any investment from other private investors that would increase the potential acquisition costs, and conceived the Griffintown Special Planning Program in line with Devimco's private project. The program was adopted in 2008 despite a stormy public consultation because of Devimco's involvement in the planning process. This plan was finally abandoned for its gigantism, strong opposition and the economic slowdown (Carbonneau 2014). But the interest of Devimco for Griffintown was still very much alive. Their second project, District Griffin, "now represents the most forward-thinking real estate project on the island of Montreal" according to Devimco (2019a). District Griffin, is a three

condominium towers and a high-end rental building offering a living environment, a convincing example we argue, of the daily life touristification. In the towers that make up District Griffin, we can find a lobby, a "cozy and refined urban lounge", swimming pools and common areas on the rooftops, a sauna, a gym, an outdoor spa, to name a few amenities (Fig. 4-5 and Fig. 4-6).

Fig. 4-5: Planned swimming pool of the Amati project (Source: District Griffin, by Devimco https://districtgriffin.com/fr/griffintown/condo-district-elements/)

Fig. 4-6: Lobby, screenshot of the Mary Robert project website (Source: District Griffin, by Devimco https://maryrobertcondos.com/en/living-spaces/)

These images found on the Griffin District Project website demonstrate the influence of hotel spatial organization on the construction of these high-rise residential buildings. This illustrates the concretization of the rise of urban entrepreneurialism that Harvey (1989) foresaw with the public-private partnership in planning, and production of an urban space aimed at

a specific clientele, the young professionals from the middle to upper classes. Griffintown is changing rapidly. From the deprived neighbourhood, Griffintown has become an attractive territory for young well-funded professionals, seduced by the "real estate renaissance" of the district, where commercial offer is also being transformed to satisfy new demand such as trendy bars, clubs and restaurants (Shearmur, 2017). Reflecting these transformations, in 2011 its population reached 6,446 inhabitants, an increase of 477% from 2006. Since then, the population had doubled again (Journal Métro 2017).

In addition, Griffintown is part of the *Quartier de l'innovation* (innovation district), a territorialized public-private partnership aimed at fostering "a one-of-a-kind innovation ecosystem where experimentation and collaboration between academics, entrepreneurs and residents generate benefits for society" (Quartier de l'innovation 2019). A non-profit organization has been created in order to develop a new distinctive image of knowledge and high-potential economic sectors territory. A similar strategy of branding was used in developing *Quartier des spectacles* distinctive image. The new *Quartier de l'innovation* image was complete in 2013 contributing to an increase Griffintown's attractiveness to real estate entrepreneurs. Even more, there is now a craze around the district, likely to structure a new commercial offer and attract new visitors, including business tourists. The former partially abandoned industrial district became symbolic of the type of urban projects currently favoured in Montreal. But in reaction to real estate development by several private developers, the City has tried to take over the planning of the sector. To this end, in 2013, it created a new Special Planning Program for all of Griffintown with a concern to increase land use mix which should contribute to the vitality of the neighbourhood. The process is more transparent and leaves an important role to the Montreal Public Consultation Office, an independent organization that carries out public consultations for the City of Montreal.

Without surprise, participants interviewed in a previous research perceived Griffintown differently according to their social and economic position (see Guillemard 2017). For hotel and restaurant workers Griffintown is a dynamic and flourishing environment in the shadow of the business centre. The same can be said for new residents who stated the increasing neighbourhood life. On the other hand, long-time residents regret the absence of a long-time vision by the City and the developers in the reconversion of their living environment. Furthermore, except for hoteliers, participants deplore the lack of aesthetic of the built environment. One local resident interviewed insisted on this point, mentioning that he does not

believe in the touristic potential of the Griffintown recent real estate development:

> people won't come to visit condos, that's not true. Unless, as in some neighbourhoods elsewhere in the world, there have been incredible architectural ambitions that make people come to see architecture. Between you and me, here the architecture is banal... People will not come for the architecture of the neighbourhood. (Interview 3)

Griffintown is therefore not produced as a tourist destination, but real estate developers have turned it into a residential resort where there are still spatial manifestations of tourism.

Daily Life Touristification

What is the strategy used by housing real estate developers to attract new customers/residents from middle and upper classes? An ongoing exploratory study based on documentary research of promotional material and websites suggests already that marketing campaigns of large estate groups use a new type of discourse. New residential development selling strategies evoke more and more similar communication tools used by large hotel groups to attract tourists and business travellers; the emphasis is put more on luxurious collectives' amenities and specific territorial resources.

Location was always a component of housing sales narratives. Transport infrastructures, proximity or easy access to the workplace, shops and services or schools were part of the discourse. But now, sales arguments transcend ordinary life and what can be perceived as boring daily routine by highlighting the opportunities for pleasure nearby. The location in the middle of (for the *Quartier des spectacles*) or near to (for Griffintown) the city's entertainment and leisure attractions are at the heart of sales arguments for new condos.

> In the heart of the Quartier des Spectacles, steps from everything there is to see, hear, admire, explore and taste in Montréal. (Laurent & Clark 2019)

> Discover kilometres of bike paths bordered by green spaces ideal for yoga or walking barefoot in the grass. Enjoy privileged access to the water and paddle along the canal in a kayak. (…) Explore the area's art galleries, its trendy restaurants, its cafés and its specialized boutiques. Enjoy the neighbourhood's many parks, such as the Bassin-à-Gravier family park, and well-equipped dog runs. Discover how easy and enjoyable it is to live near the Atwater Market, Old Montreal, the Bell Centre and the downtown core

while remaining within walking distance of businesses and shops on Notre-Dame, Peel and Wellington streets. (NOCA 2019)

The heartbeat of the city.
Feel the energy of downtown.
The world is your stage.
(Le Peterson 2019)

Fig. 4-7: Condos developments along the canal in Griffintown (source: Alexis Guillemard)

These examples show the similarities with the discourse of hotel advertising. Members of hotel chain or boutique hotels all highlight the advantage of their proximity to Montreal's main attractions. For example:

No place seems to understand this marriage of opposites quite like the Ritz Carlton Montreal. Not only does the historic hotel reflect in its own design Montreal's penchant for pairing tradition with modernity, but it conveniently positions its guests to get out and explore the sources of its inspiration. Visit the museums, shops, neighbourhoods and attractions that make Montreal unlike any other city in the world. Montreal is also home to numerous festivals and events, including the Rogers Cup, the Osheaga Music and Arts Festival and the International Jazz Festival. (Hotel William Gray 2019)

Montreal's luxury hotels also systematically promote their recreational or training facilities. In doing so, they seek to meet the demands of their tourist

clientele, in search of leisure. Browsing websites of major hotels allows customers to rapidly evaluate what equipment and services are at their disposal.

> Enjoy a swim in our roof top salt water pool with its panoramic view (…). Our complimentary spacious fitness centre (22 foot / 6.65 meters high ceiling) features commercial equipment by LifeFitness (…). (Courtyard Marriott 2019)

Real estate developers do the same. The landscaping, swimming pool, common lounge, lobby and gymnasium are systematically included in large real estate projects. Residents buy condos that assures them an ultra-consumer daily life close to that of a tourist. There is no longer talk about classic conveniences, but the prerequisites become the presence of collective entertainment spaces.

> The Bassins du Havre is pleased to offer a 6,000 square-foot fitness centre featuring a fully equipped gym and inspiring spa (steam, sauna, hot tub and indoor swimming pool).
>
> Our rooftop terraces with swimming pools are great for sunbathing and will leave you feeling like you're on vacation right in the heart of the city. The chalet located on the 21st floor, is perfect for relaxing in front of the fire while enjoying breathtaking views of downtown. There's also the reception room, an ideal place for welcoming family and friends on special occasions. (Les Bassins du Havre 2019)

This promotional discourse is even more emphatic than that of hoteliers in building a vision of a life full of the most pleasant experiences, with a direct link with tourism, emphasizing the feeling of being on vacation (Fig. 4-8 and Fig. 4-9). Advertisements of these projects express a blurred line between being a resident or a tourist. And this daily life touristification sold by promoters goes beyond the framework of the facilities to reach the entire neighbourhood as shown by Devimco, Griffintown's main real estate developer:

> The neighbourhood is reinventing itself, bursting with action. Griffintown, Montreal's up-and-coming part of the city, is destined to become the next influential sector for fashion, music and arts. It offers a unique way of life combining residential units and commercial offers such as restaurants, bars, boutiques, spas and even a bicycle path! District Griffin, the new condo project also offers its residents exciting common areas in each building. A few minutes away from Old Montreal and downtown, you will have easy access to events and festivals happening all over the city as well as the Bell

Center, L'Arsenal, la Place des Arts and the fabulous Quartier des Spectacles! (Devimco 2019b)

Fig. 4-8: Humaniti condos billboard "Hotel Life at Home" on future construction site (source: Alexis Guillemard)

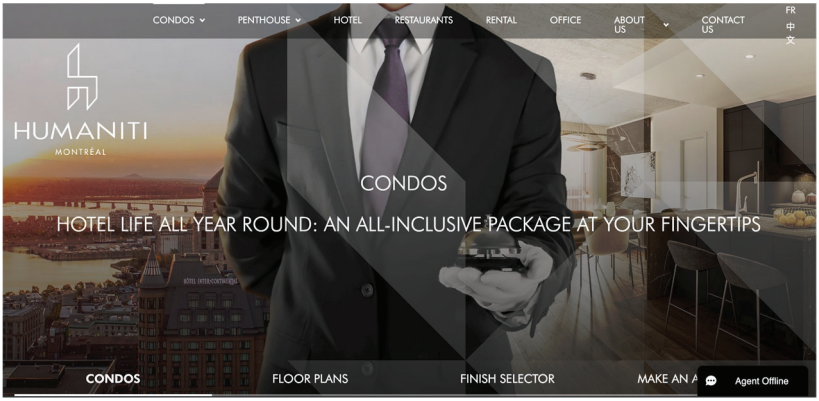

Fig. 4-9: Humaniti condos website homepage (source: https://www.humanitimontreal.com)

Names and symbols are also re-appropriated to sell a tourism-like experience to targeted residents. In short, residential dwelling and tourism are intertwined, which also blurs the idea of what can be put in a development oriented to the tourist. In sum, these discourses produce a space that loses its use value in favour of exchange value.

Concluding Remarks

We are witnessing the colonization of the city's symbolic production values in daily life spaces (or home territories) by tourism discourses and practices. In the case of the *Quartier des spectacles*, tourism-like ways of living seem to happen in parallel of the spectacular territoriality, while in Griffintown the way of living is sold using a touristified discourse of authenticity and leisure. In both cases, space re-imaging envisions an international positioning of the city. This short exploration of daily life touristification suggests that,

> [n]ot only are the spaces of the city opposed to everyday practice and oriented to capital and bureaucratic order rather than lived experience, but the way that the spaces of the city are produced excludes the majority of the city dwellers and their experience. (Bridge 2014, 1653)

The projects presented in this paper were welcome as a spin-off for the redevelopment of run-down areas of the city, participating in gentrification processes pushing away symbolically local people more than physically, at least for now. Allmendinger and Haughton highlighted that planning is considered negative for some people and organizations, because it would slow down economic development, even worsening housing affordability (Allmendinger and Haughton 2010). Although these projects stimulated economic development, it is true that they contributed to worsening housing affordability, because private interests were prioritized. This was clear in the case of Griffintow where Devimco basically wrote the Special Planning Project, leading to a strong local opposition. As for the *Quartier des spectacles*, consensus was built by the partnership, and, although land values are rising, affordable housing disappearing and the area gentrifying rapidly, there are few voices to manifest increasing unmet needs of the excluded, the poor and marginalized populations. This last case raised the question if it is a form of post-politic tactics (Allmendinger and Haughton 2010) "used to rein in dissident voices behind the broad political project of reregulation in favor or particular interests" (Metzger 2011, 191). In this strategy, tourism, and the tourist as a political subject, are used in the discourses as an economic resource without discussing and challenging the

predominance of the market and speculation as general goals of the redeployment and therefore, projecting and superimposing tourism discourses and practices on daily life of the local residents.

Can planning practice be critical?

> The argument could be made that the present crisis exposes the vices of the capitalist system as a whole, and that the realization of a genuine right to the city requires the abolition of the role of private finance, and thus with it the rule of private capital, over the urban economy, and indeed, that of the world economy as a whole. That would be a radical response, one oriented precisely toward the construction of an "urbanism appropriate for the human species' as envisioned by Harvey (1976: 314)". (Brenner and Theodore 2002, 181)

Although we acknowledge its theoretical potentiality for critical planning, we question if Special Planning Project is a tool flexible enough to go beyond neoliberal planning. With very limited effect, the new Special Planning Project for Griffintown shows the preoccupation of the public administration to include a diversity of uses and population and not letting the control to private developers. In the *Quartier des spectacles*, public spaces should have been designed more "loosely", instead of being designed with the objective to attract specific uses and users. Loose spaces are "apart from the aesthetically and behaviorally controlled and homogenous 'themed' environments of leisure and consumption where nothing unpredictable must occur" (Franck and Stevens 2007, 3). Loose spaces give people the potentiality of a full experience of the unexpected, of the spontaneity in their everyday life. This goes as much as public spaces in general to experimentation of new form of appropriation, notably to temporary cultural spaces on empty land and buildings for which the city is just starting its first laboratory. Indeed, Montreal has recently accepted its first "transitory" spaces for artists and community groups in an abandoned building (Ville de Montréal 2017). The fact that these planning approaches are not included in Special Planning Project or other tools seems to indicate that critical planning is possible but still *outside* the local administration thinking box.

To conclude, this exploratory study focused on the discourses of promoters and hoteliers. The next step of our research should be to understand how people live in these real estate developments, what motivated them to buy these *homes*, and how they participated in the transformation of the space. This would allow the daily life touristification

to be studied not only as a simple selling strategy but also as a new way of dwelling in the neoliberal city.

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SECTION TWO:

TAKING A STEP BACK

CHAPTER 5

MINING MINING: IDEOLOGY, REPRESENTATION, AND CRITICAL SPATIAL PRACTICE

EDUARDO KAIRUZ AND SAM SPURR

In the short story *On Exactitude in Science* (1946), the Argentine writer Jorge Luis Borges indirectly expressed his known skepticism towards modernity. He writes:

> ... In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province. In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guild struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations, who were not so fond of the Study of Cartography as their Forebears had been, saw that that vast map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars; in all the Land, there is no other Relic of the Disciplines of Geography. (Borges 131)

At a first glance, Borges's text presents an atemporal fable that questions power and authority in their relentless pursuit of ultimate knowledge and perfection. Under further scrutiny, however, the text reveals itself as a harsh criticism of one of the key axioms that lie at the core of the modern project: the supremacy of precision over interpretation. This is evidenced in the absurd ambition of the "Cartographers Guild" who, seemingly out of arrogance and dissatisfaction, set out the disproportionate task of creating "a Map of the Empire whose size was that of the Empire, and which coincided point for point with it." In other words, in Borges's story, the authority of scientific expertise is rendered insufficient, particularly when

faced with the task of effectively representing "the Empire" in all its complexity.

A similar situation occurs in the context of contemporary science when attempting to communicate the devastating effects of global warming to the larger public. The rigorous and precise instrumental procedures through which scientists have found irrefutable evidence of an already developing catastrophe have clearly outpaced the means through which they have tried to communicate them. Like Borges's "Cartographers Guild," global warming scientists have been understandably consumed with drawing an exact map of the unfolding destruction of our planet and have assumed that the truth will be sufficient to garner an appropriate public response and mass mobilization. But as the map of global warming is too complex and exact to engage the general public; the overwhelming truths provided by global warming scientists have failed to goad social action. So, what can we do? Borges's story raises two important questions in regard to this conundrum. The first is, is the exactitude of scientific precision really the most relevant means of communicating information in a highly politicized context? The second question is, is the subjectivity of aesthetic interpretation questionable in such a context?

Graham Harman—the key proponent of object-oriented ontology—would answer negatively to the former question and positively to the latter. In arguing that "the reality of things lies outside the grasp of human knowledge," Harman (2012, 11) suggests that we cannot fully access the truth of objects through scientific methods and procedures. For Harman, their reductionism fails to acknowledge that the qualities of any given object can withdraw or emerge unexpectedly before our minds. In Harman's (2012) view, the full reality of objects is inaccessible through scientific processes, however, objects can be accessed indirectly. This is only possible through means that belong to the humanities (including philosophy, art, and architecture to name a few), as opposed to those that belong to the life, applied, and social sciences.

Borges's story is concerned with the power of storytelling and its ability to invite an audience to engage with complex narratives. It suggests that to provide a non-scientific perspective is to explore new ways to communicate. In this chapter, we use the pressing example of the reprised role of coal mining in the contemporary political landscape of Australia. As the largest exporter of coal in the world, Australia's conceptualization of coal is key to future carbon mitigation strategies.

In this context, Harman's theory gives us instruments to "mine" the complexities embedded in mining as a specific type of object: an ideological condition. His theory also encourages us to search for the partial, withdrawn, or emergent qualities present in mining ideology with which we could articulate a narrative with sufficient thrust to mobilize the public.

In order to parse and clarify the ramifications of coal mining, we develop the term "mining ideology" to describe the enmeshing of historic, mythic, and political issues with economic and material ones. We pin-point two aspects of central concern through which we may understand both the field of mining ideology and the ability of architecture to engage with it: scale and violence. To develop our argument, we turn to contemporary new materialist philosophers currently grappling with the complexities of anthropogenic global transformations, hybrid systems, and the multiple becomings of bodies and matter in these novel conditions. Research methodologies provided by the field of critical spatial practice will be drawn on in this text to examine the ways in which architecture can operate critically and instrumentally to uncover, reflect upon, and communicate the political and environmental implications of late-capitalist large-scale operations.

With these theoretical underpinnings, we will formulate the notion of "resistance aesthetics:" a set of tools with which spatial practitioners may creatively participate in the larger political scenarios described above. We put forward the "exhibition as a form of protest" capable of producing this type of work.[1] In examining the particular capabilities of resistance aesthetics, our interest is not simply in forms of aesthetic representation but in the ways in which communication — as a form of engagement — can be employed to mobilize action.

[1] This chapter is the foundation for a case study that uses the Carmichael Mine in Australia in order to test these questions of representation and the potential of critical spatial practices to make legible mining ideology in action. It proposes that agency can be found in this contested and complex situation, and that creative practices can mobilize action through the critical engagement of aesthetic, experiential, and interactive practices.

Mining Ideology

Fig. 5-1. In 2010 a protest was held in Perth, Western Australia against the proposal by then Prime Minister Kevin Rudd to tax the super profits of mining companies. Curated by an external marketing agency who printed placards for the bused in mining employees, the event was attended by conservative politicians and some of the wealthiest members of Australian society including Gina Rienhardt and Andrew Forrest. The event would later be dubbed The Billionaire's Protest.

At the opening of the new Caval Ridge coalmine in 2014, former Australian Prime Minister, Tony Abbott, proclaimed that "coal is vital for the future energy needs of the world … so, let's have no demonization of coal [because] coal is good for humanity" (quoted in Taylor 2014). Mining is the bedrock of Australia's colonial history. And it is also a product of modernity. In terms of both its brutal working conditions and the sense of community that brought men, women, and their families together, mining would become the site of labor struggles and bitter industrial relation conflicts. The extraction of minerals and fossil fuels has been at the forefront of Australia's prosperity and rarely interrupted economic growth. Propelling the development of urban centers across the country, Australian coal exports started in the early 20th century, as England demanded vast amounts of coal as it spearheaded the global transformation of Western nations towards industrialization. Australia is today the largest coal exporting country on the

planet and the fourth largest producer.[2] The appropriation of Aboriginal and Torres Strait Islander land by colonial powers to conduct mining activities continues today as an issue of native title rights and the desecration of sacred land.

Despite the fact that coal is a proven source of significant greenhouse emissions (Burnham et al. 2012; Myhrvold and Caldeira 2012), Australia has seen only a few failed attempts to control and limit its extraction (Pearse 2009). Within the increasingly complex Australian social landscape, there remains a pervasive set of convictions, traditions, and beliefs around coal mining that coalesce as a particular collective subjectivity. This is what we call mining ideology: a collective subjectivity that even if distributed across the globe is uniquely constituted in Australia. Co-opted by ultra-conservative politics and funded by the mining industry, mining ideology has become entrenched in the contemporary narrative of Australian nationalism, particularly in the last few years.

Despite the decreasing employment numbers due to automation, the mining industry has continued to align itself with the working class. With 86% of the Australian coal industry foreign owned as of 2017, mining ideology also upholds the capitalist mantra of free market economics with the belief that those extreme financial gains will trickle down to benefit the rest of society (Aulby 2017; Gittins 2017). In this context, we see the need to understand mining in all its complexity, not just an industry engaged with the act of material extraction, distribution, and processing. Mining ideology is therefore a system that operates across the political, spatial, and environmental realms. It is this condition that this text seeks to find new ways of communicating to the public, in order to garner both visibility and political engagement. To do so we will focus on scale and violence, two particular elements that constitute mining ideology.

[2] For further information on the role of coal in Australia's history, see Guy Pearse, David McKnight, and Bob Burton, *Big Coal* (2013) and Guy Pearse, "Coal, Climate Change and the End of the Resources Boom" (2009).

The Scale of Mining

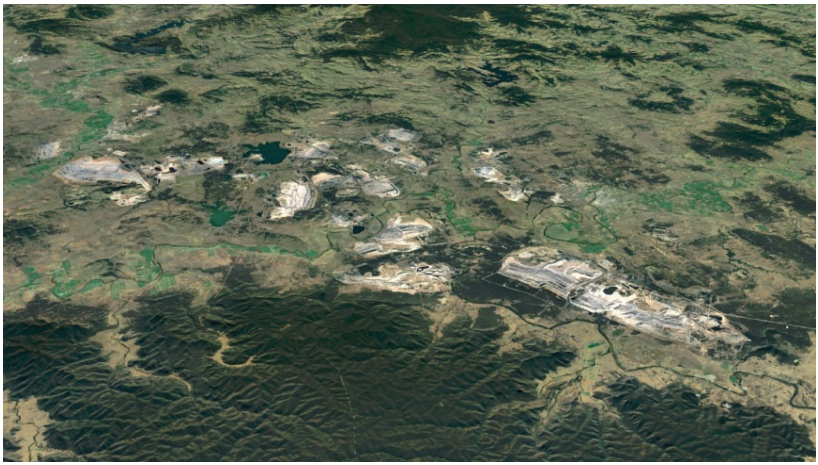

Fig. 5-2. An orthogonal view of the 53-kilometer-long Hunter Valley coalmine system, where Australian coal extraction first began in 1797 — produced by the authors based on images from Google Earth, 2018.

In the opening chapter of *Hyperobjects* (2013), Timothy Morton suggests that the "vastness of the hyperobject's scale makes smaller beings — people, countries, even continents — seem like an illusion, or a small colored patch on a large dark surface" (32). We might begin a discussion on scale and mining with a particle of coal dust, flung in the air and caught in a miner's lung, or of a small child who is living alongside its transport route. Alternatively, at a material level, what is known as mining's "toxic legacy" has little respect for territorial boundaries, whose expansionist ambitions occur across materials — including water, soil, and air — and across time frames, from contemporary contamination and into an unrestricted future. Mining ideology may be described in terms of its porous territoriality, the fact that the limits of the mining territories are diffuse, always falling beyond the representational frame.

A central characteristic of mining ideology is this ability to operate across multiple scales, a feature that brings us directly to the discipline of architecture. In architecture, scale is traditionally understood as a system of measurement and proportion. Scale has given architecture a mask of neutrality and objectivity, however, behind this mask, social and cultural agendas have dictated the frameworks for what is deemed socially

normative. In “The problem of scale” (2014), Adrian Lahoud traces the shift from a humanistic conception of human proportion in its cosmological relation to the world, to an industrial one in which the body is defined through its capacity for production and efficiency. This definition of scale is thereby not only a production of capitalist and neoliberal economics, but a mechanism that perpetuates the dehumanizing of individuals into collective statistics. In response to this historically and ideologically formulated use of scale, Lahoud reframes it as a problem through which the discipline of architecture may productively participate in a contemporary state of complexity and transformation.

Lahoud has been one of the few architects to note the ubiquitous yet uncritical deployment of the notion of scale — a situation that he sees as an opportunity for conceptualizing the discipline’s engagement with process philosophy. This framework provides the foundation for bringing together architecture and the complex, large-scale operations of late-capitalism. Presenting it as a problem that, instead of fixing situations into averaged data sets, acknowledges complexity and operates relationally, Lahoud (2014) argues that scale is “an arena for creative political action,” a “geometry of power” that can be mobilized by different actors according to different “scalar practices” (17). This means that in order to grapple with the multi-scalar complexity of mining ideology, we need a different set of instruments.

The unfathomable scale of mining means that we are always panning back, further and further, in order to capture the extents of its material form. In doing so, what we lose is resolution and, in the same manner of the microscopic images of pneumoconiosis — or black lung disease — a giving-in to the abstraction of pattern. Rather than bringing what is framed into focus, this pixellation does the opposite, taking us further from understanding the issues at play. In this way, scale must be understood as a problem that acknowledges the entanglement of the social and material in how space can be located. This understanding is in stark contrast to the way in which measurement and proportion have provided clear and universal answers to the relationship of bodies and space. Instead, we must grapple with complexity as an integral factor of scalar transformations. Global warming is not a problem of monumental scale, but a problem of multiple, overlapping, and nesting scales. It is this fact that we will make further complex through the issue of violence before exploring its representational ramifications.

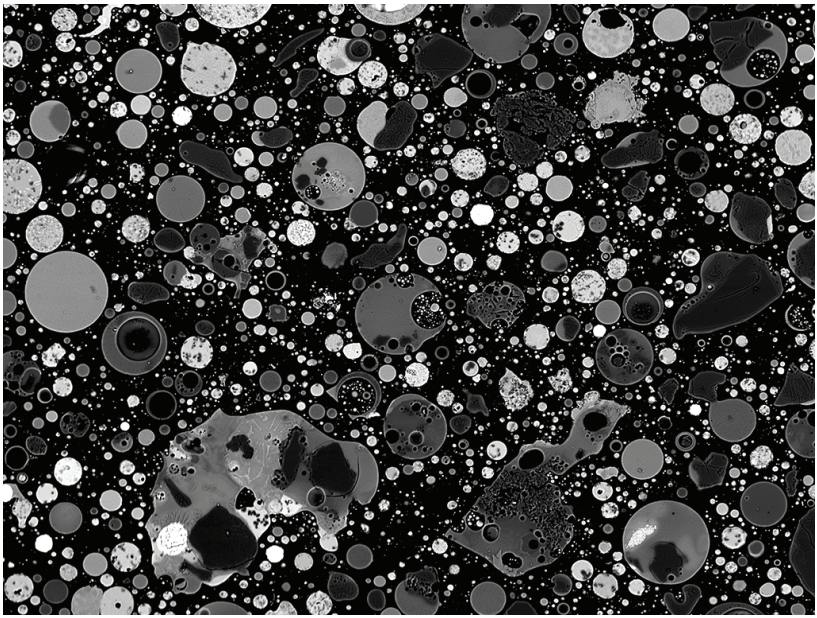

Fig. 5-3. Back-Scattered Electron Micrograph of Coal Fly Ash. A polished cross section of coal fly ash (ASTM C 618 Class C) embedded in epoxy. Coal fly ash is a heterogeneous substance composed of amorphous (disordered structure) and crystalline (ordered structure) materials. The image was obtained from back-scattered electrons which show differences in atomic density represented by variation in grey scale.

Violence

"Violence, above all environmental violence," argues Rob Nixon (2011, 8), "needs to be seen … as a contest not only over space, or bodies, or labor, or resources, but also over time." Mining is an ideology steeped in violence, a violence of both the human and non-human, of environmental pillaging built on racism, slavery, and exploitation. The act of mining is linguistically performed in the terminology, exposing a pervasive violence operating across multiple speeds and scales. Terms like "blasting," "cutting," "grinding," and "perforating," speak to the destruction and material transformation demanded by the process. What has become known as the "resource curse"

Fig. 5-4. Simultaneous blasts in a Russian coal mine.

for developing countries continues this legacy today.[4] The violence that mining ideology inflicts on the body is not limited to those at the coal face, but to anyone that lives or works by the supply chains, and far beyond. In India alone, it is estimated that 10,000 people are killed each year as result of coal combustion pollution (Bambrick 2018, 115). Inside out, and at an opposite microscopic scale, the dust particles that coat the bodies of those men and children remain invisible, even if they are more lethal. For instance, coal worker's pneumoconiosis (CWP, otherwise known as "black lung disease") is an irreversible condition in which the lungs are clogged and scarred by coal dust. This untreatable (yet preventable) illness kills 25,000 people each year (Zosky et al. 2016, 414). Hidden within the body, concealed behind layers of skin, blood, and flesh, the violence of mining proves both pervasive and insidious. The scale of violence operating here

[3] The "resource curse" is a term used to describe the adverse effects of sudden discovery or accumulation of natural resources by a developing nation. Common problems associated with the phenomena include conflict, corruption, poverty, displacement, and environmental degradation.

cannot be contained through measurement or proportion, it is located inside and outside, everywhere and nowhere.

Time is a key factor in the subjugation of environmental damage to the capitalist drive toward progress and growth. Nixon (2011) coined the term "slow violence" to describe the violence of global warming that:

> occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is not viewed as violence at all ... a violence that is neither spectacular nor instantaneous, but rather incremental and accretive, its calamitous repercussions playing out across a range of temporal scales. (2)

In an age of ever increasing acceleration, slowness — from cooking to exercise — has become a form of individual resistance to late-capitalist ideology. Politically, however, the invisibility of events that fail to stand out as spectacular insure their marginalization. Nixon's (2011) thesis is therefore the challenge of turning "the long emergences of slow violence into stories dramatic enough to rouse public sentiment" (3).

In this text, we are concerned not only with the slow violence of global warming as articulated by Nixon, but also in the particularities of violence that reverberate across scales and timeframes in the context of mining. It is the expansive and colonizing nature of this destructive force that we see as a unique and ideologically formed condition that is particularly ingrained in Australia. In this context, we not only look to the content of the stories we tell, but also, to the many ways a story can be told.

Making Visible the Invisible

> (Hyperobjects are) entities that are so massively distributed in time and space that we humans can only see or deal with little pieces of them at a time — they might not even look as if they are present or real, especially if we find that we are inside them or are parts of them (such as being a part of the biosphere). They are almost invisible precisely because they are so huge and powerful and immersive (we have them inside us, radiation for example). They are scarily to-be-observed or to-be-endured. They require very special kinds of awareness and handling, the kind that we are not well socialized to cope with, but which, in the case of global warming, we must cope with.
>
> Sounds like a job for art to me.
>
> —Timothy Morton, Hyperobjects

We are asking from representation something it cannot possibly give.
—Bruno Latour, "From Realpolitik to Dingpolitik – or How to Make Things Public"

Fig. 5-5. First day of the Aboriginal Tent Embassy, outside Parliament House, Canberra, 27 January 1972. This protest against the colonization of Aboriginal land continues today. Left to right: Billy Craigie, Bert Williams, Michael Anderson, and Tony Coorey.

How is it possible to represent acts of violence at multiple times and scales that are so antithetical to spectatorship? Photography, and in particular photojournalism, has historically played a key role in making visual and tangible the horrors that occur outside and beyond people's frames of reference. However, if we wish to do more than present "what is," if we wish to communicate rather than only represent, what can creative work do beyond documentation?

In an age when the ubiquity and easy manipulation of images creates disinterest and distrust, we shift our attention to the object. The scalar and destructive manifestations of mining ideology are of such magnitude that we need additional instruments to access their unfathomable complexity. These instruments are identifiable by considering the character of what Morton describes as "hyperobjects," which were first introduced by Morton in *The Ecological Thought* (2010) and developed further in *Hyperobjects:*

Philosophy and Ecology After the End of the Word (2013). According to Morton (2013), hyperobjects are "things that are massively distributed in time and space relative to humans" (1). This definition fittingly describes mining ideology, which science has struggled to represent effectively. Morton presents us with a wide repertoire of "things" as examples of hyperobjects, including black holes, planet Earth, Styrofoam, oil, pollution, radiation, and, the "thing" of the philosopher's utmost interest, global warming. Morton (2013) claims that we can't avoid or resist hyperobjects, as they are here and they are everywhere. Hyperobjects maintain a temporal undulation that speaks to the enormous timeframes in which they exist, emerge, and effect. These traits can provide us with a deeper understanding of how mining as an ideology functions as much more than simply an industry, but also as a sticky, ubiquitous, timeless, and amorphous entity operating outside and beyond conventional forms of visualization.

In defining mining ideology as a hyperobject, we can accept the inherent difficulties of previous and current work in explicating the complexity of such situations, and look to creative practices to develop new forms of communication. This shifts our interest from images to objects, and from objects to spaces. We posit the political framework for this kind of work through the lens of what we call "resistance aesthetics," which is a form of aesthetics situated in the contemporary field of anthropogenic global warming and the need to activate engagement with it.

Resistance Aesthetics

In 2017, Karen Barad — physicist and new materialist philosopher — made a timely and expansive provocation:

> [W]hat analytic tools might we use to not merely understand the entanglements of phenomena across scales but the interactive (re)constituting and sedimenting of specific configurations and space, time, and matter, or rather, space-time matter(ing) and the (iterative) remaking of scale itself. (Barad 2017, G109)

Barad argues that collaborations between different disciplines might prompt the necessary connections, rapport, and affects — as opposed to comprehension and understanding — needed to address the complex scenarios that characterize the climactic circumstances we are now in. Our issues of scale, time, and matter are brought together in Barad's statement with the need to think creatively and iteratively. Central to her question is the need to define (or create) new analytic tools. This is the foundation of

our elaboration of resistance aesthetics. From Barad's prompt, we look to the writings of Bruno Latour and Jane Rendell to situate aesthetics in the contemporary era of global warming and the opportunities that come with thinking collaboratively and across disciplines. Rather than looking solely at art practices, we turn to spatial practices to tackle the issue of scale and to spatially locate mining ideology's social, political, and environmental repercussions. This analysis draws from Latour's (2014) definition of aesthetic experience as becoming sensitive to that which is difficult to grasp or define. This call to "becoming sensitive" is fueled by the urgent need to engage with what he describes as the New Climatic Regime (Latour 2017).

Fig. 5-6. In 2014 and again in 2018 artist Olafur Eliasson installed a block of ice carved from the Greenland ice sheet in a public space. As it melted it performed a poignant reminder of global warming.

Sensitivity allows for the nuanced consideration of a thing, both from a critical and embodied viewpoint. The term also describes a mechanism through which to engage with the world — an engagement that necessarily will form some kind of reaction or response. Sensitivity encompasses multiple sensibilities, from the senses such as touch and smell, to other affectual engagements. To be sensitive means to be attentive to the world and in doing so, to "care for the possible." Vereena Adamatt Conley (2016) charts the development of this term through new materialist philosophers such as Isabelle Stengers, Brian Massumi, and Jane Bennett amongst others,

who, drawing from the ideas of Alfred North Whitehead, are shaping an approach to living with the climatic catastrophe we are faced with. This is not about care toward human others, but care toward the event, an act that recognizes the non-human, ecological and systematic relations active in each moment. Importantly, for a philosopher such as Stengers, this notion of care is creative and experimental, emerging in a situation that demands novel approaches (345). This description of sensitivity and care — tied to the awareness of a damaged planet with a population in need of new ways of living — forms the basis of our notion of resistance aesthetics.

For Latour (2014), acknowledging the limitations of a single discipline to own the exclusive sensitivity needed to deal with the "contradictions, complexities, novelty, and size of the entanglement of human and non-human" leads to the need for collective and collaborative ways of thinking. Latour argues that in the arts, as opposed to the social sciences, the employment of multiple sensitivities can play a crucial role in constructing an engagement with the contemporary world affected by the new climatic regime. We are bringing this approach to resistance through creative practices, specifically critical spatial ones. Rendell (2008), who writes at the intersection of art and architecture, describes critical spatial practice as two parts. The first part involves the incorporation of a critical theory framework with practices in which the political context cannot be separated from its material effects. The second addresses the engagement with space through multi-disciplinary creative practices. In this way, critical spatial practice does not fall into the limitations of conventional disciplines, but is foundationally cross-disciplinary. However, its closest ally is architecture given its focus on issues of scale (a point that we began this text with) which provides a particular instrumentality that can make visible some of the multi-scalar, amorphous, and simultaneous relationships that exist between collective bodies and matter.

Theorists such as Barad, Latour, and Rendell are articulating a form of practice-based research in which a process of thinking-through-making is used to produce new kinds of affective engagement. The need for that engagement comes out of the urgency and complexity of contemporary, large-scale issues, of which arguably global warming looms as the most urgent. Within such a context that focuses on the spatial manifestations of these theories, we propose the term resistance aesthetics to describe creative works engendered with the desire to activate public engagement and solidarity.

The resistance aesthetics we put forward here is generative; designed to activate as opposed to document, represent, or explicate resistance. This is different to an aesthetics of resistance, which is historical, retroactive, archival, and requires a documentation approach. In this way, resistance aesthetics operates diagrammatically in the manner of a Deleuzean machinic assemblage: it does not describe a style, but rather an approach that gathers together the cross-disciplinary sensitivities of new collaborations into new formal, visual, experiential, and performative assemblages.

We suggest that the exhibition could be an effective instrument for communicating the relationship of violence and scale. As a critical spatial practice, the exhibition can openly grapple and reflect on the complexity of this relationship. It is an ideal example of the kind of networked and relational assemblages that can take place through resistance aesthetics, in which singular reference points, objectives, and emotions may be situated and engaged in larger, collective scenarios. This type of exhibition acknowledges the limitations of expertise and specialization in the sense that there is not a single discipline, event, or project that can effectively address problems of the magnitude that we address here. Instead, there is a need for a cross-disciplinary approach, which, simultaneously undertaken as a form of resistance, is more akin to the notion of "undisciplinarity" (Kairuz 2019). This approach is fittingly embodied by a performative exhibition, in which different sensitivities are brought to a non-hierarchical space of debate, exchange, and productive conversation.

The Exhibition as a Form of Protest

In order to create a resistance aesthetics, we develop a curatorial approach that posits, for example, an exhibition as a form of protest. We see the exhibition as an infrastructure to engage with the issues at stake within this complex panorama, whereby hybrid collaborations across different fields are mobilized to engage audiences with the complexity of the contemporary climatic regime.

Here we look at the relationship between the objects of an exhibition and the processes through which they are curated, shifting the emphasis from the former to the latter. Likewise, we look into the way that critical spatial projects have engaged with resistance aesthetics and the capacities of the exhibition to bring them together into new, potent, and affective narratives.

A precedent for this type of activity is the project *How to Be a Good Witness* (2011) curated by the N collective as part of the 2011 Prague

Quadrennial of Performance Design & Space.[5] In this exhibition of Sydney-based architects, the curators borrowed strategies from iterative and experimental art practices. Rather than gathering end products into a particular narrative, these practices set up systems through which creative ideas and work could be sifted, reframed, and recalibrated. In practical terms, this means that instead of an exhibition of Australian architectural projects, the selected Sydney architects were invited to step outside the conventions of their discipline and respond to contemporary urban provocations through diagrams and performances in the city. The project also engaged photographers and writers to provoke the act of conversation, which was not simply explicatory but generative of new trajectories of thought. Seeing this process as a machine, created the possibility for surrender; the curators and the participants gave up control and gave in to the process.

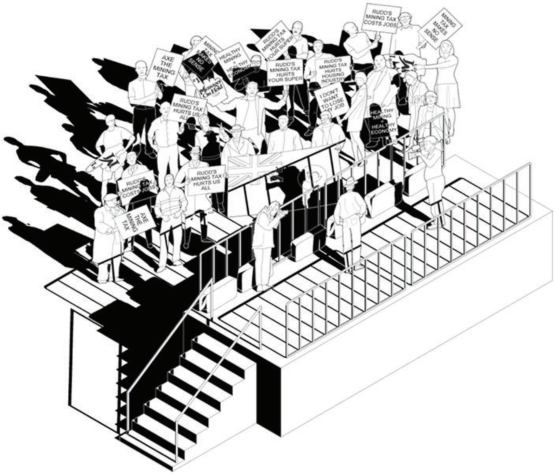

Fig. 5-7. Drawing examination of what became known as 'The Billionaires Protest', 2014, as seen in Fig. 5-1.

What is conventionally of primary concern in the curatorial process are the objects themselves. To curate an exhibition that acknowledges the kind of hyperobject that mining ideology is, is to move away from the exhibition of objects to the curation of processes and conversations. It is to set up a

[5] For further information on this exhibition see Sam Spurr and David Burns, "How to Be a Good Witness: The Architecture Curator Criticality" (2019).

generative system that can incorporate multiple sensitivities into novel interactions. The questions that emerge from hyperobjects have no simple answers and the objective becomes a search for new narratives and frameworks which, as Donna Haraway (2016) argues, means "staying with the trouble" (1).

In this regard, there is an additional number of ground-breaking group exhibitions that we can refer to, including *Reset Modernity!* (2016) curated by Bruno Latour, *Hyperobjects* (2018) curated by Timothy Morton and Laura Copelin, and *Forensis* (2014) curated by Eyal Weizman and Anselm Franke. These exhibitions mark significant efforts — from a decidedly aesthetic perspective — to represent the Anthropocene, the complexity of some of its more threatening by-products, and the diversity of the wide and far-reaching consequences of global warming. While these exhibitions have raised awareness on pressing issues, none of them have explicitly attempted to mobilize the public into collective action. This is one of the gaps that the notion of resistance aesthetics could address through an exhibition project, in this case, one that engages with the issue of coal mining through an argument based on the notion of mining ideology.

Through the specific focus of mining ideology, we draw on the framework of resistance aesthetics in order to develop a curatorial approach that can grapple with the complexities of this ideological situation. We are not interested in an exhibition about protest, nor suggesting the enactment of a protest inside the space of the gallery — no matter how tempting these ideas actually are. Our ambition is to make the exhibition a protest itself. But, what does that mean?

To begin with, the exhibition as a form of protest must necessarily ask for the creative work to exist (or be deployed) in the public realm. This notion not only refers to the physical space of the city, but also to monuments, institutions, airwaves, and other similarly abstract spaces that supposedly belong to the public. In this way, the exhibition as a form of protest is also a call to employ creative practices to reclaim the space of the commons, and in doing so, the right to practice the art of care and solidarity.

Secondly, the exhibition as a form of protest demands to be disruptive. This is not in the sense in which capitalism has sequestrated the notion of disruption, but actually in the sense of a discontinuity that makes possible alternate futures. By creating a space of disruption, the exhibition as a form of protest makes tangible an alternative future that is a collective re-imagining of the present.

Thirdly, the exhibition as a form of protest requests creative practitioners to reconsider their consolidated forms of thinking and making. This includes how style, voice, and language are used to produce creative work. Following Latour's call for multiple sensitivities, we see this as an opportunity for these practitioners to challenge their own techniques and processes, as a means of establishing new dialogues with other practices and work towards new potential trajectories.

Lastly, the exhibition as a form of protest must be performative in the linguistic sense (Austin 1955). As such, protest is enacted through the protest itself, rather than represented by it. Acknowledging a contemporary context in which the facts are not enough to make the seismic social transformations that are necessary, we turn to other forms of engagement that may activate latent solidarities.

We suggest that a curated exhibition of creative work might be a way to communicate these four tenets and the relationships between them. Furthermore, we suggest that as a critical spatial practice, the exhibition as a form of protest can openly grapple and reflect on the complexities of these relationships. Therefore, the exhibition as a form of protest requires a number of creative practitioners who are operating within a critical spatial practice framework, in order to develop projects with leading academics and representatives of the general public. This follows a central argument claiming that the complexities embedded in a project with the ambition to tackle this colossal scale, require reflections and representations visualized through multiple forms of translation. Consequentially, the exhibition will articulate the work of multiple types of disciplinarians who — from different and at times conflicting perspectives — will reflect upon the complex forces at play in this volatile and contested scenario. As such, this would be an opportunity for this group of creative practitioners, as they will be coerced to challenge their own work, methodologies, and materiality.

At the core of this exhibition model lie three difficult questions that are still unresolved. The first one is: how do we engage the public to the point of mobilization? The second one is: how do we to stimulate the sensitivity needed to prompt the care and solidarity necessary to be moved into taking action? We attempt to answer these two questions with a third: how would creative practices address a call to *design* a protest? How would creative practitioners (artists, architects, writers, and designers) design actions that perform disruptively in the public space, outside the space of the art gallery? Ultimately, our ambition is that the showcased practices provide us with appropriate instruments and opportunities to, in Nixon's (2011) words,

"giv[e] figurative shape to formless threats whose fatal repercussions are dispersed across space and time" (10).

Conclusion

Rather than strive for a perfect, scientifically precise translation of the world around us, this paper has explored the agency of creative practices in the challenge to make palpable the complexity of global conditions. In particular it has seen architecture's constant wrestling with the problem of scale as an ideal discipline through which to effectively engage with and visualize the central issues of our time, such as the Anthropocene, global warming, and late-capitalism. These are issues that operate at a scale and in time-frames that seem beyond our ability to think them; let alone comprehend, represent, and communicate their consequences.

This paper has attempted to develop an ideological definition of mining in a world that seems impossibly fossil fuel dependent. To do so, it located its examination in Australia, in which mining continues to play a culturally and politically charged role. By combining Morton's definition of hyperobjects to describe coal mining's amorphous, pervasive, colonizing, and multi-scalar characteristics with Lahoud's reframing of scale as a problem rather than an issue of definition, we have proposed a material as well as ideological engagement with mining. New materialist philosophers gave us the conditions for thinking with the current entanglements of the contemporary world in a creative way that cared what might happen next. The aim of this research has not been theoretical, but to consider the potential of creative practices to be politically engaged and productive to this state. We have therefore used the notion of resistance aesthetics and the exhibition as a form of protest, two ideas that we believe have the capacity to activate an audience, making them sensitive to the issues at play.

We began this paper with a story by Borges that described a map whose 1:1 scale still failed to capture an image of reality. The emphasis of this story is that of useful-ness, the capacity of cartography to produce an image that engaged and mattered to its users, now and into the future. The research that underlies this paper follows this simple desire to be useful, endeavoring to postulate on the ways that creative practices may be deployed in the mobilization of the public to the complex issues of today. If our visualizations of the world are to have more potency then the tattered detritus of Borges' Map of the Empire, we must look beyond factuality and engage in new forms of storytelling. We believe the instruments for writing

such stories maybe found in the thinking, collaborative engagement and processes of architecture.

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CHAPTER 6

LIMITLESS CAPACITY: WATER, LANDSCAPE AND SOCIETY IN THE AMERICAN WEST

KATHLEEN KAMBIC

Introduction

Power relations are a fundamental armature of (urban) politics, promoting gentrification, privatization, and neoliberalism. These policies are anathema to the democratic polis yet flourish spectacularly through the deployment of capitalism. The intensity of capitalist development over the last twenty years has increasingly narrowed the ways in which designers work, communities are built, and land is populated (Berger 2007, 31). Each year the US loses multi-millions of acres of land to ex-urban expansion, which then increases infrastructural development, loss of regional identity, and further privatization of landscapes (Berger 2007, 18,23). Deregulation, regionalization of local resources, and global markets support the decentering of cities by creating mega-scale projects based on unreasonable expectations and by reinforcing an unsustainable status quo (Belanger 2010, 332-349). The scaling up of water infrastructure within the American West is an example of taking resource development and commodification to its greatest end. As the pipes, dams, and reservoirs of the Colorado Compact continue to replumb and reorient the original water systems of the American West, the people and entities who design and maintain these systems also exert greater control over the citizenry. Yet, designers are not using design tools to disassemble urban forms that assert that control. This paper contextualizes contemporary urban landscape theory and exposes the shortcomings of landscape design discourse through a discussion of issues surrounding the Colorado Compact in an effort to link power, infrastructure, water, and design issues together.

Landscape architecture has historically been the purview of the wealthy, and through it, the wealthy have been able to exert and reinforce their power over the polis, domestic realm, and nature. Thus, works of landscape architecture represent the political and imperial at a minimum, and sometimes even the resistance. Landscape always says something; it is never neutral (Mitchell 2009, 9-10). This exertion of power over the natural world and the polis includes creating gardens, parks, plazas, farms and other places that hide labour, demonstrate power over nature, create scenes reinforcing myths of power, extract wealth and labour from the landscape, and reinforce boundaries and limits on the marginalized or powerless.[1] Evident in Mitchell (2003), Cosgrove (1999) and WJT Mitchell (2009), views of the land, whether painted, photographed or constructed, hide the labour relations that made it possible to reinforce ownership or a "natural order" of society.

In the American West, imagery is second only to water as a defining element of the landscape. The presence of water defines places in the West, but each place also defines water. Cities like Los Angeles, Las Vegas, and Albuquerque are all defined by their water infrastructure and its limiting (or not) factors. Each city has built its identity on a particular right to and dependence on water.[2] These and other cities in the West have claimed water from other landscapes, leaving them dried up and unworkable. Disenfranchising some of their water to serve others is the basic concept underlying prior appropriation, which, by moving water out of its native watershed into another for primarily economic reasons, reterritorializes the water into increasingly complex political and social constructs of cities, mining and commerce. Although it can certainly be argued that not every project disenfranchises or reterritorializes, the desire to use power is well embedded in landscapes.

[1] Versailles, Stowe, the Central Valley of California, and even Riverside, NJ, by Frederick Law Olmsted, are examples of exploitative imperial landscapes. Examples of landscapes that resist political or imperial overtones are those of indigenous cultures, where the landscape is often protected as an important component of society. See Escobar 2017 for a discussion on autonomy, relationality and the link between land and culture.

[2] For instance, Los Angeles is the end of the frontier and land of imagination where nothing is impossible. Las Vegas is a playground for all, flashy, trashy, and ultimately conservative, the perfect oasis in the desert. Albuquerque is built on a community-based infrastructure of water and power with a democratic relationship to the water/power nexus.

If reterritorialization is meant to shift power balances in the political and physical realms, we can see how certain attitudes toward landscape design might make this easier. Traditional Ecole des Beaux Arts designs prominently displayed control over the landscape. Through the severe control of plants to the reorganization of forests and rivers to suit the King, the work of designers like Le Notre was meant to embody the power of humans, and the power of specific ones at that. Or perhaps, considering the influence of botanical gardens like Kew, one could suggest that the whole world has been redefined through the shipment of plants all over the world, destroying some species and favouring others. In the Modern era, landscapes were used to represent corporate power, like at the Deere & Company Administrative Center in Illinois (Mozingo 2011,123), as well as to abstract de-natured organizations of space, like at the ALCOA gardens by Garrett Eckbo or James Rose's house. The domination of the landscape by geometry and botanical desires is not circumstantial but is influenced by the needs and desires of the societies within which they are designed. In contemporary landscape theory, Landscape Urbanism is now used as a tool to reveal or alleviate the damage done by designs dominated by the economic and political (such as industrial waterfronts), and in some cases may help solve the issues caused by industrial construction. But it is often also used by municipalities to increase the economic vitality of distinct areas and to concentrate goods and services, and to reinforce a particular conception of their cities.

Landscape urbanism is a significant landscape theory but does not address the political substantively (Vicenzotti 2017, 83). As noted by Swyngedouw (2014), it is a "particular phantasmagoric scripting of nature, one with particular performative qualities [which] quilts much of the urban ecological argument". He dismantles the concept of sustainability as a human built simulacrum for wanting to maintain distance from nature and asks us to engage the political head on. He states, "Politicizing environments democratically, then, becomes an issue of enhancing the urban democratic content of socio-environmental construction by means of identifying the strategies through which a more equitable distribution of social power and a more egalitarian mode of producing urban natures can be achieved" (Swyngedouw 2014, 29; Swyngedouw 2004, 25). It requires from us a recognition of indeterminacy of nature, demand for political equality, and the creation of projects that express a socio-ecological future based on these both.

Landscape architects often design scripted natures where little conservation or any radical environmental conservation is occurring behind

gated neighbourhoods and walls. Outreach will not affect those with well-lined pockets if landscape architects are not also going to insist on water conservation within the private sector. Otherwise, the middle and lower classes will bear the burden of conservation without even realizing it. The uneven distribution of water wealth is as unfair as the uneven distribution of economic wealth. All citizens, especially those living in uncertain climatic conditions deserve the opportunity to have water security.

The question designers are grappling with that exposes the complicity of contemporary design attitudes is: how do we sustain cities without having to actually change how we live? The West is getting hotter and drier. Temperature averages have increased up to 1 degree Celsius across the West, causing earlier snow melt, which results in earlier spring flows and a mis-choreographed irrigation timetable. More water evaporates out of rivers and reservoirs as temperatures rise as well. Precipitation is more variable. Rising temperatures affect plant blooms, fish habitat, and evapotranspiration (CWP 5-15). Other effects, such as more intense wildfires and beetle infestations, have also begun to wreak havoc across the West (de Buys 32-33). Depletion of the Ogallala and Albuquerque aquifers has caused loss of irrigation wells, soil subsidence, drying of local streams and lakes, loss of riparian species, and desertification (Frankel 2018, Benson et al. 2014). How is landscape architecture going to reveal, address, and potentially solve these issues? Within what framework will citizens understand, and can designers accomplish such incredible feats of climate adjustment? Major barriers to creating this new framework are the governance and delivery of water. Most people don't know where their water comes from, how fragile that system is, and how water delivery is subject to political and climatic changes, and few are willing to shift their usage patterns.

One issue is the opacity of governance and delivery of water. Most people do not know where their water comes from, nor how political and climatic changes affect that delivery. Leatherbarrow (1999) and Cosgrove both speak to human desire to control land; that it is our "moral duty to make over nature into landscape in [our] striving toward civilization" (Cosgrove 1999, 105). The 1785 Land Ordinance is a great example of how the land of the American West was gridded to make it knowable, controllable, and thus, brought into the realm of power relations (Cosgrove 1999). The Reclamation Act of 1902 embedded the grid into the West by offering 160-acre tracts of land to anyone that would farm it. Unbeknownst at the time, rainfall patterns require agricultural land to be irrigated west of the 100th meridian. This did not prevent those who settled the West from adapting to new conditions by creating irrigation networks, creating larger farm tracks

that were more suitable to crop production, or changing their crop types. The slow and steady compartmentalization, commodification and control of land and water during the settling of the West allowed farmers, miners and city dwellers to objectify nature and disempower it and all that lies within it. As more and more people moved West, the systems to support those people had to grow with the population. That growth resulted in the development of the Bureau of Reclamation, the Army Corps of Engineers, and the Colorado Compact, which were created to help reclaim those waters "wasted" by running freely in rivers to the sea (Reisner 1993).

Compact context

The Colorado Compact can be described as an assemblage of both humans and objects. The Compact regulates the Colorado River and its watershed – an area approximately the size of France (Hoerling and Eisheid 2007, 18-20). This drainage is composed of hundreds of dams, aqueducts, tunnels and reservoirs split into the Upper and Lower basins. Each of the seven states in the Compact[3] are within one of the basins and receives their unequal portion of the fifteen million acre-feet (MAF) allocated through the Compact agreement. As a literal controller of flows, the Colorado Compact is constituted of physical infrastructure like dams, reservoirs and pipes, political infrastructure at the local state and federal levels, ecological infrastructure of water, river systems, riparian zones, wetlands and the like. It is an assemblage that defines, maintains and reinforces power in the American West. Briefly, the Compact regulates the 15 MAF of water that the seven states of the Compact depend upon for agriculture, urban development, mining, industry, parks, residential use, etc.

In the early 20th century, water levels were at their highest in recorded history. This is borne out in tree ring records and other calculations (Hoerling 19). The actual totals have been consistently lower, creating a 'structural deficit' up to 1.2 MAF a year[4] (Hoerling and Eischeid 2007, 19; Owen 2015; Udall and Peterson 2017). This is due to faulty math by the engineers working to define the Colorado River flow volumes for the 1922

[3] Seven states ratified the Colorado Compact. The Upper Basin consists of Colorado, Wyoming, New Mexico, and Utah. The Lower Basin consists of Arizona, Nevada, California. New Mexico delivers water the Lower Basin and so is technically in both basins.

[4] 'The compact also obligates the Upper Division states to 'not cause the flow of the river at Lees Ferry to be depleted below an aggregate of 75 MAF for any period of 10 consecutive years" (CWP 2-13).

Compact as well as the 1963 Supreme Court decision *Arizona vs. California* that reinforced those totals (Fleck 2013). Lake Mead, which originally held approximately 35 MAF is the reservoir that backs up behind Hoover Dam. As of 2010, it holds about one-third of its original volume, with an immense bleached bathtub ring showing the former water level (NPS) (see Fig. 6-1). It is reported that it is impossible for the lake to ever refill because of increased consumption over time and falling rainfall amounts due to climate change (Owen 2015). A similar problem is occurring at Lake Powell behind Glen Canyon dam, Elephant Butte Reservoir and many other western dams. The "missing" water is an increasingly worrisome issue for municipalities in the West, as the damage to each dam following periods of drought is not totally known, when the dead water level where the hydroelectric pumps can no longer operate might occur, or if either basin will have enough water to fill their needs.

Shifting climatic conditions are studied by many federal agencies, including the USEPA, the National Parks Service, NASA, the National Climate Assessment (NCA), and NOAA, among others. According to the NCA, the period between 2001-2010 was the warmest in over one hundred years of records, with temperatures two degrees higher than historic averages (Melillo, Richmond, and Yohe 2014). The NCA notes, "Future droughts are projected to be substantially hotter, and for major river basins such as the Colorado River Basin, drought is projected to become more frequent, intense, and longer lasting than in the historical record" (Melillo et al. 2014, 465). As the Southwest produces over half of the USA's high-value specialty crops such as nuts, fruits and certain vegetables, climate shifts could adversely impact agricultural production, the economy and infrastructural lifespans (Paskus 2018a, Paskus 2018c). Temperature shifts combined with drought could cause severe impacts to biomes through wildfire, aquatic disturbances, and drought (NPS). The Intergovernmental Panel on Climate Change projects desertification, land degradation, and food security to be main issues in contention in the next decade (IPCC). The missing water and droughts are not individuated problems, but are a part of extremely complex, worldwide concerns.

Federalization and privatization of large-scale infrastructure were not at odds after the First World War, when the Federal government wanted to build the economy (Belanger 2010, 337). Franklin Delano Roosevelt both prioritized subsidizing businesses for American dominance in the global economy and created the Civilian Conservation Corps in the New Deal to created jobs. But now the federal conversation is about global privatization,

Fig. 6-1. Image of Lake Mead with its bathtub ring, Hoover Dam and bridge. The four intake towers can be seen directly behind the dam. Credit: Ane Gonzalez-Lara.

i.e. neoliberalism[5], maximized profits, and consumption, all done through the commodification of water and the landscape (Belanger 2010, 341). Key economic and political power has moved away from the Federal

[5] See Trump 2018.

government to subnational and supranational interests[6], with water on international markets, private development without community input, and interstate negotiators creating invisible power networks (Swyngedouw 2004, 15; Fleck 2016).

Management of western water was not neatly created through the exertion of a centralized power as the first water sharing/claiming agreements were between miners, landowners and states (Limerick 2012, 265). But since 1922, the centralized power of the federal government has controlled water negotiation. There are twenty-two interstate water compacts west of the Mississippi River, all ratified through Congress (Kenney 2002). John Fleck (2017) notes that although it seems 'no one is in charge' because of the relative invisibility of governance, there is actually a vast system of water managers, engineers and scientists controlling water infrastructure. The technocratic structure that enables the Compact to function is built of state water managers, local government agents, and federal agents from the Bureau of Reclamation, Bureau of Land Management, US Army Corps of Engineers and the US Environmental Protection Agency. These water agents create a network of knowledge and power that controls commodified water (Fleck 2016). Through fear mongering, reduced visibility and single-focus designs, government entities create a simulacrum of access and watershed health by further concretizing the governmental control in the Compact over the needs and desires of citizens, and over nature (a tightly controlled and highly maintained nature that communicates the "right" message) (Kambic 2015). The technocratic structure of water agencies is built on appointed officials, who are chosen by whichever political party is in office at the time, instead of being publicly elected. Limerick and Fleck agree the behemoths of water control cannot be dismantled, but perhaps they can be re-aligned with each other to produce a *solution-focused minority* in control, through trade agreements and negotiation (Limerick 2012, 275). Yet, the actors in this minority are still governmental agencies whose political agendas cannot be discounted or ignored. This semi-independent networked governance of water management has been an expedient system for water delivery problem solving in some instances, like negotiating yearly band-aids on specific issues, but in the long run a minority has and will further disenfranchise

[6] In the halcyon days of the industrial era, the period of our greatest collective prosperity, the Eisenhower years, there were 78 Americans for each employee of the federal government; today there are 150' (Manning 2017 46).

citizens and decrease water access and control through its invisibility (Fleck 2017, 10).

Increased Power in the Hands of the Few

The West is becoming more urban, setting up conflicts between urban centers and rural interests such as farming, ranching and mining. Until about 2008, the Southwest had the most intensive growth of any part of the United States. It is estimated by the Brookings Institution that the population of at least five Compact states could double by 2040, something for which the Colorado Water Plan (CWP) is planning (Lang, Sarzynski and Muro 2008, 27 and CWP 5-3). As municipalities continue to grow and small farms are turned into planned neighbourhoods, agricultural water is shifted to municipal control and the water cycle is further concretized and controlled through 'municipalization' (Swyngedouw, Kaika, and Castro 2002, 6-9). When cities are mentioned in terms of water use, water demands are commonly lumped into 'municipal use' by invested governments (CWP 2-21,5-3). 'Municipal use' includes residential, light industrial, civic and other uses. Municipal governments make decisions for residents based on broad city needs; not by neighbourhood, not by individual. The larger the city, the more power it has to buy water rights and influence the adjudication process. Within the designation structure of water uses, adjudication is an important process that helps determine who should actually get certain amounts of water; it can be done at any scale from the entire Colorado Compact to individual communities. Adjudication is a legal process of determining water rights according to the statute of prior appropriation, where each right is defined according to its established date and land area. The state of Colorado water managers see adjudication as a positive development for quantifying all state waters as Colorado is at the top of the watershed and can benefit more from this strong position. For New Mexico adjudication is a negative, as it has resulted in long courts cases, disenfranchisement, and other negative outcomes for existing communities[7] (Benson et al 2014, 203, Paskus 2018b, Kambic 2004).

[7] An extreme but important example of interstate conflict is Elephant Butte Dam in New Mexico, which is at a record low fill of 3% capacity (Paskus 2018a). The gauge to measure deliverable water to Texas is located at Elephant Butte, meaning farmers face serious competition from elsewhere as well and needing to combat the soil loss effects of drought. Texas, New Mexico and the Federal government have sued and counter sued over the structural deficit that has affected Texas farmers and cities alike (Paskus 2018 2).

During the late 20th century, suburban development was developed at the expense of an expanding water frontier, leading to unsustainable extraction conflict (i.e. cities grow at an unsustainable rate) (Swyngedouw 2004, 7). Cities leverage their tax base to disenfranchise the very farms they depend on for food by building infrastructure that removes water from its original watershed or by buying and drying[8]. 70% of Colorado's water is moved from the Western Slope through projects like the Colorado-Big Thompson Project to the eastern cities where it is consumed (Limerick 2012, 45). The tunnels and aqueducts that make this possible have significantly changed settlement patterns by allowing those with the economic and political power to move water to themselves, which is an example of reterritorialization. Without the dam infrastructure of the Colorado Compact, much of the West could not be settled; Denver would still be a small cow town, Los Angeles would not be a sprawling metropolis, and farmlands of the Central Valley and elsewhere would not exist. Large scale infrastructure has made permanent shifts in the forms and spaces of the landscapes and cities in American West.

One overlooked consideration in large-scale infrastructural and urban development is accelerated climate change. Las Vegas spent two billion dollars to build a third tunnel from Lake Mead to the city in order to move the dead water level on the reservoir lower and continue to send any available water its way [9]. In Los Angeles, the Owens Valley, Salton Sea, California State Water Project, and other inter-basin transfers continue to create environmental havoc (Reisner 1993). It is also well documented how the Compact states and Mexico have continued to sue each other over their water rights since the original adjudication at Bishops Lodge, New Mexico in 1922 (Reisner 1993 and Benson et al 2014). The state representatives for the Colorado Compact network work within their own realm of knowledge to avoid lawsuits, placate their constituents needs, and keep the water flowing no matter how hard the reality of the situation may be.

In the past 10 years, the contention that water will be the basis for World War 3 has gained some traction (Reisner 1993, 263-264; Howard 2016). 'The Southwest is likely past peak water experienced in the 20th century

[8] Buying and drying is a strategy that takes irrigation water from former farms and delivers it to cities. This practice is on the wane as regional water managers, agriculturalists, and environmentalists are combatting the negative effects of this strategy, such as loss of base stream flows, etc.

[9] The new pipe is at 860', where dead pool was originally at 1050' above sea level (NPS).

preceding the signing of the 1922 Colorado Compact: a decline in Lees Ferry flow will reduce water availability below current consumptive demands within a mere 20 years" (Hoerling and Eischeild 2007, 35). In March 2019, the Colorado River Drought Contingency Plan was adopted: the Lower Basin states agreed to over 1 million acre feet in water reductions as Lake Mead continues to drop. It was a major step in Compact governance to address the structural deficit in the in- and outflows of the river, as measured at Lees Ferry. But, the Imperial Irrigation District of California was not included due to their disagreements over the restrictions that would cause new environmental damage at the Salton Sea, where blowing sand and salt have already caused significant health problems for the populace and wildlife (Fleck 2019). As climate change has effectively scrapped the West's plans to refill Lake Mead and Lake Powell, the question of whether Americans will be able to mitigate the complexities of these interrelated environmental, social, and political problems looms large.

Due to the falling volumes in the two largest reservoirs on the Colorado River, water experts and elected officials have suggested that either Lake Powell or Lake Mead should be removed to concentrate the available water in one location, although the likelihood of this is low (Wernick 2016, Way 2018). Both reservoirs are suffering from diminished capacity from the buildup of sediment behind the dam and are unable to hold their original capacities if they were ever again available. Governors and scientists have also proposed that water be trucked from the Great Lakes to California to add additional water to the system or piped from the Missouri River to the Colorado (Barringer 2012). California has the most leverage of any state in the Colorado River system due to its strong-arm tactics from the original negotiations for the Colorado Compact in 1922, so it will not likely see any reductions in delivery unless available water quantities are extremely low. The CAP (Central Arizona Project) was created to give Arizona water that California laid claim to when Arizona first resisted joining the Compact. With its refusal to accede to the original terms of the Compact in 1922, Arizona effectively bet that water levels would remain consistent enough while population demand would not rise too quickly before they could renegotiate. Once Arizona realized it needed that water for its growing cities and more infrastructure to deliver their share of the Compact water, they went to court. *Arizona vs. California* (1931 – 2000) took many years and multiple millions of dollars before the Supreme Court completely adjudicated the water. California made an agreement with Arizona for the Central Canal that it would allow Arizona to temporarily take water owed California, which will be recalled if ever necessary (BoR). Arizona, whose

citizens are dependent on CAP water, will lose the lifeline that has allowed Phoenix and Tucson to flourish.

Within western American cities many non-governmental entities have started to do outreach[10], like Denver Water's 'Use Only What You Need' campaign that asks people to voluntarily conserve and offer incentives for conservation. In Tucson, Watershed Management Group has made great strides in educating citizens and working with the government to improve Tucson's public and private stormwater management for more effective reuse. In Albuquerque, grass roots organizing has created the Xeriscape Council and the Arid LID Coalition[11] that have community outreach and conferences for knowledge sharing about water scarcity amongst industry professionals and citizens. Little change has been made, however, toward mandating water conservation practices across the city or state due to prior appropriation and federal water regulation. Los Angeles has many groups that advocate for the Los Angeles River, such as Friends of the LA River, but they are primarily focused on flooding and riparian issues instead of conservation, as the city imports almost 90% of its water (Leslie 2014). Additionally, in the past 25 years, western cities like Denver have begun to pay farmers to fallow their fields for water, rather than wholesale buying the land and taking all the water away (Udall and Peterson 2017, 6). This has created a contemporary conundrum for cities where green lawns in residential neighbourhoods are prioritized over productive agricultural land. These examples demonstrate how the citizenry is attempting to reengage with the delivery and control of water in and out of cities.

To demonstrate the bi-directional reinforcing influence of the Compact water system, we can look closer at the city of Los Angeles, which draws water from a huge area due to its original power plays in the early 20th century by city officials (Reisner 1993 and Varnelis 2009). Water is extracted from its original watershed, moved great distances, stored in massive reservoirs, and completely disentangled from its context. The Colorado River Aqueduct lifts 1600 cubic feet of water per second out of the Colorado River and takes it 242 miles across the California desert to Los Angeles, moving more than a billion gallons of water a day (ASCE). The

[10] Many cities throughout the world have started to grapple with climate change and water scarcity issues. Melbourne, Australia is a strong example of an effective water reduction program, among many others. See Phipps and Brace-Govan 2011.

[11] LID stands for Low Impact Development, a strategy for green stormwater infrastructure in urban conditions to conserve and reuse water on site to mitigate water quality and quantity issues at a small scale.

Colorado River itself is permanently changed: its yearly cycles are interrupted by water impoundment, flow volumes are diminished throughout the river, and its ability to move sediment is disrupted by the dams. The many dams have also displaced or impacted countless riparian species as water levels, flood zones and soil saturation have shifted at reservoir sites. The physical infrastructure of the Compact carrying water to Los Angeles, Las Vegas and elsewhere reinforces the power of American cities over the non-human world, regardless of consequence or context.

The large scale of the Colorado Compact infrastructure alienates the individual through its invisibility and scale. Poole (2004) notes that 'infrastructures are 'those things we share as citizens of a particular place… they are the physical things and processes in which we are all invested… Through these infrastructures, we express our collectively held values and ideals, and we articulate for ourselves and others the content and dreams of our communities' (Poole 2004, 181). Yet, as Bruce Mau notes, "most of the time, we live our lives within these invisible systems, blissfully unaware of the artificial life, the intensely designed infrastructures that support them" (Mau 2004, 6). Thus, the power of infrastructures is only visible to the citizenry if they choose to engage it- which most people do not- and knowledge of that infrastructure system is concentrated in the hands of few (the government), until of course, they break. Gandy (2014) discusses this as a case of 'historiographies of absence', where the politics of these infrastructural networks and 'largely unseen and unrecorded' in daily experience of the city by the average citizen (Gandy 2014, 24). The role of infrastructure in commodification and territorialization[12] becomes akin to that of a magician: it disappears the water from the civic realm and from the citizenry's consciousness.

Urban metabolism and civic design

The advent of assemblage theory has created frameworks for not only describing the city differently, but also for reimagining and reconstituting the urban. Assemblage is a squirrely term which has many definitions within design discourse (Brenner, Madden and Wachsmuth 2011 and McFarlane 2011). A working definition that will help frame assemblage is that it is a

[12] "Territorialization refers to specific territorial projects in which various actors deploy territorial strategies (territoriality) to produce bounded and controlled spaces (territory) to achieve certain effects. A common goal of territorialization is to govern people and resources located within and around the territory (Scott, 1998)." (Bassett and Gautier 2014, 2)

systems theory focused on "socio-material transformation through interactions between human and non-human components" (Brenner et al. 2011).[13] Three strains constitute assemblage theory: empirical, methodological, and ontological, of which this paper primarily focuses on the methodological. The methodological strain of assemblage theory specifically investigates the "previously neglected dimensions of capitalist urbanization", in this case the political ecology of urban water.[14] Swyngedouw (2004) describes this methodological approach as urban metabolism, "wherein flows of water constitute flows of capital, people and objects" (with or without their own agency).

Considering contemporary landscape theory, Mossop (2006) contends that, "the discourse of landscape urbanism establishes the significance of infrastructure and its associated landscapes in the development of contemporary urbanism, and in the generation of public space". With the advent of landscape urbanism, landscape architects have expanded their theoretical and physical purview to include more of the city and its surrounds than ever before, as "a new lens through which the city is constructed" (Vicenzotti 2017 and Waldheim 2006). Within this theory, landscape is seen as a basic building block of urbanism that is a hybrid of the environmental, cultural and technological that are layered and mutually dependent (Lister 2010, 537 and Vicenzotti 2017, 78). One of the roles of landscape architecture is to reveal the condition of urbanity and validate/improve the daily existence of citizens. As an assemblage approach, landscape urbanism has within it the potential to address issues of power in landscapes but has yet to do so to any real extent. If, as Corner contends, landscape is no longer a passive entity in the city, then the types of places it forms is significant (Vicenzotti 2017, 79).

Ecological urbanism and infrastructural urbanism, which are closely allied theories, also look at the city in terms of its networks and large-scale systems (Waldheim 2006 and Allen 2009). As Mossop historically contextualizes landscape urbanism, Spirn (2012) draws ecological urbanism back to Alberti, Olmsted, Mumford, and McHarg. She notes that time, humans and the environment are in a constant dialogue, and expands on a definition for ecological urbanism stating, "cities are part of the natural world; cities are habitats; cities are ecosystems; urban ecosystems are

[13] In other words: making the world a better place using more tools and understanding their interactions. See Brenner, Madden and Wachsmuth 2011.
[14] Three strains: empirical (political economy), methodological (decolonizing) and ontological (naïve objectivism). See Brenner, Madden and Wachsmuth 2011.

dynamic and interconnected; every city has a deep, enduring context; urban design is a tool of human adaptation" (Spirn 2012, 6). This rightly acknowledges the importance of ecological systems within the city, but proponents often discuss this as though urban landscapes are a new phenomenon. Anne Spirn denies this gentrification of landscape architectural theory and notes Hippocrates, Vitruvius, and Alberti all believed "the siting of cities and the design of streets, squares, and buildings should be adapted to the character of their environment so that cities might promote health, safety, convenience, dignity, and pleasure," effectively allying ecological, infrastructural and other related urbanisms to landscape and ecological urbanism (Spirn 2012, 5, 11).

Ecological urbanism also claims to be about environmental protection, justice and ecology, but is also at the mercy of becoming a form of NIMBYism, where again, people in power can separate themselves from the by-products of their consumption (Fainstein 2010, 300-301). It calls for a change in city development to foster density, environmental responsibility, and sustainable transportation networks, but does not address the difficulty of getting people to actually act that way. Ecological urbanism is inherently political yet is rarely treated as such (Robbins 2010, 415). If these frameworks of landscape and ecological urbanism are assemblages that increase urban metabolism, then they have a responsibility to address other assemblages that also constitute the urban, like political and social structures of large-scale water infrastructure.

When the political is missing, landscape architecture and architecture reinforce the status quo

The neutralization, and thus de-politicization, of landscape occurs through the visual and experiential. Designs have inherent content that can be subverted, as in the case of the Romantic landscapes of Repton and Brown where labour is hidden (which is still a very common landscape practice[15]). Maintenance and delivery of services are still problematic. Laborers are often hidden: from suburban landscapers, to migrant agricultural laborers, to the hidden network of pipes for water and power. As visitors to a site, we may not be able to know the systems that keep the place in order, we may not see the people. Designs embody subtle and not so subtle ways to separate laborer and visitor – through time, threshold, or distance. Sites

[15] See Mitchell 2003 for a specific discussion of California agricultural landscapes, migration, and politics.

reinforce positive dominant readings that we apply to them instead of revealing the disparities within.

Furthermore, it is not difficult to acknowledge that "…capital dissolves all boundaries – social, cultural, sexual, and now architectural, in the objective calculating rational pursuit of profit" (Jones 2010). Jones (2010) argues that because architecture that favours program-based computation[16] and iterations of programming claims itself to have a paucity of political value, it can continue to operate outside of that paradigm, working in politically charged places with serious social problems without redress. This form-generating mode of architectural production puts itself outside the real world in order to generate profit for the people in power and the designers to recreate spaces of oppression. Don Mitchell (2003, 34-35) states, "landscape is always both a material form that results from and structures social interaction, and an ideological representation dripping with power. In both ways, landscapes are acts of contested discipline, channelling spatial practices into certain patterns and presenting to the world images of how the world (presumably) works and who it works for". If landscape is an ideological concept as Mitchell and Cosgrove (1998, 15) claim, it is a way of understanding and communicating one's own relationship and of others to nature. If architectural practice, like that of landscape, is unwilling and uninterested in addressing the political, then it will continue to only represent the elite paradigm that further alienates and oppresses others.

On the one hand, urban places and landscapes can become site-less, neutralized and decontextualized when the city becomes a "polycentric web-like sprawl" that addresses issues of speed territory and communication as merely large-scale heterogeneous networks that exist in a vacuum and are divorced from power systems (Wall 1999 and Allen 2009). They become quantifiable statistical no-man's lands without context, ideology or topography – pure data that is available to be manipulated by anyone with the knowhow to do so (Jones 2010, 12). On the other hand, these same practices of landscape urbanism, ecological urbanism, and infrastructural urbanism can help situate and clarify the "context of context" when applied to any particular site by designers (Brenner et al 2011). Yet projects remain problematic if they are used as discursive/representational artefacts

[16] Program based computation is the use of complex modelling software in conjunction with scripts that set a series of conditions for developing a design. These are often used for creating complicated architectural concepts that could necessarily be built and are often site-less and context-less.

displaying the desired/manufactured human condition instead of clearly identifying it or changing it.

Fig. 6-2. 30,000 people gathered to watch William Mulholland officially hand over the Los Angeles Aqueduct at the Sylmar Cascades to the mayor of Los Angeles, establishing the city of Los Angeles at the center of the water nexus in the West and guaranteeing the destruction of the Owens Valley, November 5, 1913[17]. (Photo Credit: Herald Examiner Collection / Los Angeles Public Library.)

The organization and display of power are inherently political; infrastructures are systems of objects deployed to organize and display

[17] See Reisner 1993 for background. This was the event where Mulholland famously stated, "There it is. Take it". This image was also used in 1931 to help promote the passage of the bonds to build the California Aqueduct which would bring Colorado River water 226 miles across mountains and desert to Southern California.

power (see Fig. 6-2). Whereas architecture and landscape architecture are practices which organize, use and display power (Allen 2009).

Landscape architects and architects take significant time to analyze a site, studying its climate, soil conditions, neighbouring buildings and streets, etc. but do not tend to analyze and critique the political context within which their project is located. This type of physical and spatial analysis is especially important in terms of infrastructural considerations that involve the procurement and use of power, urban necessities, and resources like water. As landscape architectural projects form much of the public space in cities, it is easy to see how their relationship to the larger political and infrastructural milieu affects the citizens who use those spaces.

Swyngedouw (2004, 20) defines this as the violence of sustainable urbanity. He states, "there is no such thing as an unsustainable city in general, but rather there are a series of urban and environmental processes that negatively affect some social groups while benefitting others". Conservation in urban settings tends to benefit rural interests like farming and mining while the construction of more dams, reservoirs and conduits tends to benefit the urban while destroying previously undeveloped places. One option for both citizens and designers is to embrace a more pluralistic and relationary approach such as political ecology. Cosgrove (1998, 33) notes political ecology is not meant to push us outside the world, but to bring us in closer. Political ecology asks us to see the dialectic between society and land-based resources as irreducible (Blaiklie and Brookfield 1987, 17). It connects and deconstructs the spatial and material patterns we produce to their ends, especially toward accumulation (Robbins 2010, 413). Unfortunately, most technocratic structures view land-based resources as ready for exploitation, while designers view this dichotomy as outside the purview of the professions.

When designers allow governments and scientists frame global climate change as a humanitarian case and public concern instead of a socio-political issue, the depoliticization of water, natural resources and ecological services occurs. Citizens cede control of the environment to post-democratic government structures in order to maintain a certain type of life, increasing forms of bio-political control (Swyngedouw 2014, 26). Landscape urbanism, as stated above, has the potential to reveal conditions of climate change and water scarcity by revealing the complex assemblages of water movement throughout the West and the effects of climate shifts within the work itself.

Continuing to ignore the political aspect of design work means complicity

We intentionally manipulate our world to manage uncertainty, whether ecological or human. To manage such uncertainty, Lister (2010, 545) calls on designers to use integrated whole-systems approaches to address complex ecological problems. If we are to continue using assemblage theories to order our thoughts and our interventions into the city and elsewhere, we must begin to address the political in our designs. We must ask not only, "who is this for" and "is everyone welcome here" but also, "who is this not for? Who does this disenfranchise? Where is the money going? And, more specifically, how does the use of imported water continue to reinforce the status quo of negative environmental change and social inequality in the American West?

Landscape architecture in the American West, and more specifically landscape architecture designed through the lenses of landscape, ecological, or infrastructural urbanism needs to engage sites with an eye to the political milieu within which it exists. Ignoring the visual influence landscapes have on people leads to further manipulation of the meaning of landscapes and people's desires, especially those tied to water consumption. Landscape is fundamentally social product, an ideological concept, through which people situate themselves in relation to nature and its elements (Cosgrove 1998, 15). It is much easier to describe the nexus of landscape and the political historically, harder to critique ourselves as we work now as commodification of the land is part and parcel to designing it. In the case of the Colorado Compact, there is no going back to save Glen Canyon or to un-plumb the Colorado River. Western cities in the seven Compact states will remain dependent on Colorado River water to support their citizenry, grow their economies, and remain productive indefinitely. But their landscapes need not repress these messages. Urban landscape design can responsibly engage water issues without alienating the desires of citizens.

Landscape architecture is poised to "identify the strategies through which a more equitable distribution of social power and a more egalitarian mode of producing urban natures can be achieved" (Swyngedouw 2014, 29). Presently, water infrastructure development provides economic growth and profit maximization to the detriment of local systems (communities and ecologies) and transparency for the citizen is non-existent. The delivery and cost of water are completely hidden and diverse options for accessibility is at an all-time low. The urban versus rural divide around water also causes local agriculture to suffer, ecological systems to suffer, as cities continue to

refine and build populations and industries to use newly acquired water rights. How we redistribute social power and knowledge to support new urban natures through landscape architecture, with whom these processes operate, and what knowledge is valued is paramount. Landscape design can be relational, intersectional and equitable if designers are willing to engage with the plastic, networked, and multi-faceted needs of the many assemblages within which it operates. Landscape architecture must consider how theory and design can embrace the political to fully address urban inequality and power relations to create works that benefit both the urban environment and its citizens.

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CHAPTER 7

AFTER THE STORM: A POST-CRITICAL STANCE ON PRACTICE FOR PUERTO RICO'S RECONSTRUCTION

YARA M. COLÓN RODRÍGUEZ
AND LUZ M. RODRÍGUEZ LÓPEZ

Framing the Issue: Coloniality and the Commodification of a Disaster

The largest hurricane to make landfall since 1932, reached Puerto Rico on September 20, 2017 at 6:15 am. Due to its devastating impact, Hurricane Maria was categorized as a catastrophic event while exposing that Puerto Ricans are generally poor and the island is far from modern. As Puerto Rico's modernity was an incomplete project (originally designed under an oppressive system of domination as a dissuasive exercise), what remains of it today is an idea that peaks through some of the iconic architectural projects still standing as it is now clear that buildings produced under the island's modernization(s) did not actually showcase progress, but rather its simulacra.[1] As a result, multiple socio-economic asymmetries were hidden behind images of modernity. Ultimately, Maria uncovered how a falsified First World image posed as a socio-economic value eventually becomes a disaster. For our purposes here, we recognize disasters as crises scenarios which respond to multiple vulnerabilities, but that are driven by human agency (Steinberg 2000, xi-xx).

The way mitigation and recovery efforts were handled after the storm seems to mark the resurgence of stereotyping practices explicitly placing

[1] The term "simulacra" is extensively addressed by Jean Baudrillard when talking about the acknowledgement of images instead of the real (Baudrillard 1978, 12, 26).

Puerto Ricans as United States' subject-citizens. For instance, President Trump's emphasis on "islandness" as an extreme obstacle for disaster response and relief (C-Span 2017) as well as the introduction of shock doctrine redevelopment appear as (re)affirmations of Puerto Rico's subaltern status. The frameworks of crises, collective trauma, and fear are consciously used as catalysts to help drive a "radical social and economic engineering" (Klein 2007, 9/702) within the contemporary "logics of domination" W. Mignolo defines as coloniality (Mignolo 2007a, 33-7). Following his arguments, the heroic rhetoric of a recovery that will supposedly propel a new modernization including economic "development", technological innovation, and more social and political equality for Puerto Rico, is nothing but a tactic to disguise the latest form of interventionism. Such a strategy only intends to afford the United States another opportunity to capitalize on the island.

Within six months of the hurricane, the hegemonic schematics of rebuilding were made abundantly clear in four economic summits.[2] There, intentions to take advantage of the catastrophe were placed front and center by portraying investors as innovators, supposedly better equipped to guide a contemporary modernization (Bonilla 2018). That way, the government of Puerto Rico, currently headed by the political party that favours statehood for the island, openly gave venture capitalists (not post-disaster reconstruction experts or local specialists) control over rebuilding efforts. Accordingly, as apparently benign post-disaster objectives, such as resilience, sustainable development, safety, health, and wellbeing become commoditized, the neoliberal underpinnings of the reconstruction get difficult to dismiss. However, although the hurricane was a catalyst, prior to it the island already displayed an exceptional state of fragility. So, when Maria hit, disaster conditions and sensibilities were already normalized.[3]

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[2] *Rebuild Puerto Rico: The Economic Summit* was held in Puerto Rico from November 2-5, 2017 with the support of the Miami Chamber of Commerce; *The Puerto Rico Investment Summit* was held at the Puerto Rico Convention Center on February 12-13, 2018; *Puerto Rico: Pathway to the Future, Opportunities of an Economic Transformation* met in New York City on February 15, 2018; and *Blockchain Unbound* was held in Puerto Rico from March 14-16, 2018. Others have taken place since then.

[3] To paint a brief context of the island before Maria, we must underscore the currently unrecognized colonial condition of Puerto Rico. Having been under Spanish rule since 1493 and then acquired in 1898 by the United States after the Spanish-American War, the island has never been an independent country. During the 1930s, 1940s and 1950s there were several projects to drive the economic and social development of the island; there is extensive scholarship discussing these

Thus, the heterotopic environment displayed (and explained) as the hurricane's aftermath, and which seem to endlessly reflect and effect a crisis within a crisis within a crisis, must be acknowledged as a historical condition that finds its origins in the systematization of domination.

Whose Rebuilding Is It?

"Rebuilding to benefit whom?" becomes a significant question when reviewing Puerto Rico's post-disaster reconstruction plans while analysing the role architecture will play in such a construct. Answers may be found in thinkers such as H. Lefebvre and M. Foucault. Lefebvre for instance, reminds us that historically, architecture has "[bent] demands (from below) to suit commands (from above)" with a very specific objective: to "regulate life" (Lefebvre 1991, 95, 358). In the same vein, Foucault insists that, as mechanisms serving authority, architecture and urbanism are instrumental for the organization of discipline and social control (Barou 1979, 11-2). Thus, their role in the production and reproduction of inequality, injustice, privilege, and an imposed catalogue of desires is undeniable, particularly when we acknowledge the neocolonization tactics embedded in disaster capitalism. Here we link neocolonization to disaster capitalism because, as thinkers from Chomsky to Foucault, as well as Quijano, Mignolo, and Grosfoguel have discussed, it points to a new process of domination devoid of explicit violent coercion perhaps, but still grounded on a deceitful benevolent rhetoric. Such as N. Klein explains, despite their public advertisement of an empathic and generous desire to repair or reconstruct, disaster capitalists use catastrophic events as "exciting market opportunities". As they have no real interest other than profitability, "collective shock [is] exploited to prepare the grounds for economic shock therapy" (Klein 2007, 9/702, 12/702; Bowles 2018). In other words, as we mentioned earlier with regards to Puerto Rico, the unstable state of the people in crisis is exploited in order to advance an economic siege. Such

processes especially on the governorship of Luis Muñoz Marín. In the 1960s, under modernization and developmentalism theories, there was a generalized perception that Puerto Rico had improved its economic and social standards. Over the years, through exploitation logics typical of colonialism and neo-colonialism, Puerto Rico has been driven to a profound social imbalance. Public policies bearing explicit neoliberal patterns adopted in recent decades are responsible for the less than optimistic socioeconomic outcome that the hurricane helped to make more visible. See other scholarship by the authors and the Colectiva para la Investigación de la Historia y la Teoría de la Arquitectura y el Diseño en Puerto Rico (CIHTAD-PR).

seems to be the strategy of a group of investors, among them cryptocurrency startups, who moved to the island after the hurricane and seem to want to operationalize a neo-settler-colonialist project (Yarovaya and Lucy 2018).

Furthermore, because coloniality frames Puerto Ricans as subalterns and due to the hurricane's uncovering and projection of an extreme poverty scenario (Agencia EFE 2017), to think that the reconstruction will overlook fundamental needs of the people in favour of expediting capital venture is not far-fetched. Additionally, the performative baseline of the post-disaster development strategy suggestively titled Paradise Performs exhibits a deformed image of Puerto Ricanness. As marketed by the local Government, the paradise trope for the 21st Century superimposes the illusion of technological development while reframing old stereotyping patterns as a way to underscore otherness. At its core, the island is depicted (again) as an exotic, ludic, and libertine (exploitable) space ready for reification and recolonization by United States' private interests, which will come to guide the future modernization. Enticing digitally edited images of buildings mimetically showcasing vertical heroism within an exuberant tropical landscape fill the presentations that are accompanied, in turn, by a new discourse of progress that promises to turn the island into a hub for creative and hi-tech driven industries (Laboy 2018, Marrero 2018, Álvarez-Díaz 2018). Thus, while government officials emphasize on the implicit otherness that an island conveys, they insist as well on driving hyper-technological urban and architectural projects such as the Puerto Rico Film District (Suárez 2018, Tellado Domenech 2018).

Supported by foreign private investment, this Caribbean Hollywood will likely assist in rebranding the island as a tropical hi-tech entertainment paradise. The notion aligns with a process of manipulation, which, by prioritizing images, produces a particularly alienating way of life showcasing, once more, a simulated development. Such as Mignolo suggests, it is a fictional construct

> (…) entertained by a television and music industry without comparison, mummified by a technology that at every minute creates a new 'trick' for trance and jubilee which projects over an unlimited success, an excellence without borders, and a techno-industrial-genetic growth which assures a paradise for all mortals.[4] (Mignolo 2007b, 31-2)

[4] Original quote is in Spanish. The translation is by the authors.

The mechanics and aims of this process in the current state of Puerto Rico find definition in A. Memmi's portraits of the colonizer and the colonized (Memmi 1974) and in H. Bhabha's colonial mimicry. Colonial mimicry is the ironic compromise from which the subaltern tries to negotiate its position within the system of domination. As a paradoxical strategy, the subaltern continuously accentuates its otherness while attempting at the same time to minimize it in order to finally, negate it. As Bhabha contends, colonial mimicry outlines a process of identification targeted at "being for another" (1994, 44-5). In practice, whether consciously or unconsciously, an ambivalent "image of identity" defines subjects as being "almost the same, but not quite [as those who are the authority]" (Bhabha 1994, 86).

As Puerto Rico stands at a historical crossroads, in what follows we discuss the ways in which coloniality obstructs a transformative post-disaster reconstruction. We touch upon the role of architects and address the potential of post-critical approaches in support of emerging decolonizing architectural practices that may not only renovate the profession but also, produce other more balanced and futuring modes of rebuilding (Fry 2017, 29).

Can the Subaltern [Architect] Speak?[5]

While the local Government organizes the building blocks for the reconstruction, the general passivity of architects turns problematic. Following hurricane Maria, a design competition for a "resistant house" has arguably been the most significant event organized by the Puerto Rico Architects and Landscape Architects Association (CAAPPR, for its initials in Spanish) (Colegio de Arquitectos [2017], Hernández 2017).[6] Another reaction from the professional guild, nevertheless lacking exposure in the local media, was an extremely pertinent and well analysed technical critique to a Polyvinyl chloride (PVC) Model House. PVCasa was introduced by a US developer and business speculator who announced the model as a viable prototype for the provision of housing in response to the massive loss suffered island wide (PVCasaPR, n.d.). Published as a blog

[5] We are borrowing from Gayatri Chakravorty Spivak's seminal work first published in 1985 in *Wedge* journal and reprinted in 1988 in Cary Nelson and Larry Grossberg's edition *Marxism and the Interpretation of Culture* (University of Illinois Press). Since then it has been reproduced in various readers.

[6] See announcement, details, and competition outlines at Colegio de Arquitectos y Arquitectos Paisajistas [2017].

post in the CAAPPR's website, the subscribed critique omitted to discuss the support given by the mayors of San Juan and Yauco to the construction of these houses in the municipalities they administered (Guillama Capella 2018). The Technical Commission failed to address how the use of what was described as a toxic and non-recyclable plastic as the main building material deflated the discourse of a sustainable reconstruction as hailed by the Government of Puerto Rico (Comisión Técnico Profesional del CAAPPR 2018). Furthermore, while the CAAPPR's Technical Commission wrote about the importance of reducing the use of plastics and talked about eliminating PVC – and eventually all plastics – from buildings, they did not supply a comparable technical review of a local architects' proposal for a prefabricated Polystyrene and concrete house which, like PVCasa, had also been recently announced (Ávila Claudio 2018, Cruz 2018).[7]

Probably convinced of their incapacity to transform bigger issues within the current state of affairs, other than the two isolated exercises mentioned above, architects' post-disaster public discourse settled in a few specific concerns: the building code; the categorical denouncement of so called informal[8] construction practices; and urging people to hire architects or engineers when fixing or rebuilding their homes (CyberNews 2017, Agencia EFE 2017, Rivera Cedeño 2017, Primerahora.com 2018, Rivera Cedeño 2018, Gómez 2018).[9] Attention to such technical matters seems logical if these had in fact been remnant problems from the hurricane. They, however, were not. The local building codes had not been revised in years, the so-called informal construction practices were widely known and improperly located buildings were openly visible. Yet, before the disaster, architects were not explicitly vocal about these challenges, even if as a professional principle, their code of ethics requires them to protect the health, safety, and welfare of the population (Colegio de Arquitectos, 2014). Conversely, when Maria made landfall, silence already partially configured the script of architectural practitioners on the

[7] The PVC house has all the markings of an experimental endeavour, such as those historically tried in subalternized and colonized settings turned laboratories, becoming a current instance of exploitation masked under the cover of post-disaster assistance.

[8] From a Global South's perspective, terms such as self-construction and assisted self-production seem better suited as they are empowering as opposed to subalternizing. See the recent work by E. Quiles on the reinterpretation of self-building initiatives supported by the architects' skillset (Quiles Rodríguez 2019).

[9] As of 2019, the CAAPPR formed a new Committee for Community Engagement. There is no information available about objectives or work plans to date.

island. As Spivak explains, in contexts of domination "the notion of what…*cannot* [be said] becomes important" as "elaborations of insurgency stand in the place of 'the utterance'" (Spivak 1994, 82). Or as Lefebvre denounces, "[i]f ever [architects] were truly to confront [the bureaucratic, financial, or political] forces in the name of the interested parties [the users], [their] fate would be sealed" (Lefebvre 1991, 365). That is to say, speaking becomes problematic when what must be said might be taken as an act of subversion for which the authority might take some kind of retaliation.

After a thorough revision of the sources addressing the hurricane's aftermath published as of March 2019, we can confirm that none of the architects who were given a public forum advanced an analysis of substance over the ways in which architects, engineers, planners, and developers could have prevented, anticipated, or even helped to avoid the new unstable scenario. Of all the discussion about self-construction that came about after the hurricane, only the Director of the Permits Office, Ian Carlo Serna, briefly commented about the fact that more than the permits (or lack of them) or building codes per se, there needed to be an acknowledgement of the fact that some building professionals had to be held accountable (Tolentino 2018).[10] However, other public administrators, private agents, and building professionals pointed to at risk-illegal-popular-clandestine construction as the root of the sweeping destruction. The hurricane seemed to uncover statistical data quantifying as informal 55% of construction on the island. This translated to 700,000 existing housing units built without permits, as of 2007, just a year after the start of the economic recession in Puerto Rico. (Hinojosa and Meléndez 2018, 19). For most building professionals and public administrators part of the problem had been the lack of more restrictive codes and regulations controlling construction (Alvarado León 2017). So, the proposed way to eventually tackle the housing estimated as informal will most likely be punitive. Not only will this create another way to criminalize the poor for their state of poverty but will seemingly facilitate as well, the eradication of marginal or alternative (to a certain extent, even traditional) construction practices and modes of production of social space in the sense advanced by Lefebvre.

[10] His comments probably intended to address others which blamed the Permits Office for lack of enforcement of the building regulations, inspections, and building certifications and even the corruption of the permit adjudication process (Nonko 2017).

There were no efforts to contextualize the effects neither in order to discuss the real causes of the destruction nor to drive an exhaustive but constructive criticism of the profession. Among the few architects who received media coverage, Ricardo Álvarez Díaz –then, president of the Home Builders Association and current architect for the aforementioned Puerto Rico Film District– expressed, somewhat ironically, that building codes do not generally improve before a debacle. Instead of analysing the existing conditions in order to propose a sustainable post-disaster development aligned with revised government policies, there has been an inclination to superficially evaluate the disaster as an opportunity. Thus, the architects' ethical obligations before a catastrophe were completely ignored in public post-disaster forums. Not surprisingly, responsibility for self-built housing, (an irrefutable sign of poverty made overwhelmingly visible), was attributed to the poor themselves and to a supposed collective disregard for building regulations (Veglucci 2018). If at all, the causes for the population's generalized poverty were only sketchily discussed by professionals linked to the building industry.

Likewise, it seems most problematic that, as a professional body, architects abstained from voicing a position regarding the general prospects of a reconstruction with disaster capitalism as a point of departure. Despite many of the topics falling under the scope of architecture and thus, the skillset of architects, apparently neither the CAAPPR, the Puerto Rico chapter of the American Institute of Architects, nor a single of the architecture schools on the island submitted comments in regard to any of the aspects covered in the amended published draft for the *Puerto Rico Disaster Recovery Action Plan* (2018, 194-5). This suggests that, as expected, most architectural practitioners view post-disaster reconstruction solely as the opportunity to reactivate a stagnant economic niche. Hence, the generalized muteness of architects underscores an idea that seems to be deeply rooted within many professionals on the island: it appears as if architectural knowledge is unessential for strategizing, planning, organizing, or opposing. As such, the silence of architects dramatizes their collective ambivalent presence: colonizers while colonized.

A Post-Critical Approach to Architecture

Expanding on M. Tafuri's arguments regarding the commercialization of architecture and the support of the profession in injecting, maintaining, producing, and reproducing the objectives of capitalism (Tafuri 1976, 176-

8, 181), we do not expect Westernized orthodox practice to stand against the paradigms of disaster capitalism as these drive Puerto Rico's reconstruction in the aftermath of hurricane Maria. Clearly, most architects on the island do not see themselves as intellectuals, nor are they trained as such by local schools of architecture. Neither do most architects recognize design as a way of knowing, as a form of research, or as a means for knowledge production (Coss 2016). As academics involved in architectural education, over the past decade we have witnessed how local programs have been consistently framed by the spectacularization of the profession; the atomization of architecture in its reductionist understanding as either object or space; the uncritical integration of phenomenological or queer concepts to the design process and narratives; the domination of a superficial formalism; an accommodating version of architectural ethics; the devaluation of alternative practices; the conservative definition of architecture as a concept; and the principle that sustains that architects cannot (and by default, should not) be active and socially concerned participants in the transformation of the socioeconomic or political landscape of the island. In other words, architecture schools produce and reproduce the profiles of the canonical architect: a top-bottom expert who is a service provider incapable of finding problems, posing strong questions (De Sousa Santos 2016, 25) or proposing solutions without the advent of a client. Correspondingly, even if the most valued pedagogical exercise in architecture schools is critique, in the professional setting of practice in Puerto Rico, and stated in the CAAPPR's bylaws, architects as a collective discourage such a practice by deeming it conducive to the undermining of the work and professional development of a colleague (Colegio de Arquitectos 2015, R 502). Notably, local architects are mistakenly taking critiquiness for critique. As C. Castiglia points out, "critiquiness is the *sound* of critique without the ethical positioning…" (Castiglia 2017, 214). That is to say, critiquiness advances negative judgements or disapproval based on a superficial perception or individual taste or believes. As opposed to critique, critiquiness has no substance; it is malicious, and unconstructive.

Nevertheless, as fundamental participants of a reconstruction manipulated by coloniality, architects' role as intellectuals and thus, as critics, becomes crucial. In order to stand against the oppressive logic of capitalism, E. Said recognizes that intellectuals must oppose, uncover, challenge, and defeat "an imposed silence" and the quiet normalization of uneven forms of domination (Said 2002, 31-2). As discussed before, most architects practicing in Puerto Rico tend to follow particular ways of producing, in the terms discussed by Lefebvre, strongly linked to capitalist

metanarratives and Westernized hegemonic dogmas. The words of B. de Sousa Santos towards Global North's practitioners, particularly academics, resonate here:

> [t]hey were trained for that sort of life, and their mission is to reproduce it. Under these conditions, the challenge posed…is dilemmatic: either they must untrain or reinvent themselves, or they will continue to be what they already are –irrelevant. (De Sousa Santos 2016, 9)

Besides untraining, however, an intellectual-architect-critic must also bring herself or himself to speak. That is to say, to render architecture as a productive-transformational form of speech. For Said, intellectuals must be public instigators who "cannot be reduced simply to being a faceless professional [or] competent member of a class just going about her or his business" (Said 1996, 11). Intellectuals, he emphasizes, must help define possible avenues for intervention by way of alternative solutions to those supported by authority. De Sousa Santos, for his part, goes a step further. The intellectual-activist or rearguard intellectual he defines is someone who recognizes her or his coloniality and uses the experiences of struggle to build a collective transformative future. This is sustained by a process of critique and self-critique born from a "capacity for wonder and indignation capable of grounding a new, nonconformist, destabilizing, and indeed rebellious theory and practice" (De Sousa Santos 2016, 88). So, the redefinition of architects as provokers of transformative impact through the constructive function of a critical architecture prompts to the reframing of the ideological, professional, and participatory boundaries of practice in Puerto Rico. Correspondingly, Tafuri recognizes in critique the only possible vindication for architecture's dismissal of its ethical and political tenets in favour of capitalism (Tafuri 1976, 178-181).

As contemporary scholarship theorizes, proactive and productive critique offers a framework for redefining scopes and purposes unbounded from purely academic stances or abstract projections (Anker and Felski 2017, 19/296-20/296). The idea of post-critical architectural practices becomes then, a very suggestive proposition for Puerto Rico. What is more, in the context of coloniality and disaster capitalism (both contemporary modes of domination), post-critical practices could support an undistorted, bottom-up, for the people, and more symmetrical reconstruction by questioning baseline challenges instead of rendering band-aid solutions incongruent with the island's current realities. Post-critical architectural practices, as De Sousa Santos would put it, could

most likely be able to render productive questions to the practical problems of the reconstruction.

Sketches for Decolonizing Architecture

Early in the colonial transfer, Puerto Rico began to be (re)configured as the "bridge between the Americas". By declaring the island and its people as cultural hybrids, the supposed in-betweenness of Puerto Ricans–when defined as both Hispanic and American citizens–has been repeatedly employed by the United States as a means to facilitate their control of Latin American countries. By now, the gradual assimilation of Euro and US-centric based trends is easily recognizable in Puerto Rico's architectural production and professional practice. Notwithstanding, even if architecture adopted Westernized paradigms from what is currently referenced as the Global North, we believe the crisis prompted by the hurricane and the surge for reconstruction now validates and even encourages the search for answers in both northern and southern epistemologies. That is, the notion of Puerto Rico as a bridge may be reframed using De Sousa Santos' ecology of knowledges (De Sousa Santos 2016, 188).

Castiglia, for instance, introduces hopeful criticism as a form of critique aimed at a socially driven outcome by shifting from "denunciation to reconstruction" in order to advance the prospect of future-making (Castiglia 2017, 212/296). This seems particularly applicable in Puerto Rico where over the past few years several grassroots initiatives have started to integrate proposition along with more common resistance tactics such as protest. These movements portray critical participatory agendas that are not only moulding new political and social roles, but also reshaping what the prospects of place-making and future-making mean and entail. Castiglia's critical model can dialogue with other epistemic logics or worldviews (*cosmovisiones*) from the South, as suggests his incorporation of "imaginative idealism" as a way to build the not-yet. As creativity and speculation are fundamental instruments of southern epistemologies as well as of architectural thinking, hopeful criticism, along with magic realism, *sentipensar* (thinking-feeling), *buen vivir* (good living), and others can be productive charters for articulating new forms of practice through an objective refocusing where "informed discontent" (Castiglia 2017, 222/296), alongside the aforementioned indignation and non-conformism, stand as ways to reframe crises and become real drivers for change.

Likewise, from the epistemological context of the Global South, we find that decolonial thinking pushes forth a mode of critique that should be urgently incorporated within the discourse and diagram of Puerto Rico's reconstruction. A. Lentin underscores the usefulness of decolonial thinking in finding alternatives for deconstructing the structures of domination. As she explains, "the decolonial entails a delinking from the rules of the game, a decolonizing of the mind" defined as well, as a process of unlearning (Lentin 2017). By unlearning, she means the rejection of the established paradigms of the metanarratives of authority. This would include, we argue, disaster capitalism which, as discussed, seems closely tied to the prospects of Puerto Rico's post-disaster reconstruction; thus, to future architectural projection on the island.

Previously, we briefly touched upon the ambivalent position of architects as colonized colonizers. As both subaltern and (partial) authority, they practice from an in-betweenness that may be particularly well situated for hopeful criticism and decolonial-thinking driven insurgence under notions of public instigation and the rearguard-intellectual-activism delineated by Said and De Sousa Santos. In Puerto Rico's post-Maria context, these can become the baseline for a process of on-going critique which may lead to a decolonial architectural thinking. That is, as A. Escobar suggests, to "an ethical praxis of world making" that is "informed by an ecological awareness of planetary limits and global climate change" which may produce "a design imagination that avoids the traps of capitalistic industrial instrumentation and goes beyond the ontology of separation that thrives on hierarchy, competition, aggression, and the control of humans and nature" (Escobar 2018, 18, 21). As such, we recognize two dimensions in which a decolonial process can materialize in architecture. However, we will only focus here on the redefinition of the normative profile of the architect within the expansion of the scope of professional practice.

Castiglia suggests that the products of hopeful criticism are always unfinished. This means that the future is not a fixed image but is always in design, ever in construction; that is, in a constant state of being made and remade (Castiglia 2017, 224/296). We must underscore here that a similar adaptability conforms the ways of being-in-the-world of many cultures from the Global South. This fluidity, however, goes against the canonical discourse of architectural practice, which has historically sought to produce objects and environments under the premise of permanence.

Going further, we believe that Castiglia's arguments align with the concept of spatial agency introduced by T. Schneider and J. Till. Spatial agency, as they define it, is a process where "change [is effected] through the empowerment of others" (Schneider and Till 2009, 99). Arguably then, spatial agency may be understood as a form of hopeful criticism directed at place-making. As such, the spatial agent not only bases design (in its broadest sense) on intentionality and even on self-initiative, but also unbinds it from the inflexible and reductionist orthodox idea that architecture should only be concerned with building buildings (Schneider and Till, 97-100). This variable and malleable understanding of practice might be in itself decolonizing.

Orthodox architectural practice in Puerto Rico's domination framework often manifests in the form of mimetic praxis. Colonial mimicry, as already discussed, manages distorted images that display versions of the subaltern deemed acceptable for the external gaze (and consumption) of authority. An intrinsic part of that process partially disavows otherness. Hence, mimetic practitioners, we argue, tend to not only be uncritical of the real contexts that force their canonical modes of practice but also they seem unaware of their investment in supporting the status quo of domination. A significant way mimetic practices function is by designing architecture(s) which are based on metropolitan habits or images, or otherwise on imposed foreign desires (Fig. 7-1). For instance, in the name of comfort, architects in Puerto Rico often produce buildings that negate the environmental conditions that are singular to a tropical setting. Under such circumstances, adoption and adaptation, or newer terms such as innovation, may be interpreted as signs of colonial mimicry in architecture. That is to say, mimetic practices base design on imported images or modes of habitation that have little to do with what is local. Conversely, a mimetic architectural education has been and still is complicit of this practice by encouraging a pedagogy based on foreign images and technologies which ultimately turn into aggressions. Take for instance, the Hollywoodist project mentioned earlier.

Currently, only a small group of instigators or spatial agents (among them, trained architects) are confronting the limits of canonical architectural practice by working within the real political, socio-economic, territorial, environmental, and cultural conditions at play on the island.

Fig. 7-1. Mimetic architecture in San Juan, Puerto Rico, 2019.

As a preliminary taxonomy, we have established three groups that correspond with Said's notion of the public instigator, De Sousa Santos' rearguard-intellectual-activist, Castiglia's hopeful critic, Schneider and Till's spatial agent, or Escobar's ethical-relational designer.[11]

The first group is that of the affiliated critics-intellectuals. These are practitioners belonging to the first generations of Puerto Rican architects who studied mainly in Puerto Rico or the United States under the discourse of late modernism. These architects have developed practices within the parameters of normative professional affiliations but have also produced an original corpus of work and scholarship under non-traditional modes of practice as defined by Rory Hyde (Hyde 2012, 17-23). These professionals work within, but away from, the thematic limits and expectations of Westernized practice by rendering a new form of in-betweenness. Fernando Abruña is a well-known advocate for sustainability as well as a promoter of ecologic architecture. Because he has developed a professional practice guided by a profound ethical compromise with

[11] Currently, we are contrasting these profiles against design practices other than architecture. So far, we have found several designers who share frameworks and stances which dialog with the notions supported by these scholars.

environmental conservation, he designs an ecologically conscious architecture (Abruña + Musgrave, n.d.). For instance, his firm's first-prize entry for the "Resistant House" competition sponsored by the CAAPPR was a design produced by the architect and his associate, Margaret Musgrave, as a self-initiative and public domain endeavour prior to the contest (Fig. 7-2). It provided a user's manual along with the design. This Residents' Manual is intended to show, in an ontological fashion, precisely how to dwell in the house as well as with the environment, an effort, we might argue, in unlearning and relearning. Abruña's position rivals the notion favoured by most architects on the island: that of a fraudulent image of progress where architecture usually stands against nature. In the same vein, also working within/without the professional normative and the institutions of higher learning, Edwin Quiles exceeds the limits of orthodox practice as a rearguard-activist-scholar by way of participatory and community design –sometimes, along with Elio Martínez Joffre (Quiles 2001, Quiles 2004). Quiles and Martínez Joffre generally integrate architecture students into a pedagogical methodology of active learning and community engagement. The work of these practitioners begs consideration, as they are not bound by the canons prescribed by modernity in terms of the heroic duties of the architect. Neither have they been proponents of the canonical vocabulary featured in foreign architectural journals in their most significant work. So, their teaching and architectural approaches sometimes defy the mimetic discourses being reproduced by the University of Puerto Rico's School of Architecture where all three have taught, while other times they subvertly appropriate it in favour of building non-hegemonic, hopeful, and solidary future(s).

Fig. 7-2. Plan, axonometric view, and elevations for Casa Resiliente by Abruña + Musgrave Architects, 2018.

The second group of agents is the dissident critics-intellectuals. In part, these have opted to define their practices by consolidating some tactics from the affiliated agents however, within the mistrust and negation of the value of professional affiliations and license. Some of these practitioners view these as obstacles for their professional and social objectives. Formed in architecture, they owe some of their disruptive stance to Abruña, Quiles, or Martínez Joffre as direct or indirect disciples. In addition, the individuals in this group are critical of their education, of the Westernized notion of specialization, and of the narrow limits of normative professional practice. Female architects such as Omayra Rivera Crespo and Yazmín Crespo Claudio, founders of *Taller Creando Sin Encargos* (Creating without Commissions Workshop), are accounted here. Their practice upsets the logics of orthodox architectural production because it abandons two restrictive notions: that of the requirement to work for a client and that of the preconceived needs of the users as

knowledge they already possess. As instigators and activists, their work is driven by the notion of co-design. They work with the community and not for them (Fig. 7-3). Their methodology is participative, horizontal, and opposes the inflexible logic of the Westernized idea of rationality, which is one of the drivers of normative architectural practice.

Fig. 7-3. Participatory building process for Parada el Almendro, Puerta de Tierra, San Juan, 2017 (photo by Omayra Rivera Crespo).

Both rationally and emotionally informed, their approach rejects the idea of the monumental object, still present in canonical architecture, in favour of the "small gesture for great impact" (Rivera Crespo 2017, 6, Rivera Crespo 2016, Quintero 2013). Therefore, their work aligns with what could be identified as a matristic/matriarchal practice associated to Escobar's definition of a relational-ontological-ecological way of being-in-the-world. We have also placed Doel Fresse in this group. Fresse explores the possible interactions between industrial design and architecture by fostering adaptive reuse, occupation, and climatological adaptation as possible avenues against unsustainable new construction. In addition, his work is committed to the study of localities through inquiry; particularly, the ways in which local visual and material languages and imaginaries evolve and the meanings and messages they convey (Fig. 7-4).

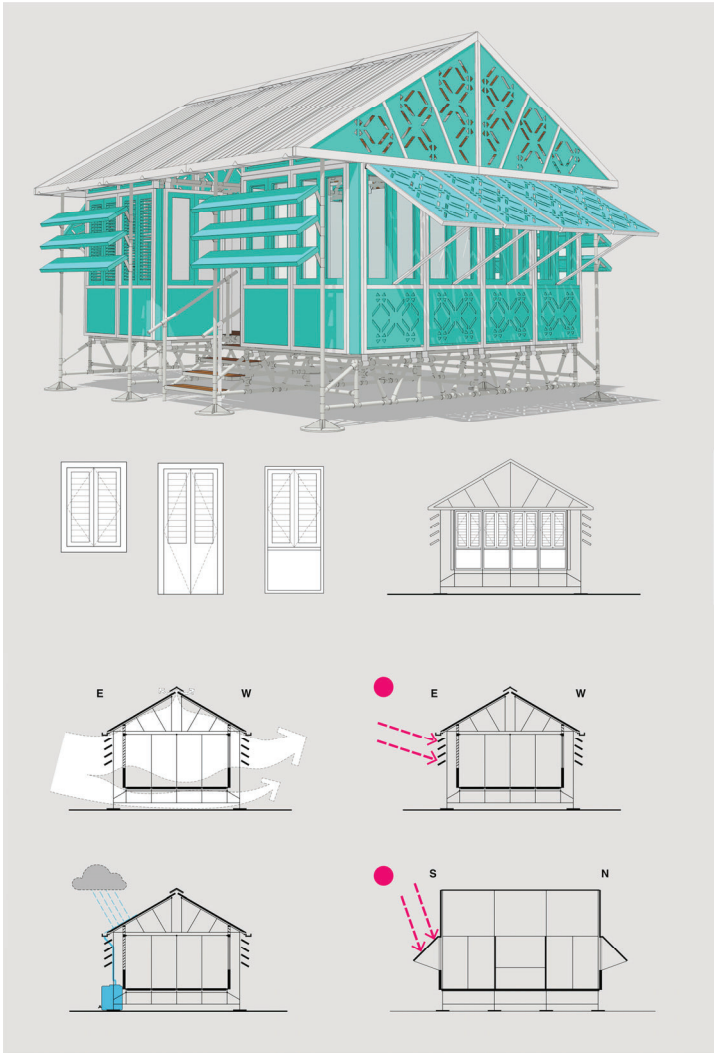

Fig. 7-4. Transitional Emergency System (TES) by Doel Fresse, 2018.

This way, Fresse distances himself from the ascetic and abstract discourses of Westernized modern design by intentionally arguing against the notion of tabula-rasa (Fresse 2018). These non-canonical practitioners show complete disregard for the figure of the starchitect and, precisely by advancing the objectives of their practices beyond buildings or orthodox

construction, they have distanced themselves from the design of uncritical formalist objects. It seems significant that all the agents mentioned have, at some point, worked in schools of architecture or design. They posit an exception to our earlier comment on the un-intellectual environment usually present in architecture schools in Puerto Rico.

Finally, peripheral and contingent activists-intellectuals make up a third group. Despite coming from disciplines other than architecture, their fields of study and sensibility support the production or design (in broad terms) of spaces and places. Perhaps more than the two previous groups, the practitioners in this category work from post-critical stances, showcase a public profile as instigators-activists, and have the broadest flexible disposition towards the possible or the not-yet. With a long career as a community planner, Lucilla Fuller Marvel might be regarded as an originator. Fuller Marvel became a pioneer of sorts for advocacy planning on the island during the 1980s. Her reputation as a planner and a scholar allowed her to participate as a government consultant within marginalized communities suffering from multiple disasters as a result of social, economic, and environmental vulnerabilities. Instead of the silence we spoke of in regard to architects on the island, Fuller Marvel made a career out of becoming the voice for the voiceless at a time when scholarship on community and participatory design and advocacy was scarce in Puerto Rico (Fuller Marvel 2017, 17-21, Fuller Marvel 2008). Recently, urban scientist Marina Moscoso has gained enormous recognition for Casa Taft 169, where the redistribution of urban spaces and the radical questioning of the legal framework concerning real estate provoked the appropriation of an abandoned building and its transformation into a communal-social resource in Santurce's Machuchal sector (Fig. 7-5). Moscoso's actions, under the slogan "todos somos herederos" (we all are heirs), pushed for a legislation proposing that municipalities cede abandoned buildings to grassroots and community nonprofit groups (Moscoso and Gallardo 2017, Puerto Crítico 2015). This initiative connects to Global South's ways of being-in-the-world, which acknowledge a communal right to the land. That is, to the believe that land may be occupied but not owned and as such, cannot become an individual's property because it is a common good. With Casa Taft 169 then, the idea of property, which is directly linked to capitalism and commodification, gets dismissed in favour of a communal occupation.

Fig. 7-5. Casa Taft 169, Santurce, Puerto Rico, 2014 (photo provided by Marina Moscoso).

Equally, *Colectivo La Maraña* (The Entanglement Collective) has orchestrated multiple interventions framed by methodologies such as community participation, human-centered design, self-help, mutual-aid, and participatory building. One of the ways in which *La Maraña* sets its course against normative practices is by introducing "informal" (yet informed) design and construction into their interventions. They also advocate for strategies for community empowerment, which focus on place-making but not necessarily on orthodox architecture per se. As with *Taller Creando sin Encargo*s, this collective, led by Sofía Unanue and Alexandra Llegus, works within the communities by identifying challenges. Then, through a process of adaptation, they work along with the people in the community in order to draw proposals for imagined future(s) (La Maraña, 2017). This group's understanding of design as a problem-finding strategy and their approach to co-design places them outside the paradigms of normative practice.

These more socially driven models find counterparts all over the island. Of the most visible are *ENLACE del Caño Martín Peña* and *Casa Pueblo* in Adjuntas. *ENLACE* ("to link" in Spanish) is an independent government entity working with eight communities emplaced along a 3.7-mile-long natural water channel. They advocate for its dredging while supporting the G8 Group. The G8 is a community-based grassroots

movement that works against the displacement of the eight communities along the channel, which are located very close to the Hato Rey business district on what is considered prime land. The group works within a similar register to the Global South's *sentipensar* (feeling-thinking) as a way to acknowledge a relational being-in-the-world or, in other words, the believe that the place is the people and the people are the place. Within this notion, the G8 also observes the idea of communal property rights with a community land trust (World Habitat 2016). The "casa resistente" proposed by Abruña + Musgrave under the auspices of the CAAPPR is being built there. Finally, under the leadership of the Massol family, *Casa Pueblo* explores the possibilities of industrial design and engineering under the flagships of off-grid urban, suburban, and rural spatial reconfigurations. For them, renewable energy production and design means a path towards a decolonized future for Puerto Rico (Massol Deyá 2018). Furthermore, they believe in a relational mode of existence where all aspects of life are interconnected. For instance, the *bosque escuela* (forest-school) *La Olimpia* encourages an ecological understanding of place and the recognition of the symbiosis between humans and non-humans (Casa Pueblo 2019). It is not by chance that most of these groups' names resonate with the notions of the collective, the participatory, and the idea of the workshop as a mode of learning by doing in a devoted relationship with nature, with their immediate context, or with other people. We might call it phenomenological in its most essential way. Furthermore, we must underscore how each of them continues to be instrumental in the mitigation and active reconstructions of affected areas post-Maria, in some instances, more so than the federal and local governments.

Final Words

Following the hurricane, the arrival of a contingent of academics and students who did not really have a well-rounded understanding of Puerto Rico's history, conditions, or needs reactivated for some the memory of the island as laboratory. In this setting, we might recognize a form of gainful disaster-pedagogy, which renders another type of simulacrum. The concern with this form of (futile) post-disaster aid typically encompassed within study abroad exercises –despite good intentions– is in their lack of incorporation of unlearning frameworks or decolonizing of the mind as part of their outcomes. In addition, the reduction of architectural knowledge into a technical toolkit highlights the assumed irrelevance of architects for proposing a transformative change.

For a short while after Maria, emancipatory projects were granted the opportunity to have their voices heard. Several non-hegemonic initiatives, including some in which architects participated, had compelling media exposure and were regarded as integrative solutions that could work for the reconstruction. This awakened the feeling of auto-realization through the prospect of hope, proving that non-canonical architectural modes can become a decolonizing form of speech that can question and disavow the discourses and mindsets of authority. So, there are profound ways in which the dynamics of domination, such as those fixed within disaster capitalism and coloniality, can be counterweighted through architecture. Borrowing from Bhabha, as Puerto Rico faces the prospect of an uneven neocolonization masked by post-disaster reconstruction, decolonizing practices, by taking hold of ambivalence as a form of epistemological subversion, "may be articulated with forms of 'native' knowledges or faced with those discriminated subjects" (Bhabha 1994, 144) in order to build non-hegemonic, hopeful, solidary future(s).

In support of the arguments advanced in this chapter, the following six decolonizing strategies find some presence on the island to date: the integration of participatory processes; lateral production (from place-making to theory, and outreach); community engagement; adaptive reuse; ecological consciousness; self-construction; and occupation. We acknowledge these as decolonizing strategies because they work as destabilizing agents against a capitalist overview of production-consumption, they are pluriversal, and in most cases, relational. In the same vein, the three forms of agency discussed here relate to the normative core of architectural practice in increasingly emancipatory ways. Not only are they intentional in their approaches but also conforming post-critical stances on architecture's status quo that stem from the notion of discontent we touched upon. Even if some of the six tactics accounted may appear in orthodox architectural practices, the difference is that the agents we have sorted tend to use them as forms in which to advance opportunities for multiple kinds and degrees of resistance, including that of a severely regulated professional context. Furthermore, as architecture in Puerto Rico has been historically elitist and patriarchal, the normative (white boys') club culture it produces and reproduces animates the architects' social presence under multiple forms of privilege, in the same way as all asymmetries work within society. As Westernized architectural practices tend to the homogenization of environments and the perpetuation of hegemonic constructs, the strategies we have delineated dissent in distinct ways from said metanarratives of authority.

Individuals who acknowledge, question, and work under complex crises conditions in designing spatial and place-making modes of resistance to neoliberal logics, from humanitarian and liberating precepts, fit within the definition of decolonizing post-critical architects we have sketched here. They match particularly if working within contexts of domination such as those of contemporary Puerto Rico, where improving the living, environmental, and social conditions of populations undervalued, disadvantaged, or at risk needs urgent attention.

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CHAPTER 8

EISENMAN CRITICAL PRACTICE: BEYOND URBAN FORMALISM IN-BETWEEN ACTUALIZING FUNCTION AND VIRTUALIZING CHAOS

NAJLAA KAREEM

Introduction

This essay aims to question the conventional praxis of architecture and urban design formalism. Drawing on Deleuze and Guattari's theoretical concepts of assemblage and affect, I will conceptually analyze the idea of the "machinic" and the condition of "interstitiality" in Eisenman's critical architecture, and argue that the shift to non-representational thinking**,** exterior arrangements, pure relations, and sustained connections is critical practice because it efficaciously encompasses the materialist and intensive urban experimentations. In his practice, Eisenman experiments with a notion of form that is outside the traditional dominion of modern architecture, in which any shape is "already" informed with meaning, and therefore form is determined by rules of imitation and function (Eisenman 1997, 25). According to Eisenman, the traditional process of design relies on strict dualisms, such as "figure/ground," instead of "in-between" condition in which the binary oppositions are potentially merged together and embedded within one another, producing an interstitial figural or machinic "figure/figure" groundless condition (Eisenman 2007, 69).

The advantages of Eisenman's version of an architectural machine are that it correlates considerably with the notions of assemblage and affect, thereby rupturing the conventional approaches of dominant formalism and bringing together the logic of temporality and the logic of sensations. Deleuze and Guattari themselves use the notions of assemblage and affect to support the production of the machinic process, offering an alternative

mode of explaining relation and experimentation among bodies to that offered by representational thinking that works in terms of a priori, "already given" thought or system. The machinic process in the context of an architectural design neither complies with rules of imitation and function nor validates an already given system. Instead, Eisenman argues that the machinic process is an attempt to shift the architectural design thinking and practice from forming to *spacing*, suggesting a potential figure/figure relationship, which leads to producing the condition of the interstitial (Eisenman 1997, 32). In his article, *Processes of the Interstitial: Notes on Zaera-Polo's Idea of the Machinic*, Eisenman says:

> Spacing produces an other the condition of the interstitial. The interstitial proposes a dissonant space of meaning. Where figure/ground was an abstraction, figure/figure is a figural condition that is no longer necessarily abstract. It is a space of matrix of forces and sense. It is affective in that it requires the body as well as the mind and the eye for its understanding (Eisenman 1997, 32).

This essay will examine the interstitial spaces in Eisenman's project, the Memorial to the Murdered Jews of Europe in Berlin, Germany 1998-2005 (Fig. 8-1), through their transitory engagement with flows and territories as a set of machinic assemblages and social locales in cultural productions. The flows of affective forces, complicated lines, and singularities in Eisenman's project challenge homogeneous architecture, destabilize the traditional dialectics, and alter the whole traditional concept of modernist form.

Deleuze and Guattari's Affective Assemblage

According to Deleuze and Guattari, the affective assemblage is designated as a production machine, when the unpredictable fluid frame of destratified movement is shattered and socialized, one that more accurately mirrors life and its countless virtualities (Deleuze and Guattari 1987). The fortuitous intensities of conditions, events, sensations, and activities generate the unpredicted arrangements of relations among various human and non-human bodies. Following Deleuze and Guattari, affective assemblages not only imply an arrangement of component parts that cannot be reduced to conventional duality, but also can operate within that arrangement various complexities and vitalities. Consequently, affect works as a sensible of machinic interactions contained by assemblage to deterritorialize meaning, functions, and relations.

Fig. 8-1. Peter Eisenman, Memorial to the Murdered Jews of Europe in Berlin, Germany, 1998-2005.

Deleuze and Guattari explain that the affective assemblages are related to a horizontal axis that transacts with "machinic assemblages of bodies, actions and passions" and a "collective assemblage of enunciation, of acts and statements, of incorporeal transformations of bodies" (Deleuze and Guattari 1987: 88). The vertical axis that is associated with assemblages has both "territorial sides, and reterritorialized sides, which stabilize it and cutting edges of deterritorialization, which carry it away" (Deleuze and Guattari 1987: 88).

Within the Deleuzo-Guattarian sense, affective assemblages function through lived experience and come into existence with relational and affective variations. What is more critical is the fact that Deleuze's stuttering practice "and, and, and" is formed socially; which means that the logic of relationality entails social practices. Deleuze characterizes assemblage as a "geography of relations" (Deleuze and Parnet 1987, 56-70). A single component in one assemblage is not hierarchically engaged with other components in a regulated system but occurs in connective and transitory alliance with them.

> Deleuze uses the term 'affection' to refer to the additive processes, forces, powers, and expressions of change–the mix of affects that produce a modification or transformation in the affected body" (Colman 2010, 13).

Connotatively, the French term *agencement* means that the diverse and numerous components of an assemblage are not just juxtaposed or linked with each other in particular connections, but also collaborate to produce an affective synergistic and open-ended tendency (Dovey 2013, 133). Subsequently, an active assemblage is a multiplicity of affects and percepts in itself, which persist to congregate, combining the creativity of architects and designers' work as autonomous expressions of visual experiments and the intensities of sensation. "An assemblage is not a set of predetermined parts that are then put together in a specific order or into an already-conceived structure" (Wise 2015, 162), but is a set of connections that arrange temporally and spatially as a whole without a certain or previous order. The Deleuzo-Guattarian approach to the concept of affect is to liberate, notify, and construct experiential forces from the specific bodies who experiment with them, creating intensity, generating impersonal affects, and disrupting the dialectical system of signification. Thus, the Deleuzo-Guattarian approach to the concept of affect reveals the "limits of semiotics" "that tends to structure emotional responses to aesthetic and physical experiences" (Colman 2010, 13).

According to K. Michael Hays, an American architectural historian, the outlines of any symbolic system in Eisenman projects have been hollowed out: "in his cities of artificial excavation Eisenman strives to find an architecture of pure trace, which effaces itself before the theory, the critique, and the thought it is asked to convey" (Hays 2010, 92). In Eisenman manner, architecture cannot be reduced to a system of symbolization that represents traditional assumptions and has "already" embodied meaning in the architectural formalistic image (Eisenman 1997, 23).

In contrast, architecture in Eisenman's practices includes strategies of temporality and defamiliarization, in which an architectural object is shifted to alienation and "self-reflexivity" (Hays 2010, 59), reintroducing the notions of affectivity and sensibility in different ways (Fig. 8-2). The notion of affect in Eisenman's approach in the Memorial site functions as a dynamic of forces and intensities within machinic assemblages to create transitory meanings and relations. The outlines of interstitial spaces are undefined and regularly defied, violated and prolonged as new affections and associations are born and deep-rooted ones break (Fig. 8-3).

Through the logic of "and" (Deleuze and Guattari, 1987: 25), one part of any assemblage is not distributively categorized or typically represented by another, but occurs in attached and temporary form with it.

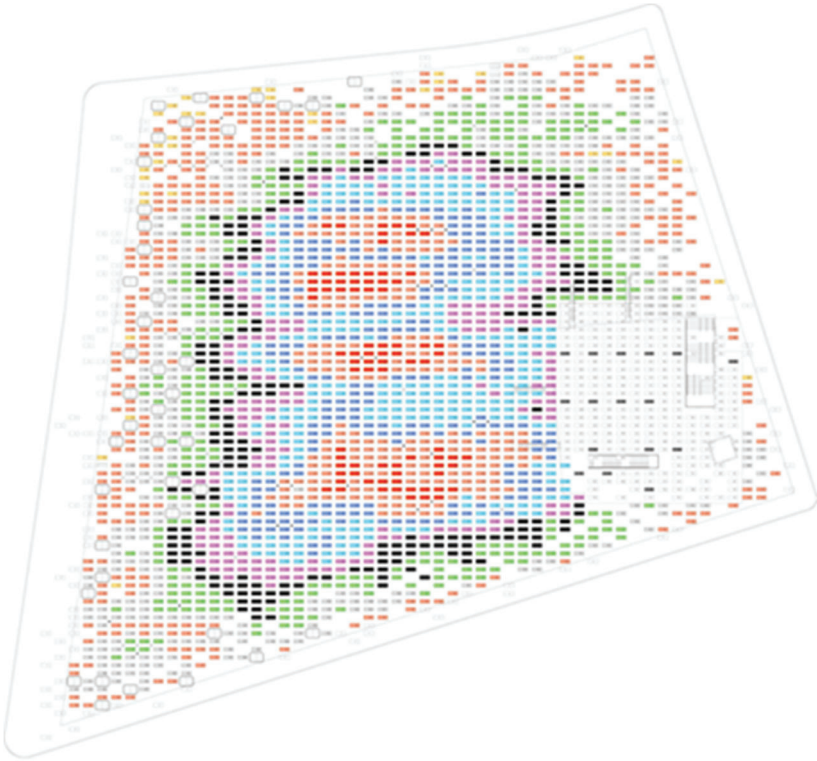

Fig. 8-2. Peter Eisenman, Memorial to the Murdered Jews of Europe, 1998-2005.

In Deleuze's thought of creative transformation, experiential affect that occurs as a transitory force prior to the meaning and away from the interpretative mode of cognition reveals the "limits of semiotics" that have a tendency to actualize sensitive reactions out of their indefinite virtuality and materialize them to visual and physical contexts. Likewise, Eisenman stresses the syntactic aspect of form over the semantic one; his concept of "cardboard" architecture drops the visual and physical use of the architectural object in the traditional sense that associates with stable materiality (Hays 2010, 54).

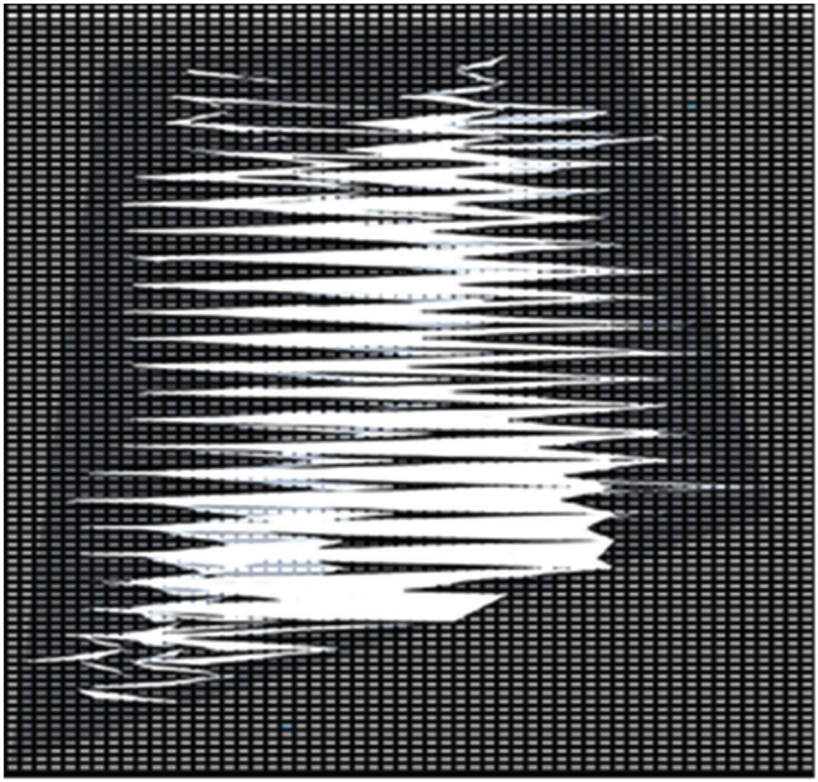

Fig. 8-3. Peter Eisenman, Memorial to the Murdered Jews of Europe, 1998-2005.

Eisenman rethinks formalism in his "cardboard architecture," in which he creates interstitial spaces in dynamic machine assemblages that destabilize the hierarchy and the dominance of "the architectural material, scale, function, site, and all semantic associations in favor of architecture as 'syntax'" (Eisenman 2013). Assemblage is thus a whole that is shaped by multiple desires, engaging both unchanging strata and flows of intensities, and where heterogeneous relations remain immanent to existence, away from stability, and subordinate to the process of change in a creative sense.[1]

[1] According to Jon Roffe, an Australian philosopher, an assemblage behaves like a tree in autumn, whereby any external environmental action such as: "A flash of red, a movement, a gust of wind" (Roffe 2006) sets the constituent elements into a variable specific motion "to create the sensation of a tree in autumn" (Roffe 2006). While the prearranged nature of a tree only exists in representational thinking,

Accordingly, function reveals the occurrence of an assemblage. The definition of an assemblage is determined by the work that the assemblage is able to do, and its meaning comes from its usage rather than its significance. Assemblage can produce specific expressions and innovative performativity by the multiple spatiotemporal constellations and unforeseen connections that are preferably novel and inherently social.

Manuel DeLanda's Assemblage Theory

Deleuze and Guattari's affective assemblage constitutes the backbone of "assemblage theory" as a theory of social complexity, appearing in Manuel DeLanda's book: *A New Philosophy of Society: Assemblage Theory and Social Complexity* (DeLanda, 2006). In Manuel DeLanda's point of view, assemblage is a signature concept of Deleuze: DeLanda says "today, the main theoretical alternative to organic totalities is what the philosopher Gilles Deleuze calls *assemblages*, wholly characterized by *relations of exteriority*" (DeLanda 2006, 10). Thoughtfully, in order to escape any kind of reductionism pertaining to both dominant principles and "textual permanency," assemblage theory calls for a new perception of social reality that cannot be reducible to any discourse that has a certain authority, and thus "it gives priority to experience and sensation" (Dovey 2010, 16). In 2006, DeLanda delved into the experimental, expressive, and spontaneous aspects of everyday lives in his social theory, searching immanently for causal explanations of what assemblage can *do* and dispelling the traditional query of what assemblage *is* (Dovey 2013, 131).

Assemblage theory proposes a paradigm shift in architectural and urban design thinking and practice. It eludes the essentialism in architecture by avoiding the reduction of architectural and urban design thinking and practice to a certain stratum of historicism that has encumbered the discipline for different periods of time. Furthermore, through the substratum

creative alteration for the tree of autumn is fortuitous, happening on a plane of immanence and comprising virtual relations. In this instance, the tree in autumn becomes a noticeable creation of an exterior net—"wind, leaves, or color"—that operates as a collective assemblage, inspiring continuous alteration into something else (Hillier and Abrahams 2013, 16). Therefore, there is an affective potential for exteriority when a single component, like the color red, may escape or transcend the material edge of one assemblage, in this case, the autumn tree, moving functionally and temporally among and within aggregative flows of becoming and entering into (catching up) different assemblages, such as the British post box. Thus, elements related by external agents keep some relative level of independence vis-à-vis the assemblage in which they take part (16).

fortuitous and machinic processes that Eisenman uses to generate assemblages, materiality/expression components endlessly take part in more than one architectural and urban assemblage, enabling more items or entities to be connected (Fig. 8-4). These component parts that are involved in architectural and urban assemblages are very creative in that they may lead to a phenomenon called "sense of place" ((Dovey 2013, 17).

It is worth noting that the conceptual expression of assemblage, put forth by Deleuze and Guattari, derives from the French notion of *agencement* or "arrangement," which in mathematics is understood as different and productive ways to organize things, as such it is an *affective* conception, not a fixed articulation. Deleuze seems to have advanced the notion of *agencement* from his insightful perceptive based on Spinoza's idea of the common notion; the quality of sharing commonality and 'becoming a third body' (Deleuze 1988) in a given event (Livesey 2010, 18). Moreover, the word agencement entails activity and policy.

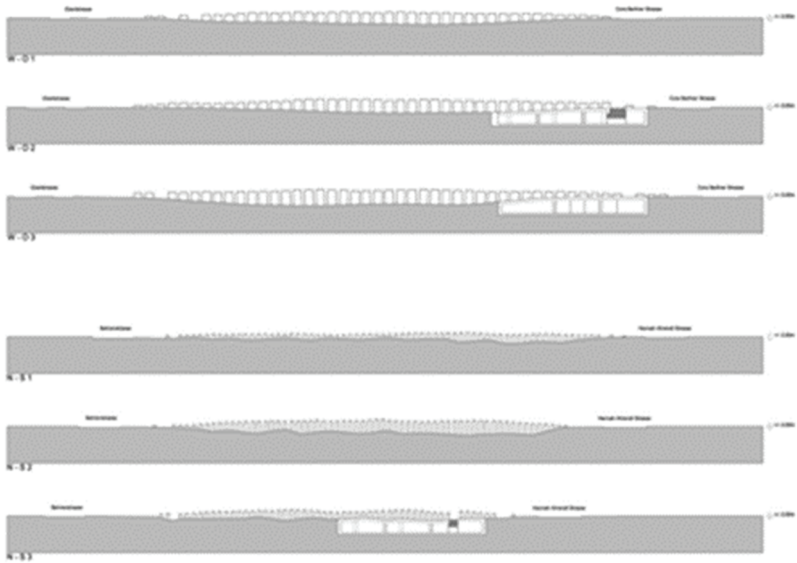

Fig. 8-4. Peter Eisenman, Memorial to the Murdered Jews of Europe, 1998-2005.

In the notion of agencement, the composing components and sensations meet at a point of intersection, mobilized together, temporarily deterritorialized, and go through metamorphosis while transforming one another. Thus, an agencement is a practice of "agencing"—a dynamic

existence of a particular intervention or action as a link, expressly to produce a specific affect. The relations "between" the components, in terms of the transformation and change, are rather vital compared to the components themselves: "in a multiplicity, what matters is not the elements, but what there is between" (Deleuze and Parnet 1987). When inquiring "what makes an assemblage into an *agencement*" (Hillier and Abrahams 2013, 16), the logic of collectivity would be critically examined, in terms of how Deleuze thinks about the middle as an extraordinary point to start an assemblage, in which intensities, affects, events, sensations, and elements of two layers or strata link in-between, sharing mutual environments. Accordingly, assemblage is a concept based on the fact that things in life are not solitary; they are a combination of diverse things that act together and affect each other.[2]

Urban Assemblage

The urban assemblage is a configuration of actions and entities that is motivated by the contingency and complexity of intersecting urbanized forces as revealed in visual sense and connectivity within urban life. For the purpose of illustrating how an assemblage works in specific context, specifically in the urban landscape, Kim Dovey provides an example from everyday life, a street. As stated in his book *Becoming places: urbanism/architecture/identity/power*, the street is not a stabilized entity in an extensive city system with a hierarchical standard, nor is it simply a combination of measured and separate objects in the urban atmosphere with no relations. It is a part of a whole, "buildings, trees, cars, sidewalks, goods, people, signs" (Dovey 2010, 16), and functions as a multiplicity of morphogenetic capacities, situating the two levels of content and expression in virtual relations to one another as a street. By describing the singularities of everyday life, "buildings–sidewalk–roadway; the flows of traffic, people and goods" (16), as urban assemblages, we perceive how the hidden relations with their familiar formations collaborate and connect to compose

[2] Progressively, the relations between the elements of an assemblage are accidental rather than essential, made through mixed qualities and collaborative transindividual intensities (DeLanda 2006, 9). In other words, the instability of assemblages through interrelationships differentiate their "relations of exteriority" in which the composed assemblages function in their totality while simultaneously interacting with immeasurable mixtures of elements (9). "All life is a process of connection and interaction. Anybody or thing is the outcome of a process of connections. A human body is an assemblage of genetic material, ideas, and powers of acting and a relation to other bodies" (Colebrook 2002, xx).

a "street" at the scale of the content and the expression through the activation of the spatial senses that differentiates the street from other urban assemblages (Fig. 8-5).

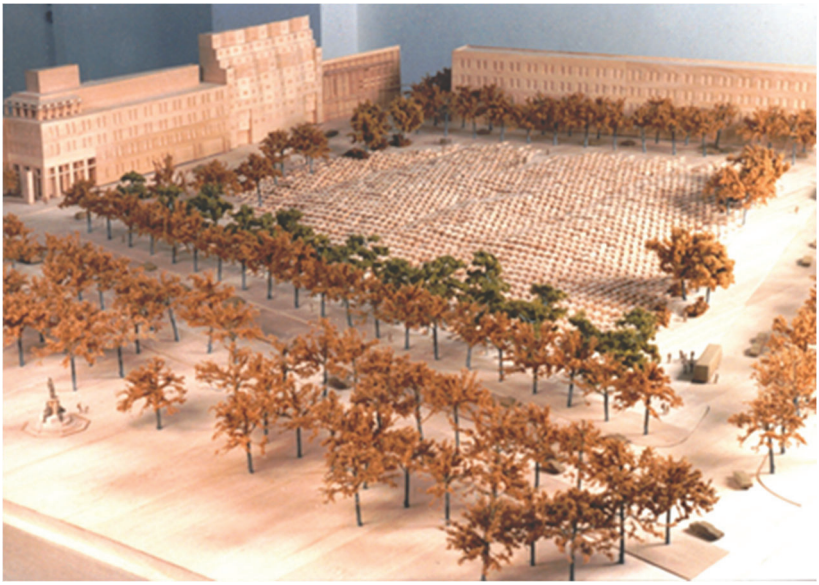

Fig. 8-5. Peter Eisenman, Memorial to the Murdered Jews of Europe, 1998-2005.

In their research, Deleuze and Guattari envision assemblage as associated with two different arrangements when two planes, the plane of organization and the plane of consistency, cross each other and unify through a machinic process to form an assemblage.[3] The plane of organization delineates the dominant mode of territorializing and stratifying in actual forms, enforcing hierarchical powers and incarnating codes, in which their order and organization confines components or elements to be organized, modulated, regulated, and stabilized on lines of slowness

[3] These planes are known as the interface between materiality and expression, it simply connects the materialist actions of spatial bodies with various expressions of meaning through linear representation, including hypotheses, language, and visual models. An affective assemblage is a mixture of both relational forms: material and expression. By articulating some points of similarity between these two forms, specifically, both can be stabilized and destabilized, both are not utopian, and certainly, they are not finalized (Dovey 2010, 17). This approach can be explained by the previously mentioned illustration of "street" as an urban pattern assemblage.

(DeLanda 2006). Deleuze and Guattari perceive the plane of consistency "as flows of human life that are not subject to an organizing principle, to a sign, to a force that orders it" (Olkowski 1999, 101). Deleuze and Guattari practice the transitory alliance "and" instead of the stationary dualisms "is'/'is not", either/or; since each "part" is a multiplicity of others that deal with and occupy the plane of consistency where these parts collectively can sustain themselves outside the relational dualisms (Hillier 2009, 640-61).

In fact, that urban sample allows us to perceive the street as an assemblage of material components equated to movements and spatial networks, co-functioning with expressive components and narratives that include urban design key codes and obscure intensities (Dovey 2010, 17). Through the complexity and temporality of reciprocal formation of assemblages, forms of material and expression are an innovative arrangement in urban life. The fact that assemblage involves the dynamics of a process implies that there is no final order or organization of an assemblage, and the law governing it comes from its unique and unlimited connections with other organizations of territorial elements to produce unexpected and new intensities (Colebrook 2002).

Despite the fact that assemblages are shaped by complex links or cooperative connections between material and expressive components, they are not the end outcome of the assets of their different parts. In other words, assemblages cannot be reduced to their component parts, "although assemblages are composed of relations, they are not reducible to them, assemblages have their own speeds and slownesses; their own vitality" **(**Buchanan 2000). For Eisenman, architectural object verification and purification play a key role in the design process (Fig. 8-6). Eisenman gives in his works the impression of resistance to all-encompassing predetermines of architectural form that subordinate design process to final outcome. He is interested utterly in finding a way to affirm the shift towards the autonomy and self-reflexivity in architecture (Hays 2010, 54).

Eisenman stresses the autonomy of architecture, which for him means that an architect ought to concern himself with addressing purely architectural problems and solutions and they should avoid drawing non-architectural elements into their work. Eisenman's Houses I-XI, for example, are thus for Eisenman purely architectural assemblages that do not refer to anything other than architectural elements (Bell 2010, 20).

Since assemblage is both material and expressive, it goes against any lowering to basic nature, to textuality or to materiality (Dovey 2013, 131).

Overall, it is understood that an "assemblage is a whole, whose properties spring from the relationships between parts" (DeLanda 2006). Elements, taken individually, delineate the assemblage by their added role, and they can be stabilized, meaning territorialized or reterritorialized, or even destabilized or deterritorialized. Although it is the correlations between elements that compose the assemblage, nonetheless these (co)relations cannot be narrowed down to simple specific characteristics (McFarlane 2011, 649-71).

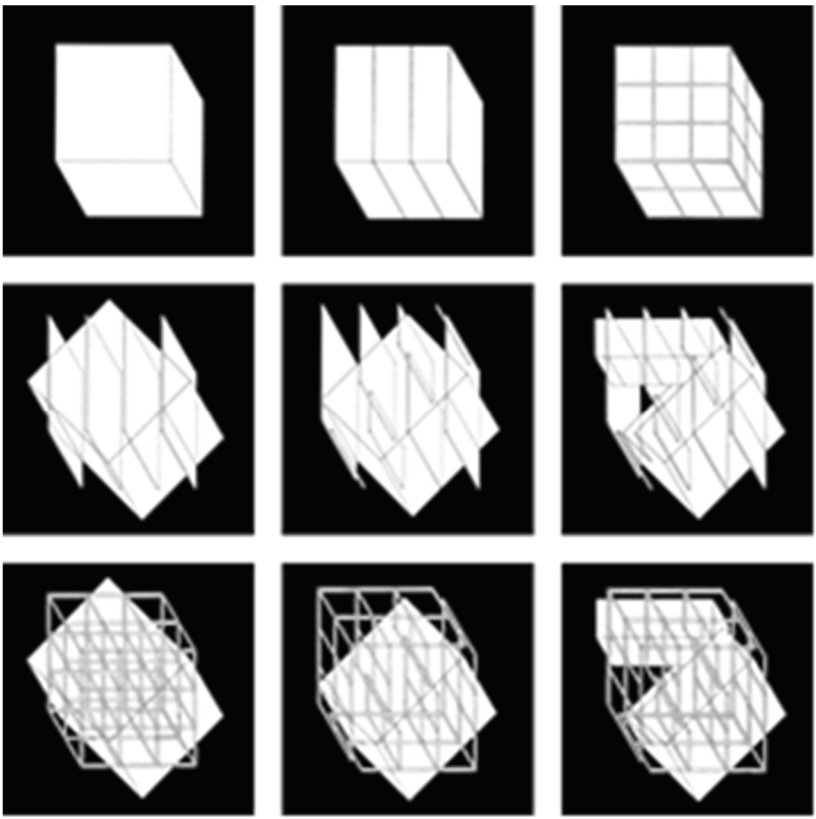

Fig. 8-6. Peter Eisenman, House III Concept, 1969-1971.

The Logic of Sensations in the Medium of Urbanism

According to David Olson, a Canadian psychologist, the configuration of the urban form is produced from the relationship between space and block of sensations (Olson and Bialystok 1983, 246). Likewise, Steven Peterson, an American urbanist, articulated that space is the medium of urbanism and the vital part needed for urbanization (Peterson 1979, 76); it is the intermediary plateau where all urban fabrics can be created. Peterson also argues that the urban design thinking processes are a synthetic and artistic mapping of bodily sceneries that have potential to be affective spaces by exploring the corporeal and incorporeal parts of the city (Olson and Bialystok 1983, 247). For Deleuze, the work of any art is a block of sensations, movements, and affects. *Affect* here refers to the logic of sensations that embodies multiple intensities and dynamisms, releasing new assemblage that gives rise to new "urban form" and "architectural values" in the practices of affective configurations and spatial rhythms.

In representational design thinking, the urban form is shaped and recognized as a finished artifact with a predefined meaning and function. As a result, architectural form is designed conventionally to reflect the image of the thought and social platform that refers to a traditional object and already always defines cultural values. According to Hays, the power of the conventional form appears when the individuals accept the meaning that is associated with it, indicating a rigid medium, static technique, and organized tool is needed to construct the architectural object (Hays 2010, 45). Consequently, the form is hunted by meaning, and the architectural values visualized by cultural patterns; thus both of them are experienced and pass themselves off as representational and unquestionable objects, reflected by the mirror of our natural bodies, performing a predictable scheme of meaning.

On the contrary, defamiliarization and non-representational practices have the potential for eliminating the traditionalist meaning, trying to make "the object's production process and the mechanisms of its representation part of its content" (Hays 2010, 55). Additionally, Deleuze and Guattari insist on the non-representational characteristics of life through lines of flight, and they are reluctant to approve the historical interpretation of the objects as predefined artifacts. By drifting away from identified spatial configurations with representational practices, Deleuze and Guattari attempt to create innovative artistic sensibility of architectural values.

Moreover, the capacity to continuously transform and change in any specified condition or event, according to Deleuze and Guattari, can generate different affects on the body, free the mind, and create new ways of thinking, documenting, evaluating, and engaging in new realities.

This chapter focuses on and follows the non-representational and modernist definitions for the term form that is suggested by Deleuze and Guattari. They point out that the form is *virtual* capacity of the body in space, and that body can map concepts and ideas, generating transformation with unlimited "possibilities for translat(ing) and creat(ing)" (Dovey 2016, 9), as in the case of the term "urban," which is "a linkage of the spatial to the social, identifying a certain kind of place with a certain kind of person" (9). In this context, this chapter considers the physical formations, patterns, and constructions that shape the urban space, collectively termed the urban form.

Hence, the urban form is a physical-materialistic *actual* entity and abstract/*virtual* ethical entity. In this sense, Deleuze and Guattari notably remark that any kind of art is a sensory experience and its creativeness is inspired and stimulated by sensations; the affect of tactics, technique, materials, sensible, memories, and entities: "We paint, sculpt, compose, and write with sensations" (Deleuze and Guattari 1994, 166). In this instance, the city becomes a perceptible product of an exterior network: the urban form and architectural values that operate as collective assemblages, motivating perpetual transformation.

The Interstitial Spaces in Eisenman Architecture and Urban Formalisms

Eisenman borrows from Deleuze's particular queries in respect to the creative transformation that is noticeably placed in the social milieu, in which constant creative transformation occurs in an empirical environment, starting "in the middle", "in-between", and "in the margins" (Deleze 1987, 131). Through his defamiliarization practices, architect and theoretician Peter Eisenman constantly reconceptualizes the notion of form, producing perceptions of difference in the Holocaust Memorial as well as demonstrating status of separation from its representational image and conventional realm that may appear as a reference through the materiality, function, and connotation (Hays 2010, 55)—as illustrated in Fig. 8-7. Eisenman has continually argued that:

Traditionally, processes of architectural design have used what can be called on/off procedures, of choosing between two alternatives, solid/void, figure/ground, etc., rather than operating where the two conditions are possibly embedded within one another (Eisenman 1997, 23).

Fig. 8-7. Peter Eisenman, Memorial to the Murdered Jews of Europe, 1998-2005.

In his project the Holocaust Memorial, Eisenman situates his architecture landscape in the space of intensities: in the field of the weak form (Corbo 2016, 94). In other words, Eisenman becomes more related and involved in what people feel and how they react in his interstitial spaces, “to what he calls affect” (94).

Deleuze's notion of "in-between" is a powerful criticism of the numerous dualisms that mainly abound the history of architecture in Western thinking (Grosz 2001, 92), such as public/private, structure/ chaos, and rationality/affect. Likewise, architects and urban designers can exceed dualistic relationships in their design thinking process and practice by opening p architectural systems for life, affect, difference, and regenerative encounters. As a result, the visitors' perceptions of urban formalism in the Holocaust Memorial project are reoriented from standard convention. By blurring the boundaries between private and public space, urban space in the Memorial project falls in-between and destabilizes their dualism. The complexity of "creative transformation becomes a system of involution where transversal movements engage material forces and affects" (Parr 2010, 59). It requires flows of substance/affect, relations/separations, and most notably the spaces in between; the interstitial spaces, "the in-betweenness, as its primary subject, embodying the immanent and productive forces of an assemblage" (Dovey and Wood 2015, 13).

By distorting obvious classifications, generating sensory interactions, and connecting shattered narratives, Eisenman's approach in the Memorial site crosses the limits of binary either/or, innovating opportunities for interstitial spaces that co-function throughout intensive assemblages and affect transitional products. "In effect, a slippage in the grid structure occurs, causing indeterminate spaces to develop within the seemingly rigid order of the monument" (Eisenman 2003, 314). Eisenman's autonomous architecture in the Memorial site has been frequently criticized for providing a figurative experience and for its lack of memorialization (anti-memorial condition). To those critics and in his text*, Autonomy and the Will to the Critical*, Eisenman explains that:

Autonomy is beyond modernist formalism, it is neither formal nor semiotic perse; rather, it opens the internal processes of architecture to their own dynamic internal possibilities. It is the manifestation of these processes that will constitute the critical. Autonomy-and thus architecture's criticality-is the possible articulation of dynamic processes of singular difference between being and sign within architecture itself (Eisenman 2000, 91).

The intermediary status within these interstitial–transitional spaces is affective spots for architectural and urban design thinking and practices because they espouse new intervened arrangements of lived experiment. Moreover, Deleuze and Guattari also highlight the occurrence of a space that penetrates with affect through the concept of mapping in the "zone of indetermination" in their cartographic approach (Deleuze and Guattari

1987). So, the "zone of indetermination" in the urban design thinking process allows bodies to be situated in the middle, linked, and connected in the sphere of sensations.

Architects and urban designers can transcend the dualism relationship in their architectural and urban design thinking process by going beyond the limits of architectural systems, moving toward difference and reformative encounters: "a critical architecture that claims for itself a place *between* the efficient representation of preexisting cultural values and the wholly detached autonomy of an abstract formal system" (Hays 1984, 15).

Assemblage Design Thinking and Practices

Assemblage design thinking can only occur in risk relations that threaten the whole architectural system, affecting the identities that establish it and allowing new events to emerge. The interlinks and sensory experiences between composite quantities in interstitial bodily spaces in Eisenman's project of the Memorial site construct and create affective capacities for something new to emerge, in which "the identities and functions of both parts and wholes come out from the flows between them" (Dovey 2013, 131).

For more clarification, the creative transformation that happens to the intensive topography of the Memorial site emerges in-between figure and ground, creating affective interstitial spaces, altering the whole traditional concept of modernist form, and holding potential for "radical passivity" that implies social assemblage determination (Fig. 8-8). Therefore, Eisenman evokes in his works "Deleuze's concept of 'the figural,' and Derrida's understanding of 'the undecidable' as effective starting points for rethinking architecture as a practice that is irreducible to an either/or relationship" (Bell 2010, 19). Eisenman here is obviously describing himself as the theorist of the "in-between" as he characterizes interstitial spaces as going from the middle, creating assemblages and links that contain complex movements and intensities instead of historic origin or rigid classification.

Eisenman looks to philosophers such as Deleuze, Deleuze and Guattari, and Derrida in his critical text, *Ten Canonical Buildings: 1950- 2000*, to deconstruct how architecture has battled essentialist binaries, including "subject/object, figure/ground, solid/void, and part/whole," since the beginning of its traditional history (Eisenman and Harrison 2008). It is shown that most stages of architectural design rely on strict two options or dualisms, such as "solid/void, figure/ground" (which is a reductive method),

instead of a flexible "in-between" and the fluid idea of interstitial spaces (Eisenman 1997, 23). Moreover, by creating innovative mediated forms of experiential affect forces, these in-between transitional spaces can become heterogeneous assemblages for social interactions.

Fig. 8-8. Peter Eisenman, Memorial to the Murdered Jews of Europe, 1998-2005.

Eisenman demonstrates that the binarized categories have the potential deterritorialization to connect and change to a different position or state producing dynamic machine assemblages. Thus, the idea of "in-between" can emerge as "an assemblage that is a multiplicity irreducible to the dualistic terms that are employed to identify what it is the architect is doing" (Bell 2010, 20). In his interview with Chiara Visentin, Eisenman mentions: "So I'm looking for those conditions in architecture which are like the music in film, which are secondary" (Eisenman 2012).

Eisenman's conceptual formalism and post-functionalism practice resists the dualisms in architecture; his project of the Memorial site shifts the viewers' engagement from the static notion of form and traditional utilization to consider the "contextual, narrative, or associational potentials

of built form" (Hays 2010, 54). Deleuze portrays one of the main characteristics of an assemblage "a logic of AND" (Deleuze and Guattari 1987, 25); a "geography of relations" (Deleuze and Parnet 1987, 70). Consequently, in order to articulate the function of a social assemblage, it is important to know the contexts where an assemblage can occur as a form. An assemblage works in contexts of collective forces with the capacity to perform activity that enables heterogeneous objects, things, or elements to be incompletely and affectively connected in interstitial spaces, resituated within exterior relations, and restructured by provisional arrangements that go beyond any previous thought or territory and always undermine every fixed context or stable schema. Interstitial space mark outs are cracked and smeared in Eisenman's architectural practice, they are immanently dissolved and unsettled. There is a form of differentiation in which different parts of assemblages can be removed from one assemblage and inserted into a different one, concealing, supplanting, and altering their system identity, according to DeLanda; they can be affected by the contingent exteriority of diverse forces (DeLanda 2006).

Concluding Remarks

In conclusion, the flows of innovative mutations, affective interstitial spaces, and singularities in built environments can transpire by questioning the conventional architecture and urban design approaches and methods. Through the complexity and temporality of reciprocal formation of assemblages, forms of material and expression are an innovative arrangement in urban life. The fact that assemblage involves the dynamics of a process implies that there is no final order or organization of an assemblage, and the law governing it comes from its unique and unlimited connections with other organizations of territorial elements to produce unexpected and new intensities. Despite the fact that assemblages are shaped by complex links or cooperative connections between material and expressive components, they are not the end outcome of the assets of their different parts. In other words, assemblages cannot be reduced to their component parts, according to Deleuze, assemblages proceed from identified codes and vital movement, mutual in an irreducible way. Eisenman, who celebrates *machinic* connections in his architectural forms with impulses of virtuality through pragmatic and experimental manners achieves success by surpassing the essentialism, reductionism, and the functionalism of traditional architecture. Finally, regarding the unexpected movements of design, it is important to link Deleuze's intensive views of assemblage and affect with pioneering trans-disciplinary attitudes in

architecture and urban landscape, highlighting the character of the multiplicity that is portrayed when philosophical notions that dodge dualisms are merged.

Notes

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http://www.eisenmanarchitects.com/berlin-memorial.html#images.

https://eisenmanarchitects.com/House-III-1971.

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SECTION THREE:

MAKING IN DETAIL

CHAPTER 9

SOCIAL INFRASTRUCTURES

JULIA JAMROZIK

Public space has always offered opportunities to encounter strangers, yet while we may occupy a common space our experiences often remain solitary. Between the current political climate in the United States and the echo-chambers of worldviews created by social media, the need for shared physical experiences is paramount. This text is based on the projects "Full Circle" and "Dialogue" by Julia Jamrozik and Coryn Kempster, both examples of what we call "Social Infrastructures," and will argue for the need to provide opportunities for shared playful encounters in public space.

These projects stem from an interest in spaces of play, in the broadest definition of that term, as places that can be used to liberate the individual from the generic and enrich shared everyday experience. Looking at play as an existential, social and ultimately political activity through the writing of Miguel Sicart and Thomas S. Henricks, I will aim to position these projects as forms of, what Jane Rendell calls "spatial critical practice" between the realms of art and architecture. Focusing on the interdisciplinary nature of the works, I argue that they occupy a charged expanded realm and can therefore function as communicative and provocatively "restless objects," to use Jane Rendell's phrase (Rendall 2006, 8-9).

Play

Play as a way of being

Miguel Sicart in the book Play Matters argues for the vital role of play as an activity of self-realization, as a way of self- and cultural expression, as a way of engaging with the world and as an activity of production. The author declares that his approach to the theory of play expands on the Huizingan tradition (including of course the cultural historian Johan Huizinga, but also Brian Sutton-Smith, Bernie DeKoven, Roger Caillois and Bernard Suits)

and "acts as a call to playful arms, an invocation of play as a struggle against efficiency, seriousness, and technical determinism" (Sicart 2014, 5). His is a self-proclaimed romantic, humanistic and existentialist approach that defines play as contextual, carnivalesque, appropriative, disruptive, autotelic, creative and personal. Sicart states:

> Playing is freedom. Play is being in the world, through objects, toward others. We play not to entertain ourselves or to learn or be alienated: we play to be, and play gives us, through its characteristics, the possibility of being. (Sicart 2014, 18)

Play is therefore not simply a distraction but rather an opportunity to fully experience and exercise one's freedom. It is a form of self-realization, consciously or not, through one's actions and behaviours. It is a mechanism for asserting one's desires and of finding what drives us without pre-conceived goals or extrinsic motivations. Play is self-motivated and self-sufficient, and as such it is essential to individuals of all ages and of all backgrounds. "Play gives us the world, and through play we make the world ours" (Sicart 2014, 55).

While Sicart ultimately applies his theories on play and playfulness to the understanding of the interactions between people and machines through computation, for the purposes of this paper the role of play as a form of interrelations between people and objects in the physical realm is of primary concern. It is here in the analogue world that social relations and the communal potential of play are explored.

Play as a social way of operating

Beyond individual pursuits and implication, play can also be a communal act, which has the possibility of bringing people together through a developed shared understanding. Sociologist Thomas S. Henricks in his book *Play and the Human Condition* states that play is a social way of operating in the world: "(...) we learn about ourselves and the world—and about the intersection of these two realms—through acts of play" (Henricks 2015, 1). Here he is also referring to the work of Huizinga, who argues that play has social and cultural implications, and that social and cultural forms are not only reproduced, but also produced through acts of play.

Henricks sees play as a "social laboratory," stating: "When we play with others, we create and administer a publicly acknowledged reality" (Henricks 2015, 162). Play is "the contestive exploration of the possibilities of living" and an active form of engagement with the world (Henricks 2015, 25. The

social contracts of interaction involve "the expanded conditions within which participants assert and adjust, compete and cooperate, expend and regenerate, and in all other ways consider the implications of what it means to be involved with others" (Henricks 2015, 227).

Play as an activity, through its interactive nature, has the potential of linking the person to the broader community. Yet as Henricks following Huizinga further elaborates on the social and communal aspects of playing, this is not a passive act: "Public play is central to the making of communities. (…) Without intending to be, players are agents of change" (Henricks 2015, 6). Therefore, through acts of play we take part in the making of community and shaping the ways of that community. Through play we become part of a group but also part of a place.

Spaces of Play as Zones of Inclusion

In my experience playspaces are some of the only locations where, regardless of economic status, religion or race, people from different backgrounds come together. In this regard we can see spaces of play as social condensers, perhaps in the embodiment of the spirit of early twentieth century Russian Constructivists. I would argue therefore, that we need spaces for play in order to be able to bring playful exchanges into everyday public experiences, and I would argue further that these spaces need to account for inter-generational play not just the play of children. Susan G. Solomon has written about this in her book *American Playgrounds: Revitalizing Community Space*, highlighting the vital social role that well-designed or well-conceived playspaces can have (Solomon 2005). In Solomon's view the notion of playgrounds must be expanded from standardized equipment to once again involve artists and designers to create unique environments, "that enrich children's experiences in the world and help neighbors and even strangers to interact easily" (Solomon 2005, 2).

Social Infrastructures

Social infrastructures, such as "Full Circle" and "Dialogue," are an opportunity for bringing playful spaces and therefore playful moments into everyday experiences and can become spatial prompts for different people to interact. Their goal is to be read as spaces not just for children but rather as spaces for and of community. The form of urban amenity that they provide is not a frivolous or decorative thrill but a vital necessity for the social health of people and places.

"Full Circle"

"Full Circle" was commissioned in 2016 by CEPA Gallery and C.S.1 Curatorial Projects for CEPA's West Side Lots Project – a series of public artworks installed in the Westside residential neighbourhood in Buffalo, New York. The proposal was selected through an open competition and the series was sponsored by the National Endowment for the Arts, and the Andy Warhol Foundation for the Visual Arts, among others. The project is an interactive installation for all ages that playfully rotates a typical linear swing-set to alter and expand its experience, questioning the basic relationships between people in space and to one another. The installation takes a playful construct and positions it in the adult-world by bringing a piece of playground equipment together with the charged spatial arrangement of political round-tables and corporate boardrooms.

Fig. 9-1. "Full Circle" by Julia Jamrozik and Coryn Kempster. (Photo Credit: Brendan Bannon).

Aiming to create socially conscious dialogue, the project is positioned where diverse Buffalo communities intersect and is adjacent to International School #45, whose student body represents seventy countries and forty-four languages. The installation was supported by a vigorous grassroots campaign to engage the teachers, parents, administrators, city council members, community activists, and neighbours to take active ownership of it.

Numerous social media posts about "Full Circle" attest to the role that the installation has in the neighbourhood. To quote from a social media post by a Buffalo resident: "My daughter loves that set of swings. Every nationality, kids swinging facing each other, talking, hanging out peacefully. It's so much more than a swing set to us."[1] While another user says:

> It is such an amazing addition to the neighborhood. I've been on it with my daughter many times and it always brings an amazing multicultural experience with kids and adults alike swinging in towards the circle center together. It's awesome![2]

Fig. 9-2. "Full Circle" by Julia Jamrozik and Coryn Kempster. (Photo Credit: Coryn Kempster).

"Full Circle" has become an identifiable spot within the neighbourhood, becoming a small-scale meeting place for children and adults alike. In a low-income community with few maintained green-spaces and little public infrastructure, it is a small but significant gesture.

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[1] Post accessed May 15, 2018
https://www.facebook.com/groups/WestSideAlive/permalink/1508654422514691/
[2] Post accessed May 15, 2018
https://www.facebook.com/groups/WestSideAlive/permalink/1508654422514691/

"Dialogue"

In 2017 "Dialogue" was commissioned by the non-profit LANDstudio and installed in the Eastman Reading Garden of the Cleveland Public Library, in Cleveland, Ohio as part of the annual "See Also" program. In a time of political and social disunity, the project hopes to spark conversation outside the boundaries of individual comfort zones. It encourages communication and moments of spontaneous interaction between friends and strangers.

Fig. 9-3. "Dialogue" by Julia Jamrozik and Coryn Kempster. (Photo Credit: Coryn Kempster).

The circle of interlaced sound tubes aims to create conversations ranging in length and in seriousness. The sound cones are connected to one another yet their pairing isn't immediately apparent, resulting in a game of questioning and movement as one tries to discern the location of an interlocutor.

Connecting individuals in the highly public space of the Eastman Reading Garden, "Dialogue" plays into the potential of public space as a place to interact with people from different backgrounds and with different world-views. It highlights the very solitary experience that individuals often create for themselves in contemporary public space through technology and portable devices, where they are surrounded by others but in fact only interact with the echo chamber of their chosen social media platform.

"Dialogue" is thus a very analogue social infrastructure that aims to interrupt and expand the experience of public space through the potential of spontaneous interaction.

Fig. 9-4. "Dialogue" by Julia Jamrozik and Coryn Kempster. (Photo Credit: Coryn Kempster).

Interactive Armatures

Demarking and defining but not enclosing or sheltering, "Full Circle" and "Dialogue" are as pared down as physical architectural manifestations can be. They are linear markers in space. They use a minimum of means to claim a specific physical sphere of influence. In both instances the primary (and primal) shape of a circle is used to define both an inner space and an outer one. Significantly however, both projects encourage the transgression of this open boundary, through the occupation of the perimeter and movement through, around and in-between the tubular framework.

The installations invoke the scale of the human body, and they do this in a direct and conspicuous way. The relationship of the body to the seat of the swing and the head to the sound-cone, are calibrated and specific, even while the sculptural armatures remain pared-down and abstracted. Though executed with a minimum of means, unlike early Minimalist artworks, "Dialogue" and "Full Circle" embrace not only their physicality but also

occupation by the human body, as they are intended for active, not just visual interaction.

Fig. 9-5. "Full Circle" by Julia Jamrozik and Coryn Kempster. (Photo Credit: Brendan Bannon).

Fig. 9-6. "Dialogue" by Julia Jamrozik and Coryn Kempster. (Photo Credit: Bob Perkoski).

Though simple in form, “Full Circle” and “Dialogue” are recognizable and familiar, while being specific and particular. Their structures are armatures that allow for attachment of elements, either the swings or the speaking cones, which in turn are instant prompts that encourage use and promote interaction. In the use of or allusion to off-the-shelf components, a clearer link can be made with ready-mades and Pop Art rather than Minimalism.

While intentionally visually distinct, “Full Circle” and “Dialogue” are also intentionally rooted in their urban contexts, be that the vacant residential lot or the more formal Library Garden. Their reading depends on their physical context and their use is equally contingent on it. As social infrastructures they add to the urban landscape and they ask to be occupied and used.

Expanded Field

At the intersection of art and architecture, and as aesthetic, spatial and interactive objects, “Full Circle” and “Dialogue” act in an expanded disciplinary field.[3] They perform as “critical spatial practice,” to use Jane Rendell’s terminology from the book *Art and Architecture: A Place Between*, as “modes of self-reflective artistic and architectural practice which seek to question and to transform the social conditions of the sites into which they intervene" (Rendell 2006, 1).

Communicative Ambiguity

The ambiguity of the installations, their familiarity as play equipment paired with their unusual shapes and locations, prompts a second reading from potential users. They are, as Rendall explains this type of practice and production, “restless objects and spaces, ones that provoke us, that refuse to give up their meanings easily but instead demand that we question the world around us” (Rendell 2006, 8-9). In fact, it could be argued further that they add ambiguity, since as Sicart states: “To be playful is to add ambiguity to the world and play with that ambiguity” (Sicart 2014, 28).

In this mode of thinking, the social infrastructures presented here are experiments and bridges between the language and domain of art and the spatial and urban agenda of architecture. Through a mixture of familiarity

[3] with a reference to the phrase used by Krauss, Rosalind, “Sculpture in the Expanded Field,” *October*, Vol. 8. (Spring, 1979), 30-44.

and novelty, they are accessible yet simultaneously offer hints of critique of the status quo. At face value they are simply "play-things" yet seen more broadly they are also communicative.

Interdisciplinarity

Arguing in favour of interdisciplinary work, or work that straddles disciplinary lines, Jane Rendell states:

> (...) I am a passionate advocate for interdisciplinarity; such work is not only critical and intellectual, but also emotional and political. In demanding that we exchange what we know for what we don't know, and give up the safety of competence for the dangers of potential incompetence, the transformational experience of interdisciplinary work produces a potentially destabilizing engagement with dominant power structures allowing the emergence of new and often uncertain forms of knowledge. (Rendell 2007, 60)

"Full Circle" and "Dialogue" are two examples of how the boundary between artistic and architectural practice can be bridged to provide for active and social places that resonate on a cultural level but also introduce needed amenity into their urban contexts. As analogue prompts in a digital age, they are attempts at bringing people together by offering moments of connection. This is only possible through the interdisciplinary nature of the projects that straddle the defined categories of art and architecture. This vulnerability, as Rendell asserts, is ultimately a strength and an advantage of the projects which are able to act on multiple levels, be read through multiple lenses and are open to productive appropriation.

Both projects opportunistically use public art networks and funding to provide interactive spaces for public use and to strategically insert themselves into the fabric of the city. The potential to broaden the scope and purview of both infrastructural and artistic commissions, remains to be pursued, as there is still a dearth of creative and experimental public spaces for play in most American neighbourhoods.

Conclusion

As interdisciplinary works, "Full Circle" and "Dialogue" are Social Infrastructures that question pre-conceived relationships between people in space and between one another. They have the potential to bring unpredictable and rich experiences into the public realm, creating

connections through shared physical experiences that can be built upon to have an impact beyond the moment of engagement.

The opportunism of using public art funding and intervening on interstitial spaces of the city are two strategies that can be drawn from the examples of “Full Circle” and “Dialogue.” As forms of critical spatial practice, these projects add a needed amenity to their urban settings, and they do so by being both familiar and interactive. Their criticality is embedded in the subtle distortions of the status quo.

There is an urgency to this approach that considers play as an expression of freedom and choice, but also as a collective and political form of occupying the city. If play is taken seriously as a form of cultural production and a means of cultural understanding then these interventions, as either art or architectural objects, create places not of leisure but essential social amenities.

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CHAPTER 10

KITES

ANDREA WHEELER

Introduction

From what perspective can the aesthetic dimension impact on our way of thinking about an environmentally responsible and socially just future? This chapter reflects upon an exhibition of instructors of architecture, and their students, at the Venice Biennale in 2018, exploring such a question. In the theory and practice of sustainable design, little attention has been given to architectural aesthetics dismissed either as a superficial concern in comparison to the serious matter of sustainability, or worse, as an attempt at "green-wash" or to deceive. As climate change brings with it the burden of change in plant, animal and human relationships, ecological systems respond unpredictably. A dialogue is needed to establish a reconnection to concern but what exactly might this relationship be with the living environment and its systems? The scholarly question this chapter thus asks is "How can we understand an ecological architectural aesthetics within the field of sustainable architectural design?"

First, I shall provide some explanation of the title of this chapter: "Kites". Kites illustrate: they are a visual theme but they are not the real concern of this paper. It is, rather, the philosophical notion of a natural or ecological aesthetics in architecture, an aesthetics of experience, that is the underlying examination.

The kites are flights of imagination: the kites are our dreams. They are the gifts of artists and storytellers. They are aesthetic objects within this experiment in the environmental domain. They are here because stories can touch us subtly and evoke energies that cannot be contained, made certain, safe and secure within the contemporary logic of sustainable design. The geographer Derek Alderman argues that storytelling, today, can be reparative, allowing us to "keep it real" within the post-truth political

environment. In his Past Presidential Address to the Association of American Geographers Conference in Washington, in April 2019 Alderman argues that stories can redraw knowledge and they can empower communities: stories can counteract those told to justify violence, those that tell us what counts in life, and who counts. Stories can make our reality. Telling stories can also effect change with mood, tone, taking us to new places of thought and feeling. Within this context the kites are thus about a possibility, and the potential that on the periphery of our vision is a glimpse, some appealing sense, a curious resonance, an energy: the song of the storyteller calling us.

To outline, this chapter thus has three parts: first, a background to a problematic conversation of sustainable design within the academy that sidelines aesthetics (or rather pretends to do so); second, an investigation of what an approach to an ecological aesthetic could be – an aesthetic that is experiential and that is an ethic and a politic (it would have to be, after all, to address any contemporary understanding of our environmental condition in the context of shared values shaping our aspiration to sustainability); and third, a creative proposal – a story about an art and design project as mode of inquiry, a storytelling of a sort, an imagination, where what is in question is a new thinking about what it is to be human, to be natural, to be living, and to belong. The intention, in all these sections, is to think outside traditional understandings, outside a "techno-scientific thinking" and, indeed, even outside the tradition of Western philosophy (and its patriarchal subject), in order to understand how human relationship could be reimagined and refashioned without reducing our experience of life and living. That is to say, the intention is to think outside any assumption about thinking and feeling and put into question: how it is we know what it is to be human and to be in relationship. Or in a different way (one that anticipates a discussion of the work of Luce Irigaray), how do we and can we know what it is to live oneself and what it is to give life to another subject?

Questions about what it means to be to be living; what it means as a human to be in a relationship with the natural environment; belong to a field of human ecology. How to help humans implicated in problematic human-environmental interactions and identify ways to refashion environment interactions; and moreover to do so "to enable more sustainable balance between the moral claims of others and their own needs and desires" (Christensen 2014, 31); these are concerns of the field. Human ecologists, in their examining of interrelations between human beings, their cultural and social practices, and their living environments are not necessarily,

however, traditional philosophers, or traditional academics, and can belong to very different, non-Western cultural traditions, including those of First Nations. Their scholarly concerns can encompass non-traditional practices where storytellers rethink social and environmental relations that are deeply held in our psyches. They can act, too, at the immediate intersections of emotion, desire and intention, in a timely and an improvisational way situated in context. They can evoke a dissonance, and a political affect, that is to say, they can allow us to make it real and "keep it real."

Philosophy might appear to belong to questions about how things appear to us humans and how we experience life. The phenomenologists, critical of attempting to understand such questions of experience through scientific disciplines, through life sciences, politics or sociology, are concerned with suspending our common, spontaneous assumptions about the world, (to understand them) and recovering contact with the world. Maurice Merleau-Ponty writes that phenomenology is: "an attempt to describe our experience as it is and to describe it directly, without considering its psychological genesis or the causal explanations which the scientist, historian or sociologist may give" (Merleau-Ponty 1959,59).

There are a number of common aspects to views that are otherwise very distinctive from those associated with phenomenology as a philosophical approach and Merleau-Ponty describes these in a number of ways. Firstly, there is the attempt to describe experience, or to give an account of space, time and world, as lived: to "return to the things themselves", as Edmund Husserl has stated, and refuse complicity in our own certitude in our understanding (Merleau-Ponty 1959, 64). Other key themes discernible are essence, or our experience, and intentionality. Merleau-Ponty also affords art a central position in his thinking. Levin Kasper argues, moreover, that art is necessary in order to allow us to re-learn to see the world, and not to determine as such its reality, but to live it. Asked whether there is a scale of values in different forms of experience, Levin argues that Merleau-Ponty affirmed the role of art above science, stating: "Assuredly for me there is a scale. This does not mean, however, that what is at the bottom is to be suppressed. It seems to me, for instance, that if we make it our goal to reach the concrete, then in certain respects we must put art above science because it achieves an expression of the concrete man which science does not attempt" (Levin 2016, 183; Merleau-Ponty 1964, 36).

Criticism of "techno-scientific" thinking refers more specifically to the phenomenology of Martin Heidegger and to his understanding of *Das Gestell* or the way in which our modern reductive understanding is framed

by what he calls the essence of technology. Christos Hadjioannou argues in particular, that *gestell* indicates a world that is reduced to a store of resources for production and consumption." (Hadjioannou 2018, 57). Heidegger's understanding of technology, thus, does not just concern technological "things" or instruments; it reflects on the very way in which we understand the manifestation of phenomena. Or, as Merleau-Ponty writes, "Science has not and will never have the same sense of being that the world as perceived has, for the simple reason that it is a determination or explanation of that world … it is like the relationship of geography to the countryside where we first learned what a forest, a prairie or a river was." (Merleau-Ponty 1959, 60).

Part 1: The Sidelining of Aesthetics

Sustainable design is in a dilemma within the academy in the US. The outside context is one of climate change, environmental degradation, resources depletion, and social inequality – local and global. The current political situation is characterized by an attempt to refuse the facts. Even the reality of climate change is being doubted, and this has both a direct and implied impact on education. Raising the question of appearances (a superficial understanding of aesthetics) in this context could seem vague, flimsy in a response, offensive even: a bit like the kite floating oblivious above the polluted and dying earth.

With a lot of fatuous arguments about, seeking to convince us of an appropriate indifference towards the environment, there is some responsibility, at the very least, to maintain a focus on the facts and address reality: to examine how it is that environmental realities can be communicated and understood. It is precisely this- the facts and the reality and how we know them - that are in question. Moreover, when emotion is being used so freely to manipulate us, as voters or consumers, (Adams 2017),[1] then there is some duty to engage with how feeling gives us our understanding: to deploy ourselves within this field and to investigate reality. We need to investigate who we are and what we think we know about ourselves and our environment.

Art mediates our day-to-day experience and storytelling could be the alternative to repeated liturgies of the Western tradition and the habits of our living. Storytellers could be the high priests of a newly interpreted

[1] Scott Adams in his book *Win Bigly: Persuasion in a World Where Facts Don't Matter* argues that Donald Trump's success is based on his skills in persuasion.

covenant with creation, and artists of minimal props, to allow us to rediscover life in our environment. My storytellers are here, I mean the artists and designers in the day-to-day environments freed to make relationships that can allow us to re-learn to see and live in our environments. Christine Marran describes this as "obligate storytelling" (Marran 2017, 27).

As Merleau-Ponty writes: "To look for the essence of perception is to declare, not that perception is presumed to be truth, but that it is defined for us as access to truth… The world is not what I think, but that which I live" (Merleau-Ponty 1959, 66).

Thus, I would like, perhaps inevitably, to make a short storytelling diversion, before I examine these problems. Kites are tethered objects; their wings allow them to lift, to fly, to soar, decorating the sky that is no longer blue, according to my Iranian student, Kaveh Abbasi. He describes this aesthetic experience as his reason for studying sustainability. He cites the Persian poet Suhrāb Sipihrī: "There is no cloud. There is no wind. I am sitting on the edge of the pool: Excursion of the fishes, light, me, flower, water. The purity of living, races in me" (Sipihrī 1988, 7).

I teach sustainable design and students enrolled in my classes arrive in the Mid-West from many different international backgrounds speaking multiple languages and bringing experiences from an invariably non-Western perspective about sustainability to my class; and these experiences we explore together as a group. In my aforementioned student's home town, there is an historic bridge, the most beautiful in Iran, he says, and it lies redundant in a dry river bed for an ever longer part of the year - another reason for this student to study sustainable design. He continues to read: "emancipation is close, among flowers in the yard." The poem is from the book, *The Expanse of Green* and the title: "Light, me, flower, water" (Sipihrī 1988, 7). [2]

Sustainable design theorists commonly argue for the need to perceive the world differently, to find new ways to live, to refashion values to replace old. Ethical questions are implicit: How to see the other and how not to exploit the other? How not to misunderstand ethics? What is common to the conversation is a perception of a wide range of perspectives of the problem and that sustainable design can differ greatly in the interpretation of the causes of, and hence the solution to, unsustainability. While aspiration can

[2] The poem is entitled in the 1988 English translation of the book by David Martin: "Brilliancy, Me, Flower, Water" and again I prefer my student's translation.

be widely felt - whether voiced as the need for change or the need for protest - such desires are still poorly defined. What values should we aspire to? What is it we can aspire to become? Should our ethics extend to plants or even to objects, while underestimating the difficulty with which inequality can be addressed within of our own contemporary human society?

Aesthetics can be seen as the pursuit of beauty: an aesthetic life where beauty is pursued above all. There are three broad ways of thinking about aesthetics: as practice or as an activity (the making of art); as property, feature or aspect of a thing; and as a perception or experience. There are also common concerns and criticisms that impinge on the question of this chapter namely of a perspective on aesthetics for sustainable architecture. These may be identified as: the aesthetics of nature; the theory of criticism; and the nature of craft. Furthermore, there are two dominant views of how aesthetics are understood in architecture, namely formally or spatially, and it is the spatial that is my concern here. In my story, kites are an intermediary between earth and sky, between this world and a beyond. They are like a shamanic extension of body stretched and raising up to reach messages from the gods. The kites are moved by the energy of earth warming air. Held to the earth by string they draw us into a connection with those gods. They invite us to breathe in the open sky, to feel the freedom of an energy moved by the vagaries of the wind and weather.

To argue for the re-evaluation of aesthetics within this field of sustainable design may seem like an extravagance, almost negligently so. Nevertheless, it positions the causes of environmental concern, and the responses offered by sustainable design, as human, and places them deep within human experience. In the human world, where the sky is no longer blue, the rivers no longer deep, and where this realization disturbs us, we need some very different storytelling about the practices of our living and about all we can imagine as aspirational.

Human beings live culturally with climate and climate is the ordinary man's expectation of weather, Mike Human argues. "Climate," he writes, "as it is imagined and acted upon—needs to be understood, first and foremost, culturally" (Hulme 2015, 175). These environmental humanities can enrich and deepen our understandings, but science is so powerful that criticism seems barely possible. This is despite modernization having produced so many outcomes that the science could not foresee impacting on our health and our environment. That is, despite Ulrich Beck's *Risk Society* (published in German in 1986 and still relevant), drawing attention to the incomprehensible magnitude of the risk of even the simplest technology.

Risks are too vast to calculate: human society itself has become the scientific laboratory. What follows, John Urry writes, is that the very nature of the physical world and how we see through the risk society. It has changed for for sociology, and the discipline now has to become a sociology of-and-with the environment. Risk is neither purely social nor purely environmental; moreover, the body mediates in these sensuous encounters with other people and physical natural realities (Urry 2014, 4).

To return to the human ecologists, one concern they have is with re-evaluating indigenous (onto-epistemological) perspectives on who we are and what we know; another is with industrialization and an assessment of how industrialization has impacted on understanding human creativity. This could also be described as an examination of what is the problem, the action or ethical concern. What is the question we need to ask and what is the role of the humanities in this? (Williams, Roberts and McIntosh 2012, 3).

With some awareness, then, that there is criticism of a worldview associated with modernization, and the distance at which it places us with regards life or nature. With sight if the fact that the distinction between social and technical in the field of environmental design is artificial and moreover, that there is a potential in part outside of the Western traditions of philosophical thought, I would like to explore some aesthetic and ethical thinkers. One is Gernot Böhme, examined for his understanding of an ecological aesthetic and architectural atmosphere. The other is Luce Irigaray, scrutinized for her philosophy of a new human being (and critic of the Western tradition of philosophy, and of patriarchy).

The philosophy of Luce Irigaray poses some additional criticisms. She argues that ecologists have not yet taken into consideration what it means to be natural and living as the experience and recognition that life is *sexuate. Sexuate* is a word used to distinguish meaning from sexual difference and the social construction of gender. Irigaray's arguments are shared with those previously described by Merleau-Ponty in that she argues we must submit ourselves to a negative with regards the other, to "see" the other as other. She states that we 'must above all try to return to an original perception of the real that could be shared universally.' This is not the imposition of a gender or a culturally determined notion of sexual difference. She writes: "This stage is one that allows us to dis-appropriate a level of perception of ourselves, of the world, and of the other(s), which corresponds to their own truth." (Irigaray and Seely 2018, 4). The importance of the individual and right to his or her own development is key to Irigaray's politics.

Part 2: The Ecological Aesthetics of Gernot Böhme and the New Human Being of Luce Irigaray

Within the field of architectural aesthetics, buildings can be understood in two ways: in an optic fashion, through contemplation or tactile fashion, and as Walter Benjamin suggests, through habit (albeit this is also a part of optical reception). The background of everyday architecture shapes the way we see things, and we get used to it, Benjamin argues (Benjamin [1935] 2008, xv). However, this habitual dimension makes architecture one of the most powerful arts in motivating social change. This, according to Andrew Ballantyne, it presents an argument for an aesthetics of habit not dependent upon some specialist knowledge but rather acting in the background of our daily lives. In such an approach, how we come to know these buildings, through habit, ritual, day-to-day practices and shaped aesthetic appreciation, cannot be separated from what the building does. This suggests the possibility, Ballentyne argues, of an architecture that collects habits of living, providing minimum support for those patterns of life in relation to the environment (Ballantype 2011, 45). But is this approach enough for an ecological aesthetic of architecture?

One of the questions Gernot Böhme asks is whether in everyday life we can continue to possess the kind of knowledge that enables us to cope with its demands independent of the experts (by this he mostly means the scientists) (Böhme 1984, 376). His concern is that everyday ways of understanding who we are and what we know lack the wider basis and self-reflection needed to formulate alternatives to the theories of modern science. He writes: "Compared to scientific knowledge, knowledge of the life-world (*Lebenswelt*) has therefore hitherto been either simply seen as nonknowledge or as a less exact, softer, and dependent kind of knowledge" (Böhme 1984, 375). Day-to-day knowledge, or knowledge of life-world, in Böhme's terms, including indigenous ways of knowing, is seen as nonknowledge in comparison to the modern view. Discussing midwifery, for example, he argues that what is implied in the traditional knowledge of the midwife is an entirely different approach to nature than that encountered by the science of obstetrics (Böhme 1984, 388). The midwife witnesses the unfolding of natural processes: nature is *physis* and mother and midwife both partake in its unfolding. His arguments are not so much about childbirth as the demarcation of experiential knowledge from the socially privileged scientific expertise. The point is not that pre-scientific practices were superior but whether the loss of such life-world knowledge has created

empty spaces which scientific knowledge has been unable to fill (Böhme 1984, 378).

Any criticism that a concern for Nature is backward-looking, Böhme elaborates, can be countered by the argument that such criticisms operate within the existing frame of indifference and of a continuing modernity that has grown old. This is nature divested of its cultural understandings. He argues that nature is not something we have left behind in our becoming civilized; the natural is not to be overcome: nature affects us, it has been affecting us and will continue to affect us and, with some resonance to the work of Merleau-Ponty, we understand nature with our bodies. He writes:

> At issue is no longer only the preservation of nature as given, but rather the production of nature, a natural state, which can be described as humane, i.e. that in the foreseeable future enables a human existence … Nature lies before us: as a challenge, as something that in the interest in our rational states must be established only as something that we must first elaborate as essential *topos* of our self -understanding (Böhme 2002, 31).

What counts then, for Böhme, and for his ecological aesthetic, is that we can develop the consciousness that body is the nature that we ourselves are.

Modern ideology, he argues, has designated the progress of civilization as the emancipation from inner and outer nature, that is "the mastery of external nature, and the overcoming of the inner" (Böhme 2002, 31). Böhme's arguments circulate around the idea that outer and inner nature are new to us and it is the discovery of our nature that is the task ahead.

This *topos,* or place, of our self-understanding, as described by Böhme is examined quite differently by Merlau-Ponty as, indeed, it is by Luce Irigaray in her ecological writing. There is an important distinction between the two philosophers.As Irigaray argues in an interview with Stephen Seely:

> Our Western culture more and more moves away from life. It is so much so that speaking about nature is generally understood as alluding to some or other concept that would be more or less adequate, but not as referring to or questioning about life. The situation is all the stranger since we are facing a real danger regarding the survival of the earth and of all the living beings that populate it. It is as if all the discourses we hear about this problem could remain abstract considerations and academic or scientific evaluations and discussions without practical concern about our own life and living environment (Irigaray and Seeley 2018, 1)

The nature we are ourselves, and how we can regard nature in relation to our own self-understanding: these are the challenges described in Böhme's "The Concept of Body as the Nature We Ourselves Are" (Böhme 2010). And if criticisms are raised, he argues, that this presents a recourse to some sort of irrationality (in some assumption of a division of mind and emotion, perhaps), then Böhme counters such criticisms to suggest such irrationality simply begins "at the point where one takes leave of the technical-economical rationality" (Böhme 2002, translated text).

The exploration of *physis* (nature and becoming) from this perspective is a little-acknowledged dimension of our environmental thinking, especially in the field of sustainable architecture, which is dominated by an energy performance and engineering-based approach. Furthermore, Böhme writes: "The point is that nature itself cannot be taken as a pure fact, but as a multiplicity of possibilities that are opened up through practices and exercises" (Böhme 2002). Nature, and corporeality, are a future discovery. Body is environment and ahead of us, but one could also suggest criticisms of what may be seen as a traditional and patriarchal approach to body and environment.

So, what happens, then, to Böhme's thought if we add the philosopher Luce Irigaray and her own criticism and add the suggestion that this place of our self-understanding in Western philosophy, this site of the phenomenology – body or nature – is pervaded with presumptions about sex. What if we introduce the criticism that women have traditionally been associated with Nature and environment and allied with what is understood as natural. And that this association with Nature is not just about "woman" as such but woman as mother and only distinguished by her maternal function. The eyes of patriarchal philosophy have shied away from the sexuate and, Irigaray argues, women have been removed from the history of the philosophical tradition.

Böhme has engaged with feminist philosophy and even mentions the work of Judith Butler in his own pondering to take on a phenomenology of the sexes (Böhme 2000). Rediscovering what is natural about self is in no way an easy task, and more difficult for the development of a woman perhaps, but it is this context, that allows her to insist on an ecological politics that takes into account individual growth and development which is a work that is one's own.

Böhme is better known within architectural circles for his theory of architectural atmosphere, and many books have been published recently that address such concerns (Böhme 2016; Böhme 2017). Nevertheless, the suggestions he makes in his ecological aesthetics are somewhat different to an architectural aesthetic of atmosphere and perhaps even a little more problematic for architects. Nature, for Böhme, is a sort of hybrid thing. In this way, it has some similarity to his theory of architectural atmosphere in that it is also co-constructed and situated between the human and environment, like atmosphere. To differentiate, however, an ecological aesthetic from an architectural aesthetic: the latter is more specifically concerned with a reclaiming of the body as the nature we ourselves are. Böhme argues: "Should art make of the body its theme as the nature which we ourselves are, then it would have to explore a largely unknown realm and convey to modern man an experience of themselves that they have long repressed" (Bhme 2002, 228). [3] There are many bodies and many different Natures suggested by this approach and translated to the field of architecture and sustainability, this places architecture into a conversation about the nonknowledge of our lifeworld; the experience of the non-experts of architecture transforms architecture's aesthetic discourse but new patterns of living collide with traditional practices of making. This leads to feelings that are difficult to address, and also to what is and is not proper to architecture.

I have suggested that some criticism of Böhme is possible at the level of the ethics of his aesthetic concern, but I would now also like to consider whether an ecological aesthetic can consider the lived body and environment critically enough through the philosophy of Irigaray.

In her paper in the *Journal of British Phenomenology,* entitled "Starting from Ourselves as Living Beings", Irigaray argues that while ecological thinking is very fashionable now, even amongst the most ethical of thinkers, their language still tends to be expressive of the object that is seen as Nature (Irigaray 2015, 101). This, for example, could be directed also to the language of 'Nature before oneself' as expressed by Böhme. Rather than consider Nature, or our *Nature*, she asks us to examine what *life* really is, or even whether we are really living This is a linguistic move (as is the use of the word *sexuate*), of course, and Irigaray is a linguist, as well as a

[3] *Sollte die Kunst den Leib als die Natur, die wir selbst sind, zum Thema machen, so hätte sie hier einen weithin unbekannten Bereich zu erforschen und dem modernen Menschen eine Selbsterfahrung zu vermitteln, die er immer schon verdrängt hat.* (translated from the German by Mikesch Meucke, unpublished text)

psychoanalyst and philosopher. This move responds to the unconscious prejudices we have, the meanings implicit in the biases of language, but it attempts also to reconnect us to the nature that we ourselves are.

Hers is a radical approach to ecological thinking and Irigaray turns Böhme's ecological aesthetics into an aesthetics of living, but one that is more than architecture. The individual plays an important part in her philosophy. What would be, then, an ecological ethics if not the cultivation of life itself? (Parker 2015, 109) Irigaray writes:

> Caring about sexuation is caring about life itself, and trying to liberate subjectivity from cultural constructions that made it irrelevant to life. It is attempting to bring humans back to their living belonging and inviting them to elaborate a culture respectful of life, beginning with their own life and that of other humans. (Parker 2015, 109)

Ann van Leeuwen argues in her paper: "Sexual difference, ontological difference: Between Irigaray and Heidegger" that Luce Irigaray's work contains two indissociable projects: the disruption of Western metaphysics and the thinking of sexuate difference (van Leuween 2010, 112). She writes: "If we are to take seriously the philosophical richness of her work, then we must attempt to make sense of these two projects as co-implicative" (van Leuween 2010, 111). Van Leeuwen argues in this paper that too little attention has been paid to Irigaray's second problematic: that is, as she describes it, in her exploration, that of the phenomenological question of being.

Philosophy is really no good at discussing women (whether our desires about how we might live or how we can love), and for Irigaray and her philosophy, without considering sexuate difference, we cannot live ecologically. This is fundamental to her thinking. It is the missing dimension of life. As she writes: "If we consider ourselves as neuter individuals, we cannot behave in an ecological way" (Irigaray 2015, 103). This is, however, how the tradition understands the human and his or her perception. Not thinking about the energy of life and desire, not fully thinking about it, taking it on, acknowledging it, experiencing and examining it critically (thinking and feeling it), is thus, for Irigaray, at the root of our environmentally destructive manner of being.

Her language emphasizes "living", rather than "nature" or the natural, and intends to express connection. It is our cultural traditions and languages that have created such artificiality in our understandings of ourselves and nature, so that nature is not ourselves, and cannot become ourselves, if we

continue to use such language. As she writes: "[t]his tradition has, in this way, rendered us extraneous to our environment, extraneous to one another as living beings, and even extraneous to ourselves" (Irigaray 2015, 101). Like Böhme, she argues that it is for us, therefore, to create the reality otherwise, and in this way make the places that could allow the growth and development of our life. For example, an ecological aesthetic, as described by Böhme, positions architecture in a critical dialogue with how we regard nature in relation to our self-understanding. For Böhme, this discovery of nature ahead of us is the task of our age. However, for Irigaray this still suggests an objectification, a separation: in placing nature ahead of us, we are separated from ourselves.

I would like to imagine, if I may, an architectural environment where all this takes place, critical of current conditions, but with the possibility for the unfolding of life, and an ethical living which means allowing the other, the individual, to grow and develop, to flourish and blossom in their own way. That is, an environment that allows, and even encourages, us in an engagement together in what might be an ethical ecological aesthetic (a way of "speaking-together"); one which includes the recognition of desire for human fulfillment and blossoming as sexuate. This might still be described as an ecological aesthetic of living. It would be an aesthetic that includes some attentiveness to feeling and some awareness (or "cultivation") of an individuality. It is not suggested, however, that such practice is easy. In the same interview Irigaray responds:

> We must above all try to return to an original perception of the real that could be shared universally. This stage is the one that allows us to dis-appropriate the construction of our culture as a peculiar one in order to reappropriate a level of perception of ourselves, of the world, and of the other(s), which corresponds to their own truth. It is a really difficult process! (Irigaray and Seeley 2018, 2)

The descriptions that Irigaray uses of an aesthetic practice are various, and include the cultivation of breath and breathing as a physical and spiritual (broadly conceived) aesthetic practice, connecting us to all that is living. They include also an attentiveness to the energy food gives us. However, the place of the development of a new human being would also be, must also be, a place or places of individual expression and co-existence, which suggest an architecture made in a speaking- together and co-development of our relationship with others and the environment (Irigaray 2017, 57).

In Luce Irigaray's most recent book, *To Be Born. Genesis of a New Human Being*, a book about the phenomenology of a new human being, the

new little human is full of energy and full of desire, but, as she argues, our cultures choose not to perceive it in this way. The desire of the new little human to grow and flourish is reduced to needs. It is dispossessed of any acknowledgement of its own desire, she writes, for who it wants to become, who it really is, living according to an energy of its natural belonging with desire to become, to grow, transforming it, a result of its ever newly-found knowledge and ways of inhabiting the world (Irigaray 2017, 7). Our environments deprive it, she argues, of both natural and cultural belonging and what is more, our way of educating the little human does not allow it to take charge of itself.

Thus, the most suitable environment for the development of the child (and we are, of course, all also this newly born human), according to Irigaray, is one that includes cultural conditions that recognize such free energy and desire to live and to begin to shape a very different reality. Such transformation Irigaray may also describe as towards a culture of *sexuate* difference. Again the created language of sexuate describes a relationship between two different and equal beings, or becomings, as our ecological reality. The artificiality of our cultures, which neglect such difference, is at the heart of the problem of our environmental crises; a reality to be uncovered and one that Western philosophy and Western cultures conceal. Our existence is, as Irigaray writes, "…an actualization of the elusive event of a meeting between two [very different] humans" (Irigaray 2017, 7). However, our cultural narratives have a history of suggesting otherwise.

All this is already so far from the current practices of architecture; so far from imagining an environment through contemporary tools of sustainable design; so far from any contemporary setting in architecture. This breathing in of a new perspective brings a confrontation with dispassionate relationships, and maybe the idea of something forgotten in our desires could make us feel uncomfortable too.

The ecological aesthetics of Böhme and the ecological ethics of Irigaray both suggest an un-teaching of perspective and a disturbing or dismantling of conventional modes of relation. Both present a profound insecurity but also suggest a creation. If sustainable design is to have ambition to go beyond the confusion of contradictory realities in a culture indifferent to nature, or indeed to living - one that set us apart from ourselves - some radical ways of thinking are required to help find such new perspectives and new ways of living.

Part 3: Kites

The kites. To tell the story. The exhibition took place in Venice, at the Biennale of Architecture. The kites I imagined were made from the collected debris and detritus of the city, both human-made and natural. The kites were messengers. Reeds in their bodies make sounds from another world, give voice to the sky. The singing kites recorded their voices against the noises of the Venice piazzas and streets – natural and human voices. The kites, and their human makers and keepers (these were the student helpers for this exhibition), bring singing to the place of the exhibition. The bodies of the kites lie under a canopy: a choir of sky sound animates the interior space. The gathering of the sounds joins with human voices – the everyday human poet states: the sky is no longer blue. The maternal canopy instructs "breathe": breathe in the sounds of the living sky and the earth, breathe in the feeling of life and living.

The exhibition happened. It was not just imagination. It was not a dream, but it was a collaboration of four professors and their students. The kites were made, and arrived in Venice from their first outings in the wide-open skies of Iowa. The kites were themselves instruments, and they danced, and they sang songs that were composed by the air. The human creators holding a string, for fear of escape, kept the kites attached to the ground and the humans, inspired, hearing the sounds, breathing deeply, imagined. The humans imagined they were themselves lifted a little, freed; energy given. Their own human songs and stories being created in response. The kites prompted the humans, and in so doing imagined what might be a different way of being; a different living, lifted into connection with a shared cosmos.

The summer air of Iowa was heavy when we started. I pondered the nature of this expansive domain: its theatre of elegant clouds. I imagined this space as the arena for our speculation. I breathed in its air. I sought to discover some architectural experience; some deep notion of a shared materiality newly seen. Like ancestors studying the stars, a collective inquiry and the material makings of the professors could bind to a primal medium: air. I looked ahead across flat cornfields where fertile prairies used to flourish, past the old barns and corn-drying bins, to the very distant horizon. In the heat of summer, the warm earth called us to return to its comfort, to a nestling back into her cool downy body, to a certain safety. I felt her nature calling me to her, but could we as professors, with our students, distinguish the possibility of a new feeling and thinking, a new being and becoming, ahead of us? Could we evoke it through art and could we write about it? I chose to imagine and reimagine still the deep damp

breath, and what might be the universal material of the architectural environment and a shared aesthetic of air.

Fig. 10-1. Kites.

Our response was made to the curatorial call for *Freespace.*[4] The performative quality of our event suggested the two-day student workshop and the subsequent colloquium. If there were questions that governed the development of the structure of the days, they were: how can we reconceive architectural aesthetics in the context of current environmental and political crises? And how can we do this in a collective and democratic manner? The night skies in Iowa were vast and clear: the stars piercing pins of light. No city light pollution, turning the pitch blue black into a muddy orange haze. This was the ever-present context of our summer, but the waterways of Venice were backdrop and stage for fall. Our team were spread around the globe and still the heat of the Iowan summer persisted.

The kites took to the skies of Venice. They sang. We could perhaps have written some words, translated their language, and composed an opera. The words inspiring the human keepers of the kites to create new intentions towards their lives, living, speaking together and sing: the human and natural environment outlining an architecture, the sketch of a minimum support—a speaking together and a becoming together.

Conclusion

The world is changing, and not necessarily for the better. Surrounded by chaos, confusion, and fear about our climate crisis, many of us are wondering. There are no simple answers to whether human aspirations to create sustainable architecture could adopt an ecological aesthetic or how we might even rethink our understandings of the human in this way. What differs, in this approach is simply the certainty over what is identified as the problem.

For Böhme it is our relationship with nature that is the fundamental concern for architects, and not just those educated in the aesthetic tradition. Evolving visions of just what our relationship with nature could be is our age's problem, if we follow Böhme's arguments. But if we close our horizon to what lies a little outside our cultural traditions, or to visions, dreams, cultural creativity, imagination, and to the storyteller (of art and design),

[4] The starting point of our theoretical inquiry was "freespace" the invitation of the Venice Biennale 2018 co-curators, Yvonne Farrell and Shelly McNamara and as described in their online manifesto: https://www.labiennale.org/en/news/biennale-architettura-2018-general-outline

then institutions will always limit our approaches to the problem of sustainable design.

I end with a quote by Irigaray: “Desire is probably the most specifically human property. It shows an almost natural and continuous longing for transcending oneself”. (Irigaray 2015, 103) So let us live our aspirations: breathe, express our love for new human being.

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CHAPTER 11

PRACTICING PLACE: TACTICAL MODES OF PRACTICE AT THE INTERSECTION OF ART AND ARCHITECTURE

KATHY WAGHORN

Critical spatial practice

> "To develop as a critical practice architecture must look to art, and move outside the traditional boundaries of its field and into a place between disciplines" (Rendell 2006, 191).

In coining the term 'critical spatial practice' Jane Rendell describes practices that traverse the social and the aesthetic, the public and the private.[1] In her framing of this idea, practices become critical when they critique both the sites in which they occur as well as the disciplines through which they operate (Rendell 2013, 119). For Rendell, contemporary art, as the foremost arena for critical spatial practice, holds a special potential for "transforming places into spaces of social critique", where art works operate not so much as 'things' or 'objects' than as a series of exchanges (Rendell 2006, 2). While such transforming practices tend to occur more often in the domain of art, Rendell contends that critical spatial practice offers architecture a means for reflective and expanded modes of operation (Rendell 2006, 4).

Throughout the 1990's I developed a practice of site-specific art-making in which I revealed the spatial, social and political constitution of places

[1] Rendell introduced critical spatial practice in an article from 2003. She later expanded and developed this concept in her book *Art and Architecture: A Place Between*, published in 2006.

through the arrangement and manipulation of objects, images, sound and text. This work often took place opportunistically in public spaces or redundant urban sites. Operating here was a kind of disclosure, an exposure of the specificity of places and the ways in which such specificity is composed through the effects of larger cultural, social and economic forces. I used art-making as a formal, conceptual and critical tool through which I could activate a place-based engagement for audiences and publics.

Fig. 11-1. 'Josephine's Office' (1993).

In one work from this period, along with a group of artist friends, I took temporary custody of a redundant telephone exchange. A large Edwardian building in central Auckland, the exchange was formerly owned by the national Post Office and staffed by hundreds of mainly female telephone operators. Finding the building in a derelict state, on the cusp of transfer from public amenity to private ownership, yet littered with traces of its prior use, was a prompt to speculating on its past and future. In one part of the building I made a work titled *Stairway to Success* in which aphorisms, combed from popular business self-help literature, were placed on the stair risers. Ascending the staircase from ground to first floor visitors became immersed in a space of snappy wisdom on how to get ahead: "the only place where success comes before work is in a dictionary", "a messy desk is a messy mind" and, "there is always room at the top". The architecture of the

stairwell provided the 'upwardly mobile' journey in which the market-savvy business person would supersede the civil servant in an era of deregulation and privatization. For another work I made in the same building, scattered detritus left behind when the telephone exchange was evacuated (as if in an emergency) was re-assembled to constitute a lone operational office. In *Josephine's Office* (Fig. 11-1.), desk, chair, files in triplicate, an operation manual, umbrella, coat, cardigan, wallet and even Josephine's birthday cards were arranged to temporarily re-inscribe the place, body, work and social world of a single former employee. Both these works pointed inwards, to the specific architecture and former function of the building, but also outwards, to gather larger contexts of global changes in labor, communications technology and neo-liberal economic policy.

The work I made at this time was always temporary, a decision to resist the value of art as enmeshed in commodity fetishism, and the mantle of the 'transcendent artist' as the maker of rare objects. Instead I was interested in the very role that an artist might play in leading away from the object and into the intersections of lived space and time. In this vein I sought to heighten micro-traces of occupation and to intervene in such a way that taken-for-granted boundaries, categories and vectors could become visible, registered and questioned, generating spaces of 'social critique' as Rendell describes.

In contrast, the contemporary practice of architecture is primarily a techno-economic pursuit, set in attendance to building control legislation and market conditions. Acting as agents to further the enterprise of their clients, architects are generally excluded from any political or social critique of the places and contexts of their work. Typically, architects spend only a very small part of their time enmeshed in the social potentiality of their client's worlds and it is rare for architects to work closely with a wider and diverse client body, such as those who might inhabit the more public spaces they design. Since moving to the field of architecture[2] I've explored a hunch that by pressing the modes and methods of my art practice up against the disciplinary edifice of architecture, I might take up Rendell's gambit, using this particular art–architecture practice as a means to draw out the relational attributes of place. In so doing I pick up Rendell's provocation that "architecture and other built environment disciplines continue to be challenged by the idea that aesthetic values might not only be object-driven but also related to time, process, ethics and subjectivity" (Rendell 2013,

[2] In the 2000's I completed my full professional degree in architecture, I now work as an academic in a university architecture program.

125). In this chapter I will explore how what I call the 'practicing of place' has opened up tactical approaches that challenge this ideological status quo.[3]

Practicing Place: An ethical orientation

> Place, like the subject, is the site and spur of becoming, the opening for politics (Gibson-Graham 1996, 39).

Place is the field where my critical spatial practice between art and architecture is employed – to be transformative of and in place. In this single chapter I cannot traverse a full exploration of place philosophy, however to position my practice I will briefly indicate the ways in which place is construed in this work. Approached across diverse disciplines place is apprehended between an internally oriented stable origin on one hand, and as an outwardly connected, expansive and fluid entity on the other. In practicing place I tend towards the latter, following the geographer Doreen Massey in her exploration of an 'extroverted' sense of place, not considered bounded, coherent and homogeneous but instead conceptualized as process. Massey proposes place "imagined as articulated moments in networks of social relations and understanding [. . .]" (Massey 1991, 28). Place, in this sense, "becomes an event rather than a secure ontological thing rooted in notions of the authentic. Place as an event is marked by openness and change rather than boundedness and permanence" (Cresswell 2002, 24).

This explication of place chimes with the motivations and forms of my art practice and has acted as a further spur for architectural practice, positioning a critique of the instrumental reduction of fluid place to a static, bounded architectural site. Casting place as process renders place mutable and opens up possibilities for practicing in place wherein, as Rendell prompts, temporality becomes as important as object or space. Of course,

[3] Internationally others have and are developing practices that challenge normative forms of architectural practice. In the UK examples include public works, Assemble and muf architecture/art, and from academia, the Sheffield school, who started out exploring 'uncertain architectures', and ended up with 'spatial agency' focused on 'other ways' to deploy architectural intelligence (see Awan et. al. 2011). In Europe R-Urban is a practice of 'urban resilience' and raumlaborberlin runs a 'fictional university' for exploration, improvisation and collective experimentation. In California, Teddy Cruz and LA-Más both operate as critical practices intervening in urban spatial politics. For all of these practitioners (and for many others, this is merely a small sample) the remit of the architect is variously expanded to encompass the agent, artist, advocate and activist.

an open, fluid and processual constitution of place productively gels with the contingency inherent in assemblage thinking. While the assemblage, as a way of approaching complexity, mobility and openness, has been taken up by many (and again this is a topic well beyond the scope of this chapter), from an architectural perspective Kim Dovey notes its value; "to see places as assemblages is to avoid the reduction of place to text, to materiality or to subjective experience" (Dovey 2010, 17). This process–assemblage view of place provides a way to think about place that avoids the reductive 'master narrative' so often actioned as the 'master plan' in architecture and urban-design work.

Thinking of place through this lens also introduces an ethical orientation to practicing place. In her political theory Jane Bennett swells assemblage thinking to encompass non-hierarchical "animal–vegetable–mineral–sonority cluster[s]" with "a particular degree and duration of power" (Bennett 2010, 23). Bennett calls for the artful cultivation of a disposition towards or sensory receptivity to such assemblages in order to propel practices of ethical generosity. While moral codes might form an important aspect of ethics, alone they are insufficient for the actual enactment of ethical aspirations, which instead require "bodily movements in space, mobilizations of heat and energy, a series of choreographed gestures, a distinctive assemblage of affective propulsions" (Bennett 2001, 3). Such mobilizations can, Bennett claims, foster an aesthetic disposition and a mood of lively and intense engagement with the world, hospitable to "an ethical comportment of generosity toward others" (Bennett 2001, 111). Bennett's tutelage towards honing a sensory receptivity to the "marvelous specificity of things" in order to "render attachment more palpable and audible" (Bennett 2001, 4) has clarified the impetus of practicing place, whereby my ethical, aesthetic and political task is to influence the disposition of others in their relations to place. Through tactically expanding architecture (as Rendell calls for) transformations of place, however large or small, might just arise.

Being Tactical

> Many everyday practices (talking, reading, moving about, shopping, cooking etc.) are tactical in character. And so are, more generally, many "ways of operating": victories of the "weak" over the strong [. . .] clever tricks, knowing how to get away with things, "hunter's cunning," maneuvers, polymorphic simulations, joyful discoveries, poetic as well as warlike (de Certeau 1984, xix. Original parenthesis).

The tactical holds popular currency. Indicative of this is the rise of 'tactical urbanism' a movement in which small-scale temporary interventions are employed to both broadly advocate for and specifically test the potential of urban realm change. Discussion of this and associated modes of city-making such as 'pop-ups' and 'meanwhile leases'[4], is often celebratory, tied to "a kind of consumer-driven innovation" (Matchar 2015). It is easy to see how this do-it-yourself form of city intervention is lauded as a form of 'bottom-up', place-based democracy and, under austerity economics, it's not surprising that civic authorities have embraced such enterprise as a means of low- or no-cost city 'regeneration'.

For policy-makers and planners, tactical urbanism is now considered a valid tool for transforming the city.[5] However others have noted an implicit and problematical tie to the more troubling aspects of gentrification, and register a certain "pop-up disquiet" wherein "temporary projects seem to draw on and drive an insatiable appetite for the new at the expense of the values of the ordinary and the everyday" (Ferreri 2014, 5). In unequal and polarized cities, it remains important to critically question the narratives of tactical urbanism as 'activating vacancy' and 'bringing creativity' to neglected neighborhoods. Ferreri and Lang warn that such ephemeral interventions are valued by city authorities in so far as they promote prosperity by offering a spectacle of an 'active frontage' for streets needing injections of vitality. Such interventions, they argue, are valued mainly as a symbolic act, simulating wealth to attract economic development (Ferreri and Lang 2016, 41).

Given this ambivalence I'm a little reluctant to join the tactical zeitgeist. However, the difficulty is I'm still so very much attracted to Michel de Certeau's everyday politic, riven with the clandestine tactical acts seen in the enticing list given at the opening of this section. Who doesn't want to know how to 'get away with things' and, following Bennett, it is a crucial ethical project to revel in 'joyful discoveries'! For de Certeau everyday life is characterized by creativity and inventiveness. It is the locus of tactical practices such as re-employment and appropriation, insinuated in everyday life, re-forming culture from the inside-out. Tactics are mobilized "on the wing" (de Certeau 1984, xix). Against the immovable structures of 'the

[4] Other aligned terms include 'guerrilla urbanism', 'city repair', 'DIY urbanism', and in Britain, 'temporary use'.

[5] See for example the much-cited case of the changes made to Broadway Boulevard in New York city where temporary low-cost treatments were first installed to both test and promote the permanent changes that were made later.

proper', the tactical is a mutable and temporal practice, whereby situations can be 'seized' and taken advantage of, where "heterogeneous and mobile data" is used to make decisions and take actions (de Certeau 1984, xix). If I wish to 'expand architecture' through practicing place, then the tactical as de Certeau characterizes it offers a supple, sensitive, even pleasurable model that, despite my hesitations, proves too valuable to discount. De Certeau tells us that the tactical is a means to "constantly manipulate events in order to turn them into 'opportunities'" (de Certeau 1984, xix). To work with the complexity of place as assemblage (rather than the contained and constrained architectural site) is to embrace a tactical approach towards the contingency and relationality of spatial production.

Three Projects

Before I unfold some of the specific tactics I've developed for practicing place I will very briefly introduce three projects that I can then use to further elucidate this approach.

Project 1: *Fluid City*

> Three strange, translucent vehicles are towed along the streets by bicycle. On arriving, the yellow-aproned attendants unpack and invite those passing by into a tapestry of water stories; to don a lab coat and peer into the micro-biotic universe of the city's waterways; to press your eyes against the smooth rubber lip of a diver's mask and view the passage of water through the city; to sit on an upholstered bucket and listen to different voices sharing stories of the city's fluid states; to write on a card your own water story then peg it up to gently flap on a washing line strung across city space. Then, with the contents neatly packed away, Fluid City, like a puddle in the sun, disappears.

Fluid City, an installation of three mobile, bicycle-powered architectures, aims to foster awareness and understanding of water issues in Tāmaki Makaurau Auckland.[6] Our intention was to devise an urban installation and performance that could animate elements of the environmental, social, cultural, spiritual, and economic dimensions of urban waters. *Fluid City* playfully garners the unsuspecting public as interlocutor as it generates and

[6] First launched at Auckland's marine-side Wynyard Quarter for the United Nations World Water Day in March 2012, parts of *Fluid City* were later adapted for the Rosebank Project as part of the Auckland Arts Festival (2013) and then for use as part of the science curriculum in a number of Auckland High Schools. The *Fluid City* project members were: Gary Brierley, Carol Brown, Clark Ehlers, Katie Fitzpatrick, Alys Longley, Rose Martin, Charlotte Šunde and Kathy Waghorn.

transmits knowledge of the city's interconnected hydrology through activating a sense of inquiry and transaction. Temporarily occupying and disrupting the city, it borrows its curious operations from the itinerant circus sideshow. By inviting the addition of commentary from the public, and allowing for a free-ranging conversation with a 'travelling scientist', an empirical way of knowing a place is set free from its academic and laboratory confines to became part of a lively, local discussion.

Fig. 11-2. 'Fluid City', (2012). Photo by James Hutchinson.

Project 2: *Make Believe*

Overnight potted citrus trees appear in the raw concrete volume of a new but vacant shop; in the morning some children summon a buried stream, using sticks they paddle an imaginary *waka* (canoe) along the street while chanting "*tahi, rua, tahi, rua*" (one, two, one, two); another day a group of performers occupy a peculiar cage by the train station, where they hang about and hoot like monkeys; as dusk falls the facade of a nearby building is illuminated through movie projection and a crowd settle in beanbags to watch, in the night I find a disused car showroom filled with giant billowing smoke rings lit with blue light.

Fig.11- 3. 'Park for a Day, a project as part of 'Make Believe: Imagining a new park for New Lynn' (2014). (Photo Credit: Suburban Florist Association)

The intention of *Make Believe: Imagining a new park for New Lynn* was to generate novel approaches for engaging the public in the design of an urban park.[7] Situated within a new medium-density housing development, the park will occupy a site that once accommodated Crown Lynn, a ceramic manufacturer famous in New Zealand for its iconic and widely used tableware. Through a series of lively public-realm events *Make Believe* adopted a spatial, material and performative approach to imagining this future park. Each event allowed for a fleeting and propositional manifestation of a future park-like condition while drawing together a different group of constituents. The *Make Believe* events included a three-day festival of place-based installations in the vacant retail spaces of the town center; a one-day-only newspaper chronicling historic stories of local places; a choreographic workshop in which primary school students developed a performance walk

[7] *Make Believe, imagining a new park for New Lynn*, was commissioned by Auckland Council (Community Arts and Development). It was developed and curated by Kathy Waghorn and involved contributions from The Suburban Florist Association (artist collective), Christina Houghton, the Chinese Eco Elders of New Lynn, volunteer translators, New Lynn Primary School, students and staff from the Pacific Institute of performing Arts and students and staff from the architecture program at the University of Auckland.

around the park site[8], and a day-long proto-park installation and social gathering produced by the Suburban Floral Association (artist collective) with the Eco Elders (a group of elderly new migrants from China who maintain a local vegetable garden).

Alongside this event program the *Make Believe Headquarters* (MBHQ) was established in a nearby vacant shop. Open for almost one year, the MBHQ operated as a drop-in center where documentation from *Make Believe* projects was displayed, and where informal conversations with residents were held. A series of to-scale maps of well-known local parks were also displayed in the MBHQ so that the size of the proposed park could be measured against shared points of reference.

Make Believe, as the name suggests, draws on our playful capacity to make things up, to inhabit the pretend, and to imagine places differently. Here we accepted the limits of discourse, instead applying performative means to generate exchanges of knowledge, in this case local knowledge of public space - how it might be shaped and used, what importance and meaning it might hold for specific communities in a suburb where demographics, economies and urban morphology are rapidly shifting. Operating as a critique of the top-down perspective of 'master-planning', *Make Believe* used the temporary as a testing of potential. The sequence of *Make Believe* projects, through accessing the imagination of a wider client body, gathered insights as to the spatial, material, temporal and programmatic directions this new park might take.

Project 3: *The Flotilla Whau*

> My feet and bum are wet, the water running up my forearms has a certain smell and I can feel the pressure of the tide against my paddle. The wind is stronger out here, sounds are louder and travel farther, the hum of the power cables above and a droning rhythm from a factory on the shore. I'm low down in my kayak, the land seems flat and distant. A shag perched on a submerged shopping trolley eyes me, another dives below the surface. I imagine other beings below the surface too, but they are likely scared off by this sudden and noisy invasion of kids, dogs, kayaks, scouts in cutters, paddle boards, skippers, politicians, sailors, dinghies, fiddle players,

[8] A performance walk is a form of site-specific choreography used by Christina Houghton, my collaborator in this project. In a performance walk pieces of performance occur in public space with the audience joining the performers in walking between sites and where the line between performer, audience and passer-by is intentionally blurred.

photographers, oars, rubber rafts, historic vessels, surf life savers, flags and banners . . .

Fig. 11-4. Launching boats for the 'Flotilla Whau' (2015). (Photo Credit: Brian Marsom)

The *Flotilla Whau* instigates a temporal engagement with the Whau River, an estuarine river in Auckland's western suburbs.[9] For the past five years, on a day in late summer, HOOP-LA[10] facilitate a horde of people to take to the water in a mélange of craft. A fleeting spectacle, drawing attention to the river that sits concealed behind factories and warehouses, the flotilla's constituency shifts from year to year. This is not crossing the river in the hermetic, temperature-controlled space of crawling traffic, as many here do most days. Instead the *Flotilla Whau* is a more tactile undertaking, to the dismay of some you cannot avoid getting your feet muddy here, or smelling the mangroves and salt, feeling the humidity and wind as you drift with the tide or paddle with force and effort. Along with this haptic experience, the

[9] Whau is pronounced as in 'foe' or 'faux'. The river is named for the Whau tree, a fast-growing tree producing extremely light timber, indigenous to Aotearoa New Zealand and found along the river banks.
[10] HOOP-LA: art, urban research and design, is the independent collective of Kathy Waghorn and Nina Patel. www.hoop-la.nz

flotilla is also a social affair in which local individuals and groups are together cast as experts; those who know the place host others who've not been on the river before. Through their actions these river locals demonstrate their refined knowledge of this place; deftly backing trailers and launching boats, rigging, paddling, rowing, sailing, swimming, chatting, singing - in and on the water. The *Flotilla Whau* operates as temporary infrastructure, art work and community event, providing an opportunity for more people to experience the waterway from on and in the river.

Tactics for practicing place

As can be seen from these projects, the practicing of place is opportunistically inserted across a range of formats and contexts. It harnesses tactical ways of operating that I have gathered under the headings: *Situationing, Mobilized Accessories, Becoming Ultra-local* and *Plying Stealthy Masquerades*. I set out these tactical ways to expose the 'on-the-ground' know how employed in practicing place. My purpose in articulating these tactics is not to separate them from each other, but rather to appreciate that they operate synergistically in projects, and it is through such 'bricolage' and 'phrasing' (to again borrow de Certeau's terms) that the practicing of place operates (de Certeau 1984, xviii).

Situtationing

I've coined this strange verb to emphasize the *actions* of this tactic. Situationing describes a tendency to assemble and connect, to bring people and things together in carefully calibrated situations. It is a rubric under which the "impetus of place, locality, time, contact and space" provide a "more urgent set of coordinates than a fixed and exhausted notion of site" (Doherty 2009, 13). Situationing involves the sensitive navigation of the dynamics and peculiarities of the assembly in projects that gather previously unconnected individuals, groups, agencies, institutional bodies, and their materials, *tikanga* (cultural practices), and ways of knowing.

In his helpful précis of the materials and methods of 'socially engaged' art-making, Pablo Helguera suggests that such art functions through a temporary "snatching away" of subjects into the realm of art-making, moving them into "a space of ambiguity" that can bring new insights to a problem or condition (Helguera 2011, 5). Through such work the artist provides an armature on which experiences can form. This describes how

situationing is deployed in *Make Believe,* in which a day-long installation and conversation was brokered, hosted by an artist collective with an elderly Chinese new migrant group and council staff. In this unique situation the elderly Chinese group were able to forgo language and instead demonstrate their desires for public space through performative means, meanwhile the council officials, released from their normative role as 'experts' were cast instead as guests, hosted by the artists in a proto-park setting, carefully designed to act as a provisional place of conviviality and exchange.

Helguera warns of the difficulties that can emerge in such 'socially engaged' work, suggesting that "conflict will often result if the parties each have different information or ideas about the situation and, therefore, different motivations" (Helguera 2011, 32). In contrast, I assume the understanding of a situation varies across parties, that variable motivations are at play, and that the impetus to engage will likely come from these differing sources, even if these remain unspoken. In the *Flotilla Whau* HOOP-LA recognize that our motivations may not be shared by all who assemble for the event, and we tactically attempt to address the motivations of other parties, or we might locate a source of motivation as an impetus to engage, such as through creating a fundraising opportunity for a club or group. Rather than bringing the motivations of different parties into *unity* through situationing, HOOP-LA are comfortable to operate with ends and means that co-exist but that do not need to totally cohere. This 'looseness' regarding a shared motivation means that our sense of authorship, that in an art context might usually entail higher levels of aesthetic and performative control, is not especially strong. Situationing relies on a sensory and intellectual receptivity to multiple situated, yet connected assemblages, and the capacity these have as architectural design 'research tools' to teach us new ways to understand and consider place.

Mobilized Accessories

An accessory is supplementary, an auxiliary object, yet powerful in adding completeness. The accessory holds a performative dimension too; in criminal terms an accessory is "one who incites or assists" (OED 2011). Mobilized accessories act to prompt or support in the assemblies and situations of practicing place in two ways:

First, mobilized accessories instigate spaces of engagement and exchange, attention is therefore paid to their aesthetic contents and material properties. In *Fluid City,* the vehicles' translucency prompts curiosity; the diver's mask softly cups the face and blocks all peripheral vision, accentuating

the action of plunging visually deep while remaining bodily in public space (Fig. 11-5); the furnishings and costumes are color coded bright yellow. These accessories are carefully designed affective objects, micro-architectures that structure attention, intervention and experience.

Second, mobilized accessories act as *boundary objects.* Boundary objects (an idea I've borrowed from the sociology of science)[11] are social strategies or technical devices that operate to aggregate incommensurable knowledge. Both physical and conceptual, successful boundary objects are "plastic enough to adapt to local needs and constraints [. . .] yet robust enough to maintain a common identity across sites" (Star 1989, 45). Examples of boundary objects in everyday use are libraries, atlases and newspapers, all of which we commonly accept fold heterogeneous and asynchronous material into a singular platform.

Fig. 11-5. The diver's mask, 'Fluid City' (2012). (Photo Credit: James Hutchinson)

Often riffing off everyday objects and rituals, mobilized accessory boundary objects assist in enabling disparate forms of knowledge to gel in the assemblies, situations and transactions of practicing place. The practice of providing afternoon tea could be considered as actioning a boundary

[11] The idea of the boundary object is taken from David Turnbull's sociology of knowledge making, who in turn borrowed it from Susan Leigh Star's research into social models for artificial intelligence.

object in this manner. In the context of local practices such as those of sports clubs, the afternoon tea is plastic (in its contents and contexts) yet robust in its form. In *Make Believe* the afternoon tea as a practice of ritualized hospitality provided a reason to enter the proto-park installation and a means of gathering participants, without common language, around this shared activity. A situation can be thought of as an open system full of inconsistencies; routines and gestures of sharing food can act as a system of boundary objects that can produce a common identity in a given site.

Fig. 11-6. A commuter reads 'Bird in Hand' (2013).

In another event for *Make Believe*, a one-day-only newspaper titled *Bird in Hand* collated historical stories and social ephemera sourced from local archives. Telescoping events from past eras into a single issue, the paper was delivered to commuters heading towards their morning trains. The front page led with a photograph showing elephants grazing on what is now a major arterial road, with the circus tent behind taking up the site long since occupied by a shopping mall. Train passengers also read about a train crash one hundred years earlier as they crossed the very same bridge on which it occurred, bringing their own commuters' local knowledge of place into an abrupt collision with past events. *Bird in Hand* used the vehicle of a familiar commonplace object to bring a local spatial and social history into temporary public circulation through a spatially dynamic means. As a

boundary object, in the context of *Make Believe*, *Bird in Hand* acted to unsettle a static view of overlooked local spaces, allowing them (and by extension other spaces such as the park site) to be read for different trajectories and possibilities.

Becoming Ultra-local

Becoming ultra-local, that is *extraordinarily* local, revolves around two positions. Sometimes the focus is on the *outsider*, which is where I help myself and others, often students or 'experts' from municipal agencies, to locate, to 'feel around for' a more finely nuanced, empathic understanding of a place. Architect Mel Dodd notes, "perceiving the everyday, modest and fragile aspects of a place is almost impossible for an outsider, but this is rarely acknowledged in the domain of mainstream urban design and planning" (Dodd 2011, 29). Dodd underscores the local as a dynamic and relational structure, a "temporal choreography of quite trivial yet public rituals" (Dodd 2011, 41). Immersion in this choreography can allow for a more nuanced re-consideration of an architect's brief. Here the collected performative events of *Make Believe* are cast as a series of choreographed opportunities for those commissioning the park (the 'expert' outsiders) to 'act local' for a period of time.

At other times this tactic is employed to bring about a more enmeshed experience of a place for an *insider*, to practice place for and with the locals. The *Flotilla Whau* for example prioritizes a performative engagement with place, an experience through which the very presence of the river is affirmed by the neighborhood. As with *Make Believe***,** the flotilla "relocates social agency in practice or performance rather than discourse" (Whatmore 2006, 603).

Helguera proposes *transpedagogy* to identify art practices with an emphasis on the local, where the work instigates an experience that specifically leads to the construction of knowledge, or, in a larger sense, to the production of culture (Helguera 2010, 105). In this light, the practicing of place might be understood as a pedagogic practice, where the tactic becoming ultra-local activates a pedagogic experience as Helguera describes. Becoming ultra-local must however be understood as inevitably incomplete; the open-ended-ness of 'becoming', in combination with the assemblage constitution of place, insists that there is always the possibility of more to converge and emerge in the practicing of place. As Bennett, says, "to become is not to achieve a final state of being; it is to give more of a chance to that which rumbles in you, but you are not" (Bennett 2001, 26).

Plying Stealthy Masquerades

This final tactic, Plying Stealthy Masquerades, again operates through two angles. The first is through a kind of *borrowed authority,* that is, the appropriation of symbolic forms and language from other fields, employed to cast an air of legitimacy over experimental projects where outcomes are uncertain. Borrowed authority is employed in this diagram (Fig. 11-7) for *Make Believe,* produced to convey the performative design approach to stakeholders. The diagram borrows a mathematical logic, a graph, X for scale, Y for time, and in the space between, the prospective events are arranged. Through this use of a borrowed abstract language disparate elements are proposed as equally probable — dogs, badminton players, remote-control-plane operators, ponies, kites, fire crackers, markets, BMX-bike riders, seedlings, lanterns, junk stalls, beaches, bonfires, old soldiers, children, elephants, movies, hot rod cars — and by extension an assemblage of fire, light, speed, flight, food, dung, heat, photosynthesis, decay and commerce — converge in the act of imagining the possible.

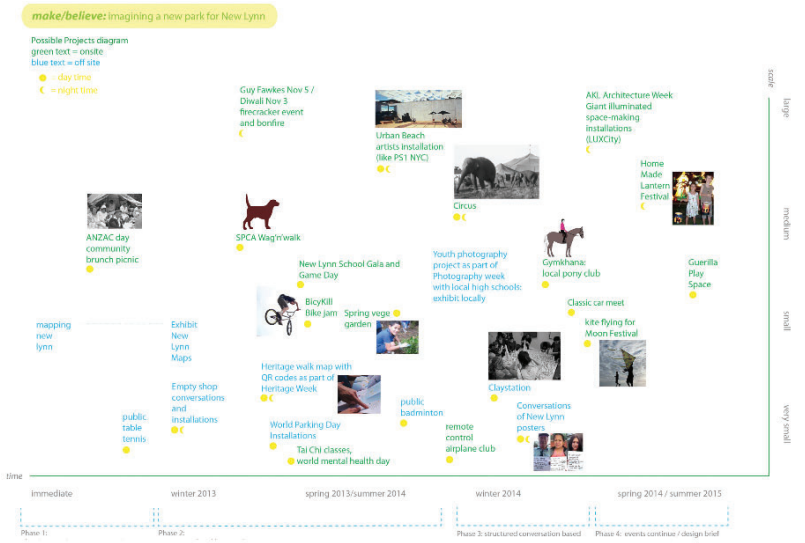

Fig. 11-7. Diagram for 'Make Believe; Imagining a new park for New Lynn.'

The *Make Believe* diagram therefore operates a 'stealthy masquerade'.[12] Embraced by the authority the X and Y, the drawing evades the messy material realities, the in-equalities and potential conflicts of objects and actors, in favor of a propositional diagram of neat and even co-existence. In this tactic, the authority of a borrowed language is sneakily transferred into a project to act in a persuasive manner, tilting projects towards more certain frames of reference – useful to coalesce the serious intention of projects that, at first glance, reside in the temporal or seemingly trivial.

The second attribute of stealthy masquerades is a tendency to adopt various roles or guises. In the course of practicing place I have taken up the roles of teacher, maker, consultant, archivist, investigator, performer, ethnographer, spatial designer, event planner, health and safety officer, host, location manager, negotiator, guest, researcher, academic, curator, editor, artist, architect, cook, facilitator, budget holder, graphic designer, kayak paddler, member of a collective, documentarian, seamstress, leaseholder, project manager, community broker, communications manager, technician, advocate, local stakeholder and 'expert' panel member. These different guises are often employed synchronously and at times their boundaries are blurry. This adoption of alternative roles is to respond to the exigencies of specific projects, but here the issue of agency arises as one guise might afford more agency in a given situation than another. This is when it can feel like a stealthy, furtive undertaking, when I knowingly invoke one guise over another in order to 'gain the upper hand' and 'get away with things'.

An unmapped space of praxis

The artist Mark Hutchinson imagines a future of art as a radically open system, in which art allows itself to be transformed by its publics to the point that "such art might, then, be hard to see and to judge because it will be transforming what counts as seeing and judging" (Hutchinson 2002, 438). Similarly, I imagine a future *critical architect* working in the fluxing field of place assemblages. This figure might inhabit a fully 'expanded' architecture, so expansive that it too might be 'hard to see and to judge', challenging the field's capacity to recognize, organize or contain itself.

Such an open system chimes with curator and theorist Nancy Adajania's proposition whereby the artist "gives up some of the privileges and claims

[12] The very name of this project, *Make Believe*, itself points to a stealthy masquerade – the idea of playing, making things up, pretense. Hence, we had the Make Believe Headquarters, Make Believe meeting agendas, Make Believe funding reports etc.

to expertise that reside with her [. . .] after which redistribution, in full awareness of the potential for failed communication as well as for productive mutuality, she collaborates in an as-yet-unmapped space of praxis" (Adajania 2015, 29). The significance of 'un-mapped' open and experimental practices, such as are proposed here, are as a means to resist knowledge sedimentation. Lefebvre describes architects, among others, as specialists with "carefully drawn property lines" who view "space through the optic of their methodology and their reductionist schema" (Lefebvre 1991, 108). A correspondence between art and architecture, such as Rendell calls for, might help to open architectural practice to an understanding of the spatial through Lefebvre, as inherently social, constituted through encounter, assembly and simultaneity (Lefebvre 1991, 101). Such a relational 're-distribution' might radically open architectural practice (and architectural academia) to the expertise, knowledge and vernaculars of others.

Herein a space of anxiety lurks as we enter expanded practices, where the edges of the field are not drawn with certainty, where expert and amateur are not polar opposites but more blurry positions we might bravely and knowingly adopt.[13] Architecture in the space of 'encounter, assembly and simultaneity' can be understood as a more relational activity, embracing time, process, ethics and subjectivity as Rendell describes. And here a tactical approach such as I have developed in these and other projects might come to the fore. The tactical ways of Situationing, Mobilized Accessories, Becoming Ultra-local and Applying Stealthy Masquerades will likely be supplemented with other tactics as architectural work becomes more closely engaged in the fluidity of practicing place.

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[13] For a discussion on embracing the uncertain position of the amateur, and the counter-intuitive move this poses for the architect, whose services are founded on professional knowledge leading to certain solutions, see Schneider and Till, 2009.

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CHAPTER 12

PERFORMING CHOREOGRAPHIES OF SPATIAL LABOR AS CRITICAL SPATIAL PRACTICE

BETH WEINSTEIN

Introduction

This essay began as a conversation I curated about criticality and critical practice in architecture, drawing upon writing by Jane Rendell, as well as essays by K. Michael Hays, Irit Rogoff and others. In unpacking these terms, I trace out multiple threads while also locating critical practices in an expanded field. This reasoning follows Rendell's use of the term spatial to consider interdisciplinary and hybrid practices that bridge art and architecture or inhabit other in-betweens. At this conjuncture of theory and practice, of art and architecture, I propose performances, and specifically choreographies, of spatial labor as critical spatial practices. In this essay I first define criticality and critical (spatial) practice, and then introduce each of my terms—performance and choreography, spatial and labor—from the perspective of how each serves as a critical lens onto the others. I reference seminal and contemporary works to mark out the expanded field that performing spatial labor inhabits. Finally, I discuss recent examples from my practice—performances of laboring *on* and *at* architectural instruments of drawings and models that "make up" and "makes real" spatial conditions (Scarry 1985). Through this framing and set of examples my intention is to articulate the critical potential of a practice I define as performing spatial labor—a practice that brings to our attention and interrogates the kinds of spaces architectural instruments call forth and the labor in their making.

Critical architectural / spatial practice

"Critical architecture" has repeatedly been defined through a positioning "between." In his seminal essay, K. Michael Hays examines

> "critical architecture, [as] resistant to the self-confirming, conciliatory operations of a dominant culture and yet irreducible to a purely formal structure disengaged from the contingencies of place and time" (1984, 15).

Architecture should neither be interpreted as solely an instrument of culture and context nor as the result of autonomous operations. He continues, stating that

> [i]f a critical architecture is to be worldly and self-aware simultaneously, its definition is in its difference from other cultural manifestations and from a priori categories or methods (Hays 1984, 17).

Critical architecture, in its practice and its interpretation, occupies the in-between or traverses diverse domains.

Cultural, curatorial, and political thinker Irit Rogoff's parsing of criticism, critique and criticality help further refine our terms, avoiding binaries of inside/outside in favor of multiplicities and networked relations. She defines "criticism" as being

> mainly preoccupied with the application of values and judgements… [and] "critique" [as] examination of all of the assumptions and naturalized values and thought structures that have sustained the inherited truth claims of knowledge.

Continuing with her definitions, Rogoff states that

> "[c]riticality" leverages analysis and judgement infused by the questions uncovered through critique. It tak[es] shape through an emphasis on the present, of living out a situation, of understanding culture as a series of effects rather than of causes,… [It is] connected… with risk, with a cultural inhabitation that performatively acknowledges what it is risking without yet fully being able to articulate it (2003).

Suggested in these last threads is the importance of doing, of practicing, as a means of questioning givens, uncovering unknowns, and cultivating emergent alternatives.

From a third, in-between perspective, between those of architectural theory and contemporary art curation above, Jane Rendell theorizes

practices that move between art and architecture, between situatedness and non-sites, between the functions of architecture and those of art—providing tools for self-reflection, critical thinking, and social change (2006, 4). "Critical spatial practices" are, Rendell states, "'reflective'… and take into account their own procedures and methods." Building on art historian Rosalind Krauss's idea of the "expanded field" (1979), Rendell argues that these practices operate in "a more expanded field than architectural" practices typically operate within (2011, 20-21). As a method for developing this place between, Rendell destabilizes "binary assumptions… about the relationship between art and architecture… theory and practice" (2006, 9). She refuses to place one above the other, and, instead, considers one through frameworks used to define the other, and employs a new term that is both and neither art nor architecture (2006, 9). "Critical spatial practice" is something more. Rendell further argues that "interdisciplinary research" such as that between architecture and art, or performance as I will soon address,

> calls into question the ideological apparatus that structures the terms and methods of specific disciplinary practices... [It] question[s] dominant processes that seek to control intellectual and creative production, and instead generate[s] new resistant forms and modes of knowledge and understanding (2007, 1-2).

Performing spatial labor in the expanded field

Following Rendell's model, performing spatial labor is the term I use to define a territory in which to explore questions that are neither solely architectural, performance-related, nor those of labor, and also more than the three combined.

"Spatial," similar to Rendell's definition, encompasses a spectrum of conditions, from built and enduring to ephemeral and embodied practices that include and extend beyond architecture. On the immaterial end, "spatial" includes practices of place (Certeau 1984, 117), repetitions that already suggest rehearsals or performances. Installations, on the material end, serve as a platform for critically re-considering scale and temporality. Installations afford ways to interrogate and subvert normative architectural conditions and practices to "construct ideas" (Diller and Flamand 2007), to experiment materially, engage publics, question duration, and topics such as tectonics, body, and memory (Bonnemaison and Eisenbach 2009).

Curator Angelika Nollert offers her own definition for works at the juncture of performance and installation. "Performative installations," she writes, foreground

> link[s] between ephemeral performativity and static installation… [and allow] fleeting aspects of artistic production [to] continue to take effect within the installation (2003, 8-9).

Therein lies a suggested bridge between terms—that of performing and the labor of the unfolding making.

"Performing," calls attention to the fleeting or the repetitive doing, the executing of actions, and producing of effects. According to performance scholar Elin Diamond, "performance is always a doing and a thing done" (1996, 1), a position that helps include not only the built, as the thing done, but also those performances of human labor involved in the making. John L. Austin defined "performatives" (or "performative utterances") as speech acts that bring into being that which they announce (1966). Examples of performative utterances include declaring two people married, christening a ship, and sentencing someone to prison. In the production of space, written specifications, drawings, models, and schedules are instruments that call forth conditions; these instruments, I argue, may also be considered performatives as they call forth forms of labor and the spatial conditions they produce.

While discussions of performance and performativity in and of space are not new,[1] labor has more recently returned to architects' attention.[2] I will first clarify what is meant by labor, as opposed to work. Hannah Arendt (1998) suggests that work is related to *homo faber's* fabrication of things, ideas, instruments, and works. Labor, by contrast, is associated with the tasks of the body that attend to physical upkeep and survival; it is an ongoing, repetitive activity that does not yield works, per-se. When explored in relation to architecture and built space, work tends to be associated with the activity of those designing and constructing. Elaine Scarry states that the

> [h]uman action of making entails two distinct phases—making up (mental imaging) and the making real (endowing the mental object with a material or verbal form) (1985, 21).

[1] See Feuerstein and Read, Filmer and Rufford, Gadanho, Grobman and Neuman, Hannah, Kolarevic and Malkawi, Schweder, Spurr and Weinstein amongst others.
[2] See Bernstein and Deamer and WBYA?, amongst others.

Making up and making real have a conclusion—the work or *oeuvre*. Making up and making real are distinct from labor, which, in its on-goingness, applies to tasks that architect Hilary Sample declares "obscene"—tasks of building up-keep and maintenance (2016). Sample's label "obscene" suggests that maintenance as well as the actions and actors associated with what I call "unbecoming" states of space are activities to be kept out of sight. Yet, while Sample's interest in maintenance is on reproducing the idealized image of the just-completed building, my concern is the performance of labor, and rendering visible those labors and laborers that are otherwise occulted, whether by their happening elsewhere (overseas or on the other side of the building envelope), in another time (in the middle of the night), or right there but overlooked—as is the general case of the uniformed cleaning staff in our midst and the un-named interns iteratively unmaking and remaking the instruments of architectural production in our offices. Performing spatial labor aims at confronting the so called obscenities that Sample and others evade, critically drawing to attention the labor involved in the procedures and methods of (un-/re-)making and interpreting architectural instruments.

Here, performance studies and practices offer other tools for thinking about labor and its visibility—that not all labor is, in fact, invisible. In *The Artist at Work* (2015) performance theoretician Bojana Kunst identifies several curious conditions under neo-liberal capitalism of the person she calls the "art-worker;" these conditions are curious especially when compared to architectural labor.[3] Under neo-liberal capitalism, manifest in shifts from material to immaterial and affective forms of labor, the contemporary art-worker, Kunst argues, moves from the invisibility of the studio or factory to an imperative to be visible. Not only should the art-worker "perform or else," as performance theorist Jon McKenzie articulates in his challenge (2001). The art-worker must be an exemplary entrepreneurial worker, and do so under precarious, nomadic conditions while simultaneously self-promoting their every activity. The art-worker today is hyper-visible out of necessity to get the next gig, residency, and invitation to participate in the next project. Juxtaposed against invisible, outsourced physical or material labor, the art-worker participates in the

> permanently productive class that is always "at work" and who models through "creative, project-oriented, flexible work, the creation of a work

[3] Kunst's research also draws upon political-economic theories of Luc Boltanski and Eve Chiapello, Michael Hardt and Toni Negri, Paolo Virno, as well as Chantal Mouffe and Jacques Rancière's writing linking the political and aesthetic.

> biography, self-presentation and self-styling, [and] the documentation of one's own creation… the working ethos of neoliberalism" (Klein 2012, 12, 13).

Today's artist, Kunst argues, no longer works in a studio on art-objects, but proposes projects to be realized in a future time, in relation to institutions and residency sites, with various consultants and collaborators. These conditions approximate the project-based working method familiar to architects: always in relation to place, clients, institutions, consultants, in the future, and highly contingent. Kunst's critique of the current state of the "artist as (precarious, flexible, hyper-visible and project-based) worker," I would argue, offers a valuable lens onto the architect-laborer—laboring that never really finishes.

Kunst's particular focus on performative, embodied, and dance-based art-forms informs the last term I will define—choreography. Etymologically, it originates in both writing—often interpreted in this context as designing or making—and chorus, the movement of a corps, a body, or a body of bodies. As a performance medium, movement and stillness, spacing and placing of bodies are the materials with which one labors and are the producer of effects. Architects, and particularly landscape architects such as Lawrence Halprin, often speak of their craft as choreographing movements in space, exemplified by Halprin's developing practices and tools of "motation" to score or notate human movement-space relations (Halprin 1966). Choreographer William Forsythe states that

> choreography is about organization; either you're organizing the body, or bodies with other bodies… or a body with other bodies in an environment that is organized (2007).

His definition bridges between embodied and spatial practices, with, though not explicitly stated here, time.[4] Choreographic practices can thus be understood as those that foreground organizing bodies, space and time. In the case of performing spatial labor, the organizing of movements and stillnesses, placing and spacing, rehearsing and improvising, scoring and drawing concern bodies laboring on and at instruments that make up as well as the matter that makes real spatial conditions.

[4] Forsythe's concern with temporal relations and sequencing is explicit in the scores created through the "Synchronous Objects" project.

Markers in the expanded field

To whose practices can we turn for models of performing spatial labor, for critically questioning "the ideological apparatus that structures the terms and methods" (Rendell 2007, 1-2) of the choreographic, performative, spatial and laboring? Several seminal artists explored performances of labor in relation to buildings, sites and construction materials during the late 60s and 70s. Gordon Matta-Clark's "Splitting" (1974) and "Conical Intersect" (1975), for instance, while known through drawing, assembled photographs and re-situated building fragments, were also performances of labor, as captured in video documentation. Footage shows Matta-Clark suspended from the eaves of the roof making chain-saw cuts into the clapboard siding. In another shot we see him cranking a hoist to crack open the latent fractures in the suburban American house. The videos celebrate the embodied labor while critically exposing the space in an "unbecoming" state. Mierle Laderman Ukeles' engagement with maintenance, as declared in her "Maintenance Manifesto" (1969) and performed in "Hartford Wash" (1973), brings to the fore the obscene performances of building upkeep. In "Hartford Wash," photographs show Ukeles on her knees, washing the marble steps of a museum while museum-goers pass by. In other images we see her inside the institution, cleaning the glass exhibition vitrines. If these two celebrate performances of unmaking and maintaining spaces, Yvonne Rainer's early task-based choreographies entail laboring with building materials, though never concluding in a definitive, completed space. Rainer's "Parts of Some Sextets" (1965) and "Carriage Discreteness" (1966) are choreographies constructed of tasks, of efforts displacing plywood, boards, mattresses, and sheet metal, with an emphatic "No to spectacle,… virtuosity,... make-believe" (Rainer 1965, 178). They are intentionally without conclusion and resist moving the audience to a cathartic resolution. They are labors, not works.

A few recent examples demonstrate continuing critical explorations that link spatial, performative and labor concerns with differing degrees of overlap. Francis Alÿs builds upon lineages of performing labor, seen in Ukeles and Rainer, informed by his architectural history and engineering studies. In such projects as "When Faith Moves Mountains" (Alÿs 2002) he explored futile labor at a monumental scale. For this social and performative reflection on ineffective political leadership, Alÿs recruited five hundred volunteers, with shovels in hand, for a task requiring "maximum effort" and producing "minimal results"—moving a sand dune a few inches. Similarly in "*Barrenderos*" (2004), or "Sweepers," Alÿs celebrates the endless task of Mexico City's street cleaners and reveals the unbecoming filth of the city.

The litter of a neighborhood is amassed on one street, becoming so voluminous that it blocks the road. These works contribute to foregrounding the labor of maintaining that produces spatial effects and making that fails to produce anything. In "Architect Performed Buildings" (2011, 104) architect Alex Schweder and collaborator Ward Shelley reveal their engagement in a hyper-visible performance of upkeeping space and themselves. For example, "Flatland" (2007) and "Counterweight Roommate" (2011) present performances of laboring at cohabitating within structures that Schweder designed—ones 60cm wide, another hinging on an axis or yet another requiring coordinated rappelling to move from room to room. While the making and unmaking of the spaces are not the focus of their practice, they highlight our perception of the human dialogue with space.

Compared to the critical positions these works take on performing futile labor or the labor of up-keep and inhabitation, critical performances of making are rare. Building construction, treated as performance, tend towards normative, un-critical spectacles, with construction projects now commonly documented in time-lapse, and, once compressed, present the emergence of buildings from the ground as though by magic. Choreographer Nina Kurtela's "Transformance" (2010) offers one example of a critical re-take on performed making. "Transformance" entailed a five-month witnessing of the de- and re-construction of a building and institution, the Uferstudios in Berlin. Kurtela's camera witnesses her persistent, embodied presence throughout the process of the building being ripped up and put back together otherwise. In addition to the tension between fleshy body and a building that moves between order to disorder and back again, in her gallery re-presentation, Kurtela includes not only the video-documentation of the performance, but also the tools and the instruments, or instructions, that supported the daily labor at the heart of "Transformance."

Performing labor upon spatial instruments

Critically examining the performative instruments central to the material production of space and embodied actions in space are at the core of the performances of spatial labor I explore as components of "Intern[ed]" (2017a), "States of Exception" (2018) and other workings-in-progress. These investigations entail embodied performances in space with texts that call forth spatial conditions, drawings that communicate the disposition of the parts, or models or materials that make physically present the suggested spaces, as well as diagrams and scores that convey the choreographed movement from one organization to another. In each, performers labor at

unmaking or remaking the instruments themselves, drawing attention to the power of the performative instrument to produce effects, dialing the clock backwards, to suggest that rather than instruct the building or embodying of X in such and such a way, to pause, reconsider, perhaps do otherwise, or not at all. At times, the unmaking of the instruments evokes the unmaking of the architectural artefacts they suggest—unmaking through demolition, through erasure, through abandon. At other times, the intervention obstructs perception, not through the obliteration of artefacts themselves, but through their being rendered invisible, obfuscated, or occulted.

What performances of labor were enacted upon and with which instruments? And how might these performances be understood as critical practices—ones that interrogate their procedures and methods, reveal problematic histories hidden within and suggest non-dominant alternatives?

Texts that specify and call for building are one site or instance of such interventions. Early material and performed sketches of "Intern[ed]" unpacked the language of governmental dictates, revealing the performatives words within, the verbs that enact or mandate action. For "Intern[ed]" the texts in question are Franklin Delano Roosevelt's Executive Orders 9066 and 9102 authorizing the redefinition of the west-coast of the USA as a military exclusion zone and directing the construction of city-scaled relocation centers in which persons of Japanese descent were interned between 1942 and 1945.[5] I open up and intervene into the texts, performing these for video from the point of view of the author or editor. I lay down a new ground upon which to write, clear spaces for the specification of alternative objects of production. Correction fluid (or white-out) invites other words to inhabit these gaps in the text. The material properties of the substrates—the onion skin paper used in manual type-writers for carbon-copy administrative documents and the translucent tracing paper of architecture sketches—invite reading through both sides of their surfaces. Original orders remain intact, coexisting with the reparative act (Fig. 12-1).

[5] I expand upon the historical context and spaces the orders called forth in "'Intern[ed]': Between Invisible and Made Visible…" (Weinstein 2017b)

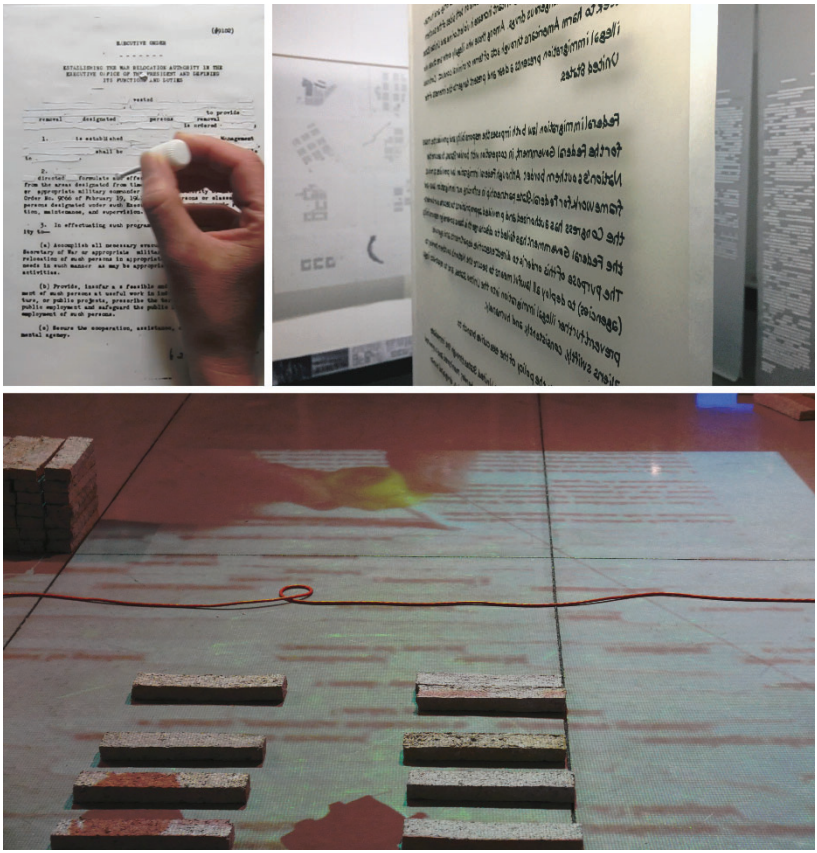

Fig.12- 1. Performed interventions in government utterances. Upper left: "White-out 1," video still (2017). Upper right: "Working-in-progress", installation (2018). Below: "Intern[ed]," performance. (Photo Credit: Eduardo Guerrero)

During the performance of "Intern[ed]," the projected executive orders mark the ground where the action unfolds. The solidity of this ground is anything but transparent. Its opacity obliterates any potential to simultaneously perceive the past orders overlaid by unknown futures. The act of whiting out, here, performs the production of amnesia. What were we asked to do, and did, in fact, do? Distinct from the violence, silencing and denial of the blackening marks of the censor's pen, whiting out suggests a white washing, an attempted cleansing. The temporal unfolding of the performance constructs relations between FDR's orders incarcerating yesterday's imagined enemies and the stuttered orders that today seek to

similarly restrict the "other." Spaces of confinement latent within the texts iteratively materialize as models of the camp buildings and textile boundaries in "Intern[ed]" and as cells in the installation "Palimpsest" (2019). Text-iles mark out the limits of a bed, a small room, or the camp within more expansive spaces, as would have been the perceived relation between the barracks or relocation centers and the sublime landscapes in which they were sited.

Similarly, through iterative performances, drawings of these relocation centers, or internment camp sites as they are properly called today, appear and are erased or are washed away (Fig. 12-2). A first public performance unfolds in an animated pedestrian lane. People go about their business, generally oblivious to the laborer who marks out on the street the pattern of the Canal Camp with a chalk concoction (2017c). The ubiquity of uniformed laborers performing their tasks in public space contributes to this laborer's invisibility; the abstraction of the markings also pass under the radar of attention. People presume, perhaps, that these lines indicate subterranean utilities to be uncovered. The live projection of the performed labor of drawing, captured from a second story surveillance camera, onto a wall inside the adjacent gallery, confirms otherwise; this action is not part of the city's normal maintenance process, but rather something to prick your awareness, even if briefly. Passers-by perceive the methodical execution of drawing in action, but once the laborer is gone, the product of this labor blends into the streetscape, smeared, walked upon, and overlooked before being washed away in the following day's rain.

In "Razing Manzanar II," the labor performed is that of erasure, witnessed from multiple perspectives. We, the observer of the video-documentation, witness a draftsperson, in silhouetted profile, leaning over the drawing on a table. While they attend to their labor, a camera records a close up of their hands at work. This is projected live, filling the blank wall we see behind the draftsperson. We watch, and hear, the scraping of the flat-edge razor against the vellum. As with most performances of labor, the same gesture is repeated over and over again over an extended period of time, and not much happens, except the gestures. Scraping the ink off of the paper, and occasionally pushing the shavings into piles that resemble the abandoned heaps of broken-up concrete slabs that litter the Gila River Indian Community land that the US government appropriated to build the Canal and Butte Camps. Performing the erasure excavates memories of tedious and interminable tasks performed as an intern. The aggression of the razor against the vellum makes audible a silenced double violence, the seizure of Native land and its use to create a camp, within a camp, to intern

Fig.12-2. Performed drawing, "Quicklime Camp," video stills (2017).

Fig. 12-3. Performed erasure, "Razing Manzanar II," video still (2017-8).

over 13,000 Japanese Americans. The performance is an un-becoming one, one of un-becoming (Fig. 12-3).

The performance "States of Exception" (SoE) goes a step further, to explore the full cycle of labor—of drawing, of erasing, and of recommencing

the loop again. Similar to the preceding actions, multiple points of view and modes of witnessing are employed to capture the performance. The drawing performed in "SoE," for all intents and purposes, is a camp, all camps and no specific camp. The repetitive pattern is that of the standard block—comprised of 14 barracks, mess hall and other facilities—repeated again and again, with occasional, wider spaces between blocks, representing fire breaks which doubled as recreation spaces. Building upon the two earlier iterations, a team performs "SoE" in a public space, at the scale of a building facade, using construction site and building maintenance materials. The labor of laying out the construction lines of the drawing and preparation of the surface takes hours. In fact, the drawing surface, the "blank page" so to speak, is created by applying yet another white-washing calcium-chalk material—*Blanc de Meudon*—in small circular gestures over the entirety of the glass façade, obstructing the view between street and building interior (Figs. 12-4, 12-5). More mechanical gestures, of wiping away this white-out, produce the pattern of the camp. This erasure, thus, re-establishes visual communication between the team laboring on the outside of the building envelope and building occupants in the interior. To these two gestures—circular obfuscating application and mechanical and geometric erasure—add the wiping clean of it all, with large arcing sweeps of the arms. This is

Fig. 12-4. Performed drawing-erasure, "States of Exception" (2018). (Photo Credit: Anna McGrath)

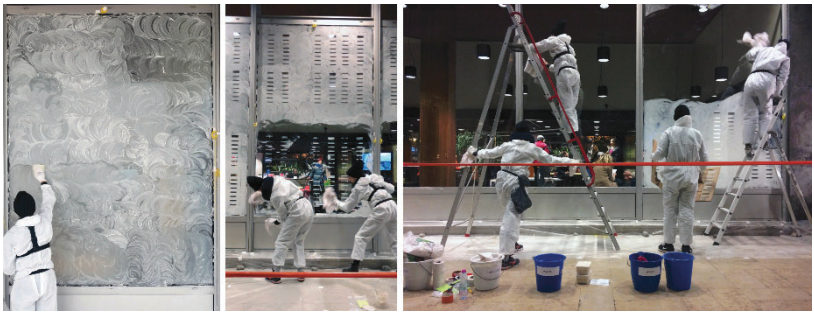

Fig. 12-5. Gestures, "States of Exception" (2018). (Photo Credits: left, Rana Taha; center, Anne Barnard; right, Julie Parmentier)

the one gesture that is not regulated choreographically, but only performatively—its effect must be a clean, spot free, glass façade. The work is not merely the drawn images produced or erased, but the effect produced by witnessing the repetitive gestures unfolding over time, the rhythm, duration, and control or freedom of those gestures.

What about these repetitive gestures? "Intern[ed]" explores making and unmaking, making and unmaking, cyclically. The recommenced loop in "SoE" similarly suggests Sisyphean cycles. Using the medium of scale models, the team of performing laborers in "Intern[ed]," assisted by audience-participants, makes and unmakes, then makes again and differently, and then again unmakes scale models of one camp, then another. Between the repetitive gestures of putting in place these predetermined forms are occasional, brief interludes of unscripted labor. Beyond offering the performers physical relief from the action of placing the bricks according to military plans, these intervals also offer a sonic relief, variation to the rhythm and sound of the bricks hitting the concrete floor. Repeatedly performing the standardized gestures of laying out these units, similar to the stencil-assisted erasing in "SoE," motivates the laborers to develop skill, perfect their task. One participant in "Intern[ed]" commented on her troubled participation—dissonance between the satisfaction of developing skill building the model and "obsessive" attention to the quality of her execution of this task in conflict with a sense of "guilt" about what these models represented (Martínez 2017). Similarly, one performer in "SoE" commented on the unanticipated emotion brought on through embodied engagement in the labor. The wiping clean of the windows made visceral the violence of erasure, an embodied sensing of the parallels between the histories of the US internment camps and the troubling histories of

incarceration that are part of her Australian heritage (McGrath 2018). The duration, repetition, and disappearance of all traces of the performed labor take on meaning and produce effects for not only witnesses, but also participants.

Such temporal considerations—duration, repetition, and change over time—are not inherent to architecture's traditional instruments. Diagrams, "motation" or notational drawings, scores, and story boards are more appropriate means for both developing and communicating temporal dramaturgy. They were essential for thinking through and conveying phases of labor, person(s) assigned to specific tasks as well as the more fine-grained choreographed movements, of bodies or material organization from one place to another. Each iteration afforded experimenting with different graphic means. In an early action with the bricks, we tested the legibility of isometric views, annotated with brick quantities, numbers of rows, stacks and so on. In working towards the performance of "Intern[ed]," we began with a series of workshops during which participants were introduced to, practiced and learned how to lay out a standard "block." We then worked with fold-out scores, cheat sheets to be tucked into our back pockets, graphically communicating the point from which to begin to build a specific figure, the overall pattern of blocks and gaps for each camp, the transitions from camp to camp, and intervals during which performers had agency to build whatever they were motivated to build, and inhabit. For the performance of "SoE," the story board was integrated into the displayed tools and instruments. Anyone approaching the work-site would see the laborer time-table, as well as the story board graphically representing the whiting-out of the window, the erasure, the cleaning and the recommencing. They would also perceive the tools and equipment that I repeatedly pulled out of the corner, counter to the team's inclination to hide them, and placed front and center to give prominence to these materials as important collaborators in our labor. No aspect of the labor was unworthy of being seen. No aspect should go unseen.

As already suggested, "Intern[ed]" and "States of Exception" dramaturgically explore conventions and mechanisms of visibility and representation to critically question their impact on how and what we see, or don't (Fig. 12-6). Recall that architects typically labor at a spatial, temporal and scalar remove, through drawings, models and specifications, from sites and full-scale works to be constructed. These works to be made

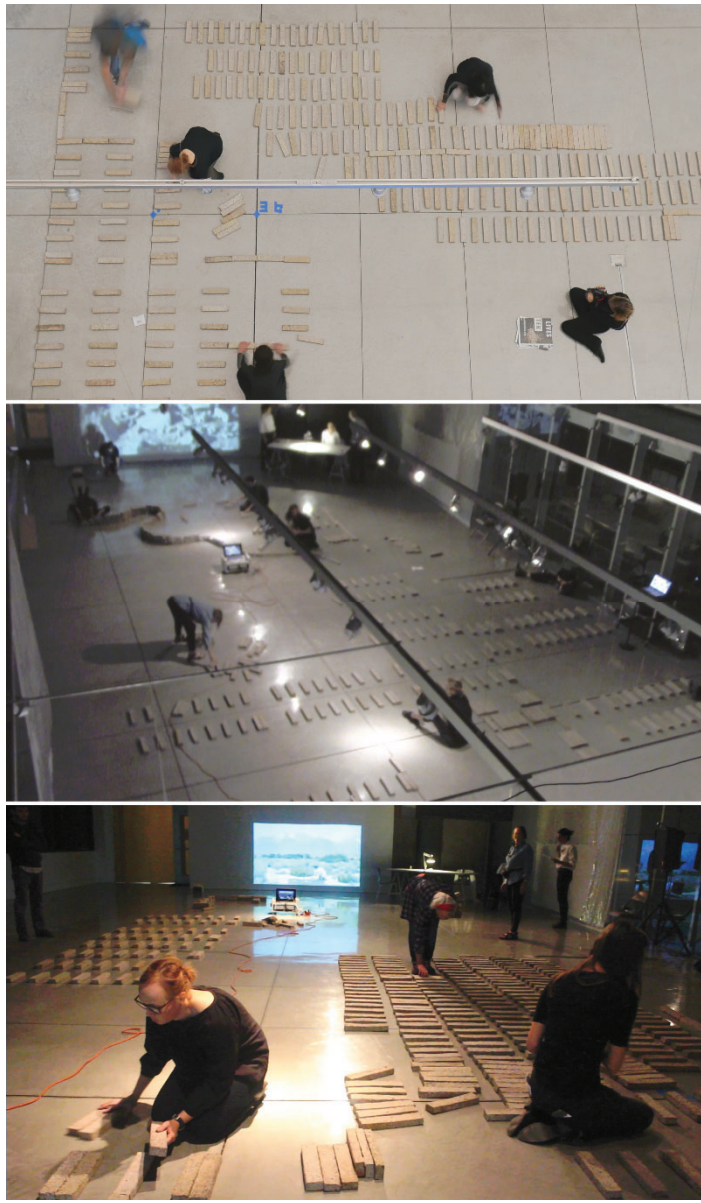

Fig. 6. Points of view, "Intern[ed]" (2017). (Photo Credits: above and middle, Eduardo Guerrero; below: Dorsey Kaufmann)

real are made visible to the mind through instruments of representation. Different modes of representation invite different modes of reflection and sets of questions. Orthographic drawings, such as plans and elevations, facilitate organizing relations, charting and choreographing trajectories and movements of bodies in space. Parallel projections (such as axonometrics or isometrics) afford three-dimensional overviews, and reflect a disembodied, omniscient or all-seeing view, and historically have been used to record measurable truths, to instruct in the cutting of stone, building of fortifications or assembly of machines (Scolari 1985). One- and two-point perspectives locate the body of an observer in relation to spaces and others being observed, at once simulating the experience of being physically present and suggesting the power to see and be seen. Architectural perspective drawing's evolution also follows the shifts from portraying the central and controlling point of view of the commissioning authority to the offset position of one citizen amongst citizens. These three modes of representation and their associations—orthographic projection with the architect's and choreographer's labor, axonometry with military instructions, and perspective with the embodied witness as well as the visible and present laborer—inform the means used to document the performed labor in "Intern[ed]" and "SoE" as well as the means to make visible, directly or via mediation. At least two of these modes are always at play. Scale drawings coexist in the space with live, full-scale action; plan or elevation views coexist with surveillance camera views or embodied perspective. Witnesses are invited to move between points of view—the architects' plan, the authority's surveillance view, and the embodied presence as bystander or participant. Thus, modes of representation and (in)visibility are dramaturgically entangled with the choreography of labor on and with performative instruments.

Conclusions

While architects most frequently work through an orthographic or choreographic view point or as gravitation-free perceivers floating in digital models, I will conclude with several observations about what comes to the senses from the embodied experience and documented perspective of the performing laborer. Eye-witness images of "Intern[ed]" convey crouching bodies, not unlike the close-up images of Ukeles washing the steps of the Wadsworth Atheneum. We see laborers, with knees on the ground, and piles of bricks being slid into place, or, when used as spacers, slid away. What photos do not convey, but which video and audio recordings captured

Fig. 12-7 Labor's view, "States of Exception" (2018).

more clearly, are other senses: the marked passing of time through the rhythmic and resonating act of placing the bricks on the concrete floor, the dustiness and the chill of this surface, the sense of over-exposure and disorientation within this monotonous field and the interminable task of creating a military-style order out of chaos. Video documentation of "Intern[ed]" also conveys the sounds recorded in the sites of the camps themselves (Manzanar, Poston, Gila and Santa Anita) seen projected on to the textile scrims that define the camp within the larger space. We hear the deafening sound of dust blowing through the exposed plains. Majestic mountains, agricultural fields and desert flora of these sites, with their vibrant greens and sky-blues, sharply contrast the grey of the concrete floor beneath the laborers' knees and the similarly dull grey of the bricks. The body-camera documentation of "SoE" reveals other frictions—between attempted excellence executing the task—of applying the *Blanc de Meudon*, steadily placing the stencil and cleanly removing the camp pattern—and the resistance of the tools and materials (Fig. 12-7). Inconsistent fluid materials and surfaces that, in their slipperiness, prevent solidly fixing things in place.

The matter of fact-ness of the tools and materials employed and the simple, low-skill gestures choreographed manifest a refusal to obscure or spectacularize the performance of labor or what the labor seeks to reveal. Rather, in abiding by an ethic of designing and employing tools and materials that do not further mask their modes of production, obscure labor or laborer, these performances of labor expose the deeply imperfect, the imperfections in the "execution" and the erroneous in what they execute. They lay bare humanness in all its fragility, expose the human entangled in Sisyphean tasks, and make sensible human resistance to be controlled. The performed spatial labor challenges us to pay attention to the laborer in our midst, the ongoing and repetitive gestures enacted, the typologies of spaces that are re-produced, and to ask who we are, what position we hold as witnesses or co-producers of these conditions.

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SECTION FOUR:

TRANSFORMING WHAT'S NEXT

Chapter 13

Confronting the Socio-Cultural Effects of Software-Embedded-Design in Shaping the Built Environment

Maya Przybylski

This chapter motivates the need for and explores possible new methods for expanding the degree to which architects engage computationally-oriented project components from a sociocultural perspective. It argues that components such as algorithms, data and code implementations constitute part of a project's material assembly and should be subjected to similar sociocultural considerations targeted at other, more physical, project aspects and, as such, demand new forms of architecturally-oriented computational literacy.

The first section differentiates between the agendas of top-down and bottom-up smart city implementations and presents an emerging form of practice, labelled here as *software embedded design*, in which architects are connecting material, form, data and algorithms in their pursuit of a citizen-oriented smart city. The second part presents a case for these computational elements, such as data and algorithms, to be considered as part of a project's material assembly – as soft materials. The next section calls for new forms of computational literacy, on the part of software embedded design architects, which recognizes that soft materials have, in and of themselves, a capacity to support, enhance and undermine values and outcomes in the world at large and, as a result, need to be engaged with on those terms. The final section presents a preliminary methodological framework aimed at supporting this richer engagement with embedded computational elements used in contemporary design practice.

Software-Embedded Design for a Citizen-Oriented Smart City

The smart city has been presented as an important strategic instrument in supporting the growth and resilience of our urban environments. (Picon, 2015a) In searching for a balance between quality of life and sustainable economic development, smart cities combine suites of information communication technologies (ICTs), to create sensing networks which provide constant streams of data describing real-time urban conditions. These streams of data are combined through software tools to support the management of city services while also providing evidence used in future planning decisions. Despite the promise at the core of the smart city, the manner in which its ideals have advanced is limiting, especially for its citizens. (Greenfield, 2013; Kitchin, 2015; Picon, 2015a)

The representation and engagement of the smart city has been recently dominated by a handful of major players. Since 2008, global technology corporations, such as IBM and Cisco Systems are looking to diversify their activities by shifting some of their focus to municipal services and city operations. Major initiatives, epitomized by the *IBM Rio de Janeiro Operations Center* – which provides a centralized control room from which to observe, manage and optimize a wide range of city services and systems, such as energy grids, transportation, and waste management. Through this model, distributed networks of sensors, meters and other digital technologies generate enormous streams of data which are fed to centralized control rooms run by municipalities in close partnerships with tech companies. In turn, these data are interpreted in order to guide strategic management-oriented responses — be they to feed additional kilowatts to the energy grid or to reroute bus movement through the city. The proposed (re)action emanates from a centralized single source control room and filters down through all levels of urban life.

While effective at optimization and management, this model threatens to reduce the promise of the smart city into top-down, centralized operations privileging the optimization of municipal services. Specifically, this narrowing has excluded other dimensions of the smart city such as its bottom-up capacity to empower individuals in creating new inclusive ways to organize, use and shape the places they live. While bottom-up smart city visions share some of the top-down's affinity for digital technologies and networked logics, they differentiate themselves by rejecting centralized organization; these visions emerge by community-level actors typically operating outside of hierarchical organizational structures. Essentially,

bottom-up smart city approaches are typically citizen-led initiatives where technology is used to address the urban problems identified at the community level. They reject paternalistic decision-making models in favour of participatory platforms and other forms of citizen engagement and agency. While the beginnings of such initiatives may be connected to a particular place, their potential to grow into wide-reaching, global networks is not precluded; as in the case of the "Low Carbon City" project which was originally founded in Colombia but now works to tackle climate change through civic engagement in over one hundred ambassador cities (Low Carbon City).

Over the past decade, architects and allied design professionals have moved to counteract the threat from top-down visions by pursuing an implementation which foregrounds a more citizen-oriented sensibility. By working in a more decentralized fashion, at smaller scales, architects are empowering citizen groups to voice and act on local issues. The response of architects to the corporate driven, top-down smart city is rooted in an area of design research identified as information-inspired design (De Monchaux, 2016), which situates design practice in the context of recent ICT developments. Computational models, driven by data, offer methods that allow designers to address the highly dynamic nature of cities and therefore support their investigation of the potentials and challenges of the smart city. Key participants in this type of work are found in numerous research groups around the world: Michael Batty and the Bartlett Centre for Advanced Spatial Analysis actively work to pursue the development of new models of cities and regions through computationally supported means (Batty, 2013). The MIT Senseable City Lab, led by Carlo Ratti, builds digital and physical tools, combining scientific and design expertise, that aim to learn about cities. This lab has built a noteworthy collection of tools examining contemporary cities through numerous lenses such as documenting urban tree canopies around the world in their project entitled *Treepedia* and, through a project entitled *Underworlds*, analyzing urban sewage as a way to better understand relationships between human health and the city.

A subset of this work, labelled here as *Software-Embedded Design* (SED), differentiates itself in that it doesn't merely engage computation during the design-based or analytically-oriented phases of a given project but additionally integrates custom software to actively contribute to a project's outcome in time and space. In other words, in SED projects, the computational components leave the studio environment as an integral part of the project and remain online to mediate, in real-time, its performance out in the real world. SED projects are wide-ranging and engage opportunities

found in automated analysis (De Monchaux, 2016), participatory platforms and mobile computing (Verhoeff & Wilmott, 2016), and responsive architecture (Bier & Knight, 2010).

Over the past decade, numerous architects and allied designers have engaged SED work in their pursuit of a more citizen-oriented smart city.

A project combining human memories, city planning and virtual reality, *Palimpsest*, a UCL Bartlett School of Architecture project authored by John Russell Beaumont, Haavard Tveito, and Takashi Torisu, evokes the potentials of information-inspired visualization to create more inclusive planning practices, using emerging technology to directly connect communities, governments, and developers in conversation. (Beaumont, 2016) Specifically, the project utilizes emerging digital technologies in virtual reality and 3D scanning to improve community engagement and participatory design in urban development projects. The Palimpsest allows communities to digitally archive neighborhoods, homes, and urban spaces that are important to them and that may be impacted by development projects. It also provides a platform for all stakeholders involved in urban development to collaborate by sharing stories, opinions, and proposals.

Another project, *Benchmark,* by MIT's Civic Data Design Lab combines the design of benches and sensor systems into tools for improving understandings of how public spaces are used. The Benchmark project seeks to move beyond simple metrics such as counters, to include nuanced issues around the social operation of the public space in its ability to influence and encourage interactions. (Civic Design Lab)

Working at the scale of immersive environments, Philip Beesley's numerous sculptures and installations ambitiously blur the boundaries between materials, sensors, software and control to imagine how interrelated these elements may become in service of creating a living architecture. Projects such as *Sentient Chamber*, pair information-inspired architecture with digital sensing and physical responsiveness; the projects' lightweight structures are continuously affected through motorized actuators which in turn are fed instructions resulting from complex algorithmic manipulations of data collected from embedded sensors. (Beesley, 2016)

Reflecting on this set of three SED example projects, the degree to which the occupants or users of the environment are aware of their explicit engagement with embedded computational components is highly variable. In the case of *Palimpsest*, the engagement with software is on full display;

users occupy virtual or augmented environments through digital interfaces such as virtual reality headsets rendering the connection between physical and virtual explicitly. The *Benchmark* project begins to more tightly bundle the physical and virtual worlds. The bench element is equipped with the required sensors and network capabilities to connect to the computational elements used in the project, yet user engagement with the project does not necessitate an awareness of these embedded components. Still, the bench is discretely identifiable as a point of interface and its simultaneous connection to physical and virtual realms is easily accessible and legible. In the case of *Sentient Chamber*, the blurring between physical and virtual is taken to an extreme where the boundaries between components operating in one or the other are effectively invisible. In this case, the SED elements are distributed throughout the environment and deeply bundled with physical elements and thus becoming inextricably linked to one another. The interface is also blurred and as a result users experience a more nuanced exchange within a software mediated environment where the SED elements are no longer explicitly legible.

Nevertheless, through such work, architects and allied designers are actively exploring the potential relationships, afforded by new computational capacities, between material, form, data, algorithms and their joint capacity to organize and mediate the built environment. In each case, physical and virtual worlds are connected and new forms of civic engagement are made possible. The strength of these projects lies in their fostering of a symbiotic relationship between physical and virtual realms where designers explicitly engage stakeholders, situated physical contexts and related sociocultural or sociopolitical conditions to conceive and develop citizen-oriented, context-specific works. Essentially, these architects have become producers of technology by deploying custom data-driven computational procedures, *soft materials*, to actively mediate project outcomes and behaviours through time and space.

Soft Materials

The increasing number and extent of links between computational elements, material elements and project outcomes add complexity to how we assess project impacts. Architects are responsible for creating a built environment capable of enhancing certain values while downplaying or rejecting others; traditionally, these responsibilities manifest themselves in decisions around things like spatial effects, programmatic support, technical performance and, to an increasing extent in recent years, ecological and ethical

considerations.(Fisher, 2012; Taylor & Levine, 2012) With the addition of custom data-driven computational procedures as active mediators of project outcomes, architects have essentially added elements such as data and algorithms into the conception of a project's material assembly (Fig. 13-1).

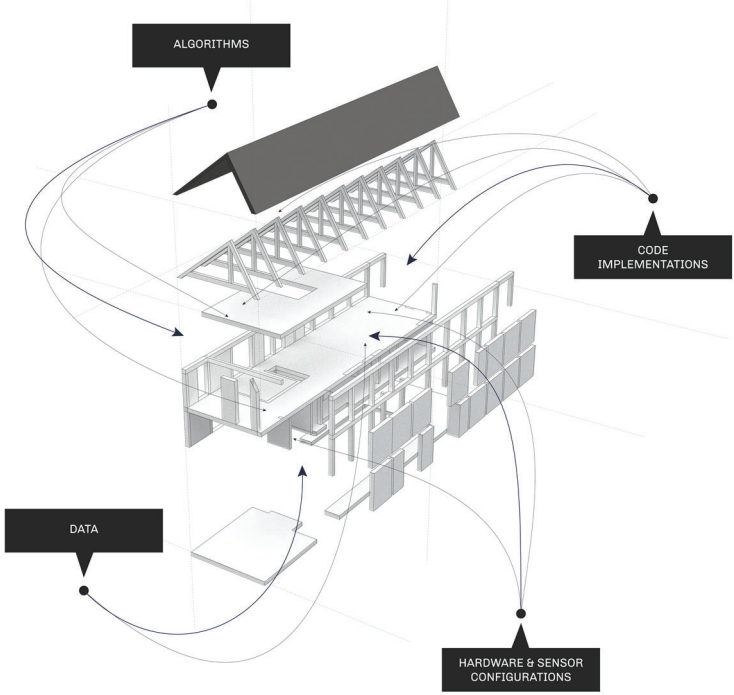

Fig. 13-1. How do our relationships with data, code implementation, hardware configurations and algorithms change when we consider these soft materials as part of a project's material assembly?

This addition should not be seen as a purely technical challenge as soft materials themselves have their own capacity to support, enhance and undermine values and outcomes. This argument is articulated in key offerings from the field of Software Studies which position software – its actual lines of code and data, not just its effects – as a material practice with both social and spatial outcomes. Through key contributions[1], the field of

[1] Key contributions in establishing the field of Software studies include:

Software Studies works to crack open the prevalent representations of software as a black box and to understand its inner workings with respect to instructing technologies on how to act. Further, Software Studies positions the design and implementation of both software *and* the built environment, and the people that populate it, as constituting mediating and shaping forces of everyday life. It articulates the real-world impacts that software has on how space is articulated, defined and transformed and concludes that there are environments that simply cease to function if any one of these constituent forces is absent or compromised.

In the context of SED, Rob Kitchin and Martin Dodge offer a stream of Software Studies research that is particularly useful in trying to understand how architects can begin to establish relationships between immaterial project components, such as data and algorithms, and real-world project outcomes – be they material, formal, or socio-cultural, socio-political. Their concept of *code/space* captures the idea that "spatialities and governance of everyday life unfold in diverse ways through the mutual constitution of software and geo-spatial practices". (Kitchin & Dodge, 2011, 16) They seek to understand software as a spatial agent by foregrounding the work that software does as a product of people and things in time and space. Code/space occurs when software and the spatiality of everyday life become mutually constituted (i.e.: produced through one another). If a space is dependent on software driven technologies to function it is a code/space. An example the authors use to illustrate this definition is a modern supermarket – without a functioning check-out system, a supermarket ceases to have the ability to make transactions and it is therefore transformed into a warehouse until the check-out functionality goes back online. Further, any space that has the latent capacity to be transduced by code constitutes a code/space at the moment of conversion. As an elaboration, the authors position space as constantly being in a state of non-deterministic becoming, operationalized through the process of transduction whereby uses of space are continually in flux. (Kitchin & Dodge, 2011, 65-80) A useful example here is a café offering an accessible Wi-Fi network that can be transduced into a work space by a patron. This example also suggests an important characteristic of code/space in that it unfolds in various ways simultaneously as a result of the interactions and behaviors of the people engaging with it – the café could become a writing studio, an accountant's office, *and* a remote interview site

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Matthew Fuller, Behind the Blip: Essays on the Culture of Software. (JSTOR, 2003), Matthew Fuller, ed., Software Studies: A Lexicon (Cambridge: The MIT Press, 2008), Code and the City eds Rob Kitchin and Sung-Yueh Perng. (Routledge, 2016), 15-26.

at any given moment by different people. Taken as a whole, Kitchin and Dodge's work on code/space has demonstrated that software is a spatial-material production with profound influence on everyday life.

Expanding Computational Literacy

All this points to the need for a new set of obligations and methods for understanding and supporting architects' engagement with their projects' computational elements to support the same level of criticality and engagement that they have with its physical material elements[2]. This is particularly true when the technology is embedded with a goal of supporting an inclusive vision of the smart city. The set of lenses through which the projects' digital components need to be understood expands to include social, cultural, political and ethical effects in addition to the technical realities of implementation.

When such understandings are lacking, the two agents, the physical and virtual project components, have the potential to be misaligned, counter-productive or even contradictory causing undesirable project outcomes. A cautionary example of such misalignment is Boston's StreetBump App, which uses the motion-sensing capacity of smartphones travelling in cars to passively report GPS locations of potholes that need repair. The app works well technically and is well-reviewed by its users yet is problematic. Entire groups, perhaps the most in need of new services, either don't have smartphones or the disposable bandwidth needed to participate and, as a result, are not only excluded from the process but are at risk of having their services diverted elsewhere. (Crawford) The software's failing is due, not to a coding error, but to a misalignment between the values embedded in its soft materials and its broader goals to improve access to municipal services.

As producers of the material assemblages constituting their design work, SED designers need to be literate and possess agency with respect to the social, cultural and political effects across the entire assembly – and this includes not only the physical material outside the computer but the digital

[2]While it may be optimistic to assume that architects are engaging critically with the physical materiality of their work, there are several recent publications and conferences engaging ethically-minded, critical discussions of architectural practice. As one example, the Association of Collegiate Schools of Architecture (ACSA) dedicated its 2018 annual meeting to the theme of "The Ethical Imperative" in which it recognized that in its material, cultural, and economic effects, architecture poses essential and unavoidable ethical quandaries and challenges

material inside the machine and the connection between the two. With soft materials, we see a new set of elements added to a projects material matrix. Increased levels of literacy and new, accessible methods are needed to support SED designers' engagements with soft materials in relationship to overall project impacts and outcomes. It is no longer enough to only have methods that integrate data/code bundles into a design project but new methods are needed to engage with soft materials critically throughout the design process and beyond.

Literature offerings demonstrating how ICTs, through a physical-digital convergence, are having material effects on our built environment are numerous.[3] Within the design discipline, books such as *Sentient City: Ubiquitous Computing, Architecture, and the Future of Urban Space* (Shepard, 2011a) , *Smart Cities: A Spatialized Intelligence* (Picon, 2015b) and *Decoding the City: Urbanism in the Age of Big Data* (Offenhuber & Ratti, 2014) collect projects and critical texts working to define the new conceptual frameworks, sites of intervention and technological appropriations demanded by this expanding discourse. For the most part, these studies of digital technology have offered an examination of the *effects* of embedding technology in our built world while not dwelling too much on their *causes*. This type of treatment reinforces readings of the technology as a black box, with almost "mystical powers" (Finn, 2017).

Noticeably absent from texts such as these are thorough accounts of design projects' computationally-related components – the invisible modules such as data, algorithms and software organization residing inside the computer. Projects are typically described in terms of their physical artefacts, whether they are public squares or interactive bus stops, or their outputted visualizations of things like taxi flows (Szell & Gross, 2014) and telephone call patterns (Rojas, 2014). This black box approach, focusing on what happens outside of the computer, once served the discourse well as it offered readers high-level descriptions of projects and methods, and thereby played an important role in generating participation in the research community. However, as the field has matured and is on the cusp of moving from test-spaces to real-world applications (Shepard, 2011b) where

[3] Books like: Ed Finn, *What Algorithms Want: Imagination in the Age of Computing* (Cambridge: The MIT Press, 2017), Marcus Foth, ed., *Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City: The Practice and Promise of the Real-Time City* (IGI Global, 2008), Greenfield, *Radical Technologies: The Design of Everyday Life*, Anthony M. Townsend, *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia* (WW Norton & Company, 2013)

shortcomings like those in *StreetBump* can prove calamitous, such an obfuscated view of soft materials is not enough and methods and supporting literature need expansion.

In response to this incomplete view of SED, we are working to complement the existing black box approach with a newly developed white box approach, which examines the internal structures or workings of soft materials, to better understand the relationship between a project's computational components and its real-world, physical outcomes. The first step in establishing a white box perspective is to understand the wide-ranging roles designers play in shaping the agency of soft materials. It's common to consider the hand of the designer as bringing bias and subjectivity to a project; once soft materials are in the mix, designers need to extend that understanding to include decisions around data sources and selection, algorithm design and coding culture in general. The concept to code/space introduced earlier, reinforces that decisions around how data is sourced and structured and how algorithms are designed and encoded actively informs the performance of physical space. These decisions are not neutral and carry with them the same subjectivity and bias we have come to expect from the more formal and material-based design practices shaping our built environment. At the highest level, the white box perspective can be organized around three areas (Fig. 13-2).

Fig. 13-2. Three areas where new white box understandings of soft materials are needed.

Each of these areas demand their own sub-methods and conceptual frameworks to help unpack a comprehensive white box understanding. As a preliminary step, we focus on data as a key component of SED, and present concepts which designers can utilize to develop a more sophisticated understanding of the data used in their work.

Data Quality & Terrain Nominal as key concepts for Engaging Soft Materials

In developing designer-oriented frameworks for expanding the degrees of engagement with data in SED work two key, extra-disciplinary, concepts have shown promise in guiding the work.

Thinking about data in terms of its *quality* offers an entry point to forming a critical assessment of data consumed and produced in SED work. The details of such a process is an active research front rooted in the information sciences but also present in other disciplines such as geography, sociology and computer science. Data Quality (DQ) is often presented as a multi-dimensional concept emphasizing a varying set of characteristics depending on it assessors' perspective. (Klein, 2001) Thus, fitness-for-use is widely adopted as a core principle in DQ (Wang & Strong, 1996) implying that data quality is relative: its assessment depends on its use and data appropriate for one use may not be appropriate for another. (Tayi & Ballou, 1998)

There are numerous frameworks which propose a certain set of dimensions by which to consider and examine DQ. (Knight & Burn, 2005) The framework created by Wang and Strong (WS) entitled "A Conceptual Framework for Data Quality" (Wang & Strong, 1996) is selected here for closer examination because of its relatively consistent alignment with familiar design considerations such as performance, form, context, and representation. The WS framework is refined to address four key categories and offers a structured guide to organizing dimensions against which designers can form critical relationships with data. (Fig. 13-3).

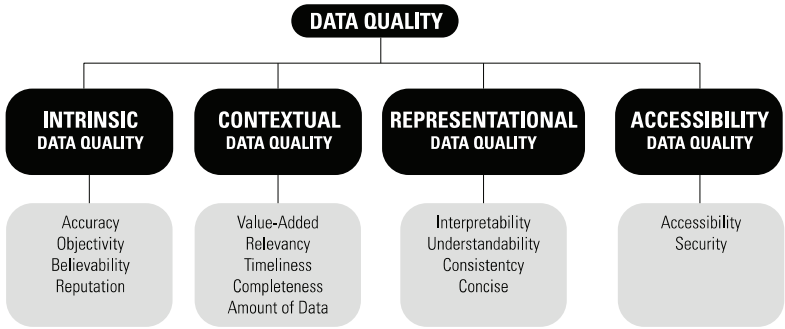

Fig. 13-3. Wang & Strong's Hierarchical Conceptual Framework for Data Quality (1996).

The framework is refined to address four key categories: 1.) Intrinsic DQ addresses the extent to which data values are in conformance with actual or true values. This category includes accuracy, the extent data are correct, but also includes objectivity, the extent to which information is unbiased, unprejudiced and impartial. 2.) Context DQ deals with the extent to which data are applicable to the task. Key components of this category include value-added, the extent to which information is beneficial, provides advantages from its use, and relevancy, the extent to which information is applicable and helpful for the task at hand. 3.) Representational DQ addresses the extent to which data are presented in an intelligible and clear manner. 4.) Accessibility DQ concentrates on the extent to which data are available and obtainable.

In order to satisfy a given dimension of a DQ framework, the data must be understood by the extent to which it fulfills the specific dimension. This terminology reminds us that DQ is relative: the extent or degree to which a dimension needs to be met must be specified by the designer. It is only when the designer specifies the degree to which the data needs to be accurate (or relevant, objective, timely, concise…) that DQ assessment can take place. The sum of these specifications defines the *terrain nominal* which declares, implicitly and explicitly, the required level of abstraction and generalization relative to the real-world phenomena the data attempts to capture. (Veregin, 1999)

Terrain nominal, accepts that there is no objective reality or essential truth the data must capture and instead focuses on establishing a specification corresponding to a perspective of the phenomena which is tuned to the task at hand. (Chrisman, 2010) In some cases, data is known to be subjective, incomplete, or inexact; by accepting ‘shortfalls’ such as these in the conceptual model the data may still be fit-for-use and meaningful to the project. (Veregin, 1999) Thus, to judge fitness-for-use, the designer needs to not only assess the data against the specification, but also consider the effectiveness and limitations of the conceptual model itself (Fig. 13-4). (Veregin, 1999)

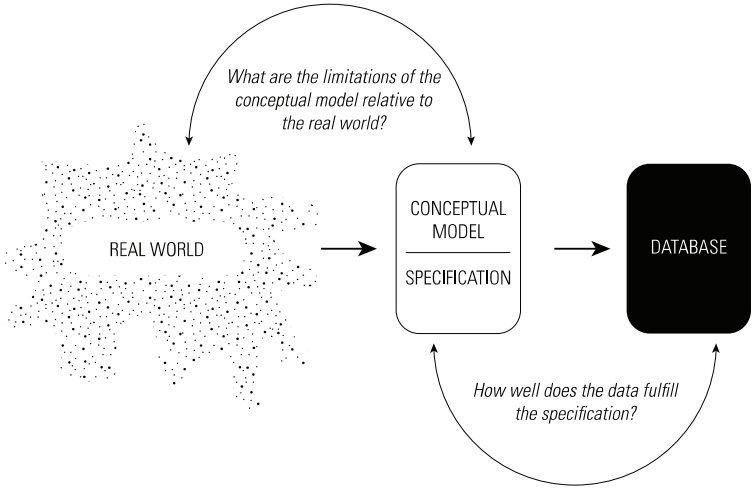

Fig. 13-4. Terrain Nominal. A conceptual model as a bridge between the real world and its data-based representation.

Terrain nominal is further useful as a conceptual link between the three agents – data, algorithms and coding culture - in shaping the socio-cultural and socio-political outcomes of the embedded software. No matter how simple or complex a coding problem is, or what programming language is used to implement it, the composed code is a manifestation of a system of thought – indirectly articulating a set of values around how real world phenomena are captured, represented, modelled, and processed. (Kitchin & Dodge, 2011, 26) This is an intense process of abstraction, where the authors of the code decide what gets included and what gets omitted in terms of defining the "world" in which the software operates. This inherent subjectivity calls on designers to be explicit in the assumptions and biases embedded in the models used in soft materials.

Taken together, Data Quality and Terrain Nominal can help structure a higher degree of engagement that SED projects have with data. The following sequence of steps (Fig. 13-5) outlines a preliminary framework for bringing these concepts together.

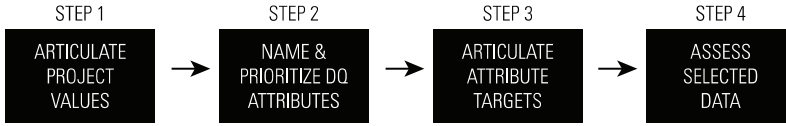

Fig. 13-5. A framework for bringing together concepts of data quality and terrain nominal in building a richer engagement with data in SED work.

First, in Step 1, designers articulate the values and planned objectives for the project across its complex material matrix; technical specifications are matched with socio-cultural, political and ethical concerns and these lenses frame values for not only the physical materials but the virtual ones as well. Next, understanding the relationship between the DQ framework attributes (whatever they may be) and their role in supporting the values identified in Step 1 constitutes Step 2. As an example: If a project places high socio-cultural value on using data that captures an inclusive set of participants across socio-economic boundaries, the definition and prioritization of DQ attributes such as objectivity, completeness and amount of data would likely be directly affected. Step 3 involves setting targets by articulating the degree to which certain values or attributes are met – effectively defining the terrain nominal for the project. Step 4 involves the assessment of the data used in the project against the targets set in the previous step to understand differentials between them. While this assessment can take on numerous forms,[4] the intuitive approach has been selected for its capacity to be highly tuned to the task at hand and take advantage of existing expertise found in the project team (Wang and Strong, 1996). Given the topic of this chapter, it is necessary to note that the intuitive approach should not be exempted from its own set of examinations with respect to how its subjectively defined criteria and evaluation techniques could foster bias.

A preliminary implementation of the above framework[5] has been tested through a post-mortem analysis of *OnTheLine* (Fig. 13-6), a SED project developed by the DATAlab team at the School of Architecture at the

[4] The literature identifies three different approaches to studying DQ: intuitive, theoretical, and empirical. (Wang and Strong 1996).

[5] A more detailed discussion of this framework implementation was presented as part of the *The 23rd Conference on Computer-Aided Architectural Design Research in Asia*. 17-19 May, 2018 in a paper entitled "A Framework to Establish Data Quality for Software Embedded Design" (Przybylski 2018).

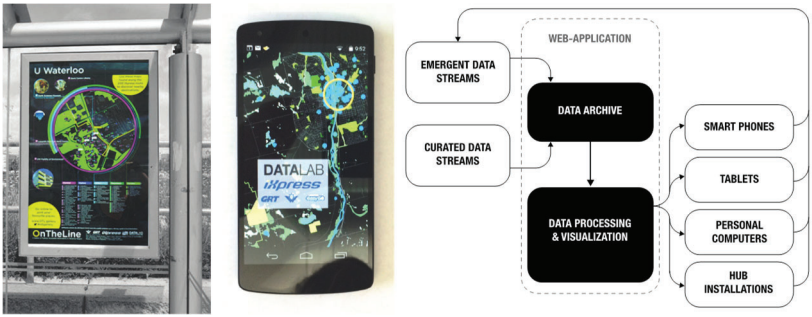

Fig. 13-6. OnTheLine's various sites, its collection and use of data, and its supporting media and technologies, are combined into a comprehensive project framework.

University of Waterloo.[6] *OnTheLine* converts a transit line into a gallery connecting transit riders with the rich collection of destinations located along the route. The project team created a suite of physical installations and digital interfaces aimed at shaping and presenting a collective identity of the region. Utilizing bus shelters, buses, a centralized project display, an interactive website, and a mobile app as media for information transmission, *OnTheLine* both distributes and collects information about activities, events, and destinations along the transit corridor. Two complementary sets of data contribute to the unified presentation of destinations on the line: first, the project presents a *curated* and centralized set of local cultural destinations and activities that has been assembled from a suite of local information resources; second, an *emergent* set of destinations submitted by the public, by way of various social media mechanisms such as Twitter, augments the list of presented destinations. This hybrid data set constitutes a growing directory of local information, engaging a diverse range of participants as project collaborators.

Fig. 13-7 presents a summary of Steps 1 - 3 of the framework outlined above. A selection of specifications relating to key project objectives (left) is used to define a conceptual model of the phenomena that the data is meant to capture - namely the name and location of notable sites along the transit line. These specifications prioritize the Wang & Strong DQ attributes (center) and the connecting lines suggest which specification relates to

[6] OnTheLine was developed by DataLAB at the School of Architecture at the University of Waterloo in 2014. Project Leads: Mona El Khafif and Maya Przybylski. Student Design Team: Zak Fish, Lea Koch, Daniel Malka, Thomas Nouissis and Jake Read.

which DQ attribute. Attributes are ranked intuitively in terms of their importance in supporting project outcomes. Radial maps (right) establish target values for DQ Attributes based on the projects stated objectives. As an example, the top radial map, describing various dimensions of Intrinsic DQ, shows that project authors valued data accuracy over reputation. In other words, with its aim to create an inclusive directory, for each destination promoted by the project, the repute of its promoters was less important than the entry's geo-spatial accuracy.

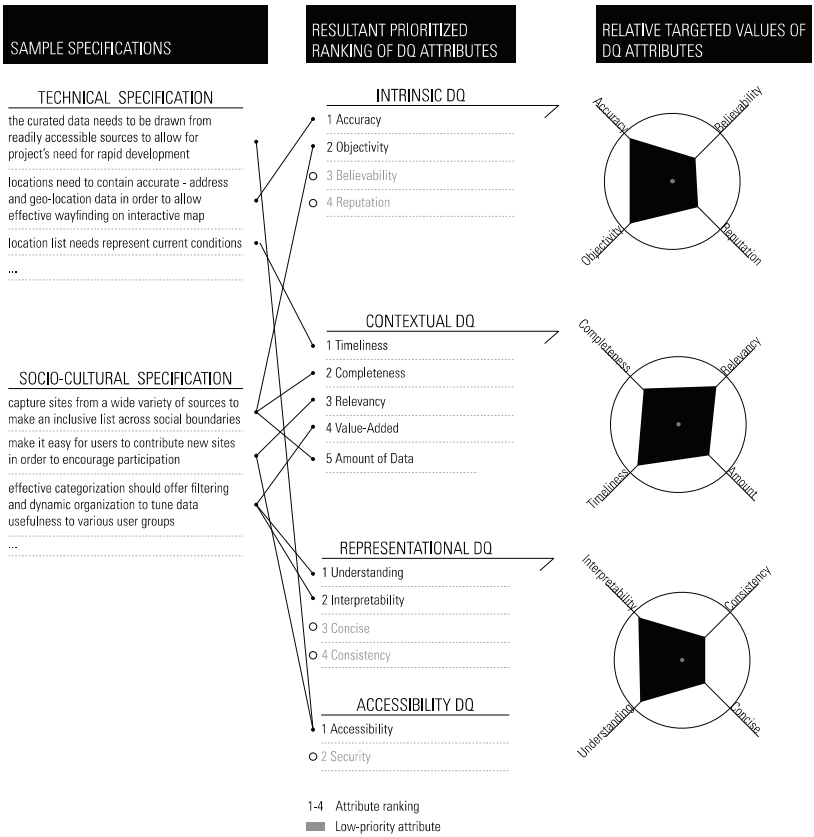

Fig. 13-7. An intuitive definition of the conceptual model and DQ framework for OnTheLine.

The next set of maps (Fig. 13-8) relate to Step 4 (Assessment) of the tested framework. Each radial map presents the differential between the project's actual curated dataset and the stated target values according to the DQ framework's three main categories. During this assessment the curated nature of the data and related issues become very apparent. The curated data was assembled by the project team from a variety of community-level sources and subjected to manual processing, verification and selection. On the one hand, processing steps, such as cross-referencing municipal addresses with geocoding results, increased ratings for accuracy and believability. On the other hand, the timeliness attribute received a low rating as some sources were dated over one year earlier than the project itself and thus increased the probability of venue being closed or otherwise out-of-date. The Objectivity attribute was also scored relatively low: due to project constraints, data was more likely to be included if it was easily, cheaply and readily available. This did little to ensure an unbiased and impartial dataset. Even the emergent stream, while initially thought of as an unbiased set of destinations, had similar pitfalls, although to a lesser extent: the publicly provided content underwent screening to ensure materials were appropriate for all audiences. This form of screening was meant to support inclusive representation but nevertheless added another opportunity for the insertion of bias. Through this process, it became clear that the processes introduced as part of curation and screening activities moved the quality of the data further away from the project's overall values.

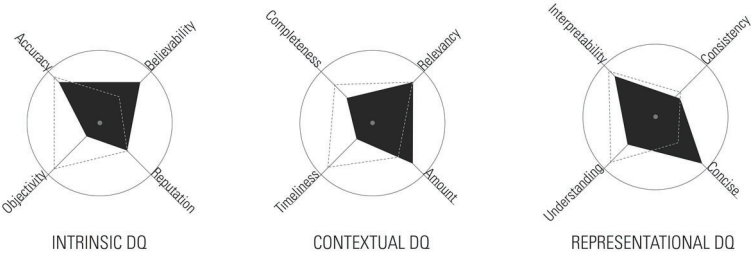

Fig. 13-8. Radial Mapping Comparison. Mapping the differential between Curated Data (Black) and Target Values from Fig. 13-7 (Dashed Line) according to the DQ framework's three main categories.

This series of diagrams presents a high-level, intuitive reflection on how we can begin to build richer engagement with the data components of this work. Working together as a set, they seek to: (1) clarify the socio-cultural and technical objectives of the project in order to establish the terrain

nominal, (2) identify and prioritize which dimensions of data are necessary to consider to facilitate a socio-cultural understanding and (3) develop preliminary representation strategies to communicate the assessment of the dimensions in order to build a critical understanding of the project's datascape.

This work represents a starting point for building methods that allow deeper engagement with SED computationally-oriented components. Perhaps most clear in this work is the fact that confronting data quality is a multi-dimensional challenge demanding the articulation of new questions and methods for architects. At this stage, we see value in unpacking these dimensions from an interdisciplinary perspective and mapping them to a design context through the study of projects invested in the social implications of new technologies within the built environment. This technique demonstrates an accessible approach for designers to begin to formulate some degree of criticality around the data they use in their work. At the forefront of this effort is the realization that all technology comes with a set of assumptions and biases – and, we argue that designers engaging in SED work need to control and manage these assumptions and biases in a capable way. Of course the focus on data quality represents only a small aspect of the entire set of conditions through which SED work emerges; further work addressing data in particular but also, algorithm design and coding culture in general is necessary to support increased degrees of critical engagement with SED.

Conclusion

The rollout of smart city implementations has been accompanied by the raising of numerous ethical issues ranging from concerns around privacy, profiling, privatization, bias, among many others. (Kitchin 2019) As such, many related disciplines are working to acknowledge the societal impacts and outcomes of digitally-embedded civic products. The researchers in the field of computer science, for instance, are tackling this challenge head on by proposing a change to its peer-review process whereby researchers disclose any possible negative societal consequences of their work in papers, or risk rejection. (Gibney 2018)

The arguments and work presented in this chapter begin to tackle these issues from the perspective of the discipline of architecture. Through materializing the digital components increasingly embedded in design work, they fall into the architect's scope and should, as a result, be subjected to not only technical considerations but also recognized in terms of their

social, cultural, political and ethical agency. This reframing of soft materials brings focus to architects' capacity, supported by their expertise in spatial, material and, increasingly, computational design practice, to navigate the complex intersection of virtual and physical realms defining the smart city.

As soft materials become part of an architect's toolkit, it is imperative that the values and objectives embedded in computational components of a project match those projected by its physical elements. Without this, the ambitions for software-embedded-design work, to seize the capacity of ICTs to empower individuals to create new inclusive ways to organize, use and shape the places they live, are undermined and threatened.

Acknowledgements

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CHAPTER 14

BUILDING INTEGRATED FOOD-ENERGY-WATER MODEL: THE APPLICATION OF THE FOOD RESILIENCE URBAN INFRASTRUCTURE TOOLS (F.R.U.I.T.)

JAMES BRAZIL AND SHRUTI KHANDELWAL

Abstract

The food system is a complete path from food production to food consumption and disposal. The supply chain, accessibility and waste, are three scopes for creating a more efficient food system today. This necessitates an implementation strategy to manage the theoretical computerized platform created called FRUIT which stands for Food Resilience Urban Infrastructure Tools. The core algorithm of FRUIT connects the dietary requirements of a sample population with the food required to be consumed by minimizing food waste, accessibility issues, and improves affordability. Therefore, the research also proposes to adopt using a Building-Integrated approach to manage the nexus of Food, Energy and Water resources called BI-FEW. This chapter explores the four key challenges to securing food for burgeoning urban populations through the exploration of urban agriculture for real estate practices in urban areas, innovative farming systems, advanced technology and equitable economies. This strategy can be adopted and scaled to secure food more efficiently for urban communities which allows for an increasing focus on the sustainable management of the food. This chapter recommends key policies that would assist the implementation of this novel BI-FEW model and promote comprehensive analytical instruments such as the FRUIT technology to overcome shortfalls of the current conventional food system.

Introduction

Cities are going to witness a global population shift from rural to urban areas of approximately 66% inhabitants by 2050 from 54% in 2014 (United Nations 2014). Increasing concerns on accessibility to nutritious food for the growing urban population have led to correlated challenges in securing food from urban and peri-urban agriculture, namely by augmenting the capacity of current food production (Foundation for Food and Agriculture Research 2019). The food system is a complete path from food production to food consumption and disposal. One of the main issues facing the complete food system is food waste, which is defined as the discarding or alternative (non-food) use of food that is safe and nutritious for human consumption along the entire food supply chain, from primary production to end household consumer level (Food and Agriculture Organization of the United Nations 2019). In the United States, food waste estimates are as high as 50% of total production by the time it has been harvested, processed, package, distributed and then consumed (Food and Agriculture Organization of the United Nations 2019, Institution of Mechanical Engineers 2013, Chandler 2016). It is estimated globally that 31% of all food (by mass) is wasted rather than consumed, representing a massive loss in embodied land, water, labor, and energetic resources (Food and Agriculture Organization of the United Nations 1998). These increasing inefficiencies in the food supply chain lead to a related wastage of limited natural resources. This chapter intends to underscore the challenge of securing food in urban and peri-urban environments which is exacerbated due to missing policy frameworks by planning authorities which could promote the practice of sustainable urban farming locally in the U.S.

With the growth of urban environments, an ongoing struggle with aging water infrastructure, growing energy demands and escalating food insecurities are exacerbated during and post natural disasters (Beatley 2009, Jung, Sinha and Whittle March 2014, Doern 2005). Simultaneously, food production including agriculture faces many problems: low soil fertility and erosion, rising water contaminations due to overuse of fertilizers and pesticides, and production of low nutritional content in crops (Schwartz and Randall 2003, Stuart 2009, Rees, Griffiths and McVittie 2017, Ratul, et al. 2018 February, Raiten and Combs 2019). The model necessitated by these challenges should be able to retrofit and cater to new construction of self-sufficient buildings that reduce the burden on existing urban infrastructure and address increasingly inefficient and detrimental agricultural practices. This model can also be adopted to mitigate current infrastructural challenges and inadequacy to food in the event of natural disasters (Beatley 2009).

The food supply chain is made up of four key stages; production, processing, storage and distribution. Current commercial practices are focused on creating a more viable end product, which includes rapidly processing fresh produce to both maximize storage for wider distribution and also for prolonging its shelf life in retail outlets (James and Ngarmsak 2010/16). With no clear accountability or traceability within these practices, this ultimately has led to an increased availability of more affordable food products that are overly processed and lower in nutrition. Due to a combination of poverty and lack of education, these food products are more widely consumed due to their affordability, finding a directly correlated increase in obesity and emergence of "double burden" families that have members who are both overweight and malnourished. Nearly 2.5 times as many people are overweight as undernourished, with cases of severe overweight (obesity) rising in parallel. The global daily average calorie availability is estimated to rise significantly to 3,050 calories per capita per day. Yet, 290 million people are still projected to be undernourished and the number of overweight people to reach 1.9 billion, with over 600 million obese by 2050 (WHO 2017, Ploeg, Nulph and Williams 2011).

An endemic culture of urban neighborhoods which have a high poverty rate and unemployment rate is that they also generally lack grocery stores that sell fresh and healthy foods. Having similar characteristics to food deserts identified by USDA, these may also contribute to poor diets, obesity rates and other diet-related illnesses. The definition combined by USDA, Treasury and HHS for food desert is at a census tract level, wherein a majority of residents have low access to stores selling healthy and affordable foods. A census tract on average has 4,000 residents but may range anywhere from 1,000 to 8,000 people. These tracts qualify as food deserts based on two thresholds. The low-income tract is identified with a poverty rate of 20 percent or more, or median family income at 80 percent or less of the state average or metropolitan area average. The low-access tract is identified with a minimum of 500 persons and/or at least 33 percent of the population lives greater than one mile from a supermarket or large grocery store and ten miles in the case of rural census tract) (Ploeg and Rhone, Documentation 2017, Walker, Keane and Burke 2010 September).

Researchers have found associations between low access to fresh and healthy foods and various food-related health risks such as obesity and diabetes which also differ due to socio-economic characteristics such as race, income, education and employment to name a few (WHO 2017). Moreover, urban farming can potentially address the existing food insecurities in urban food deserts with low or no access to fresh and

nutritious produce within a neighborhood, thereby de-stressing the public health burden arising from insufficient nutritional foods access in these areas (Ploeg, Nulph and Williams, Mapping Food Deserts in the United States 2011).

The research calls for urban strategies with supporting policies that address food security and also the management of food, energy and water resources in urban areas which are equally critical issues in infrastructure management today.

Need of the Study

In the wake of natural disasters, both the loss of peri-urban agricultural areas caused by urban expansion and growing challenges to secure food in urban areas, it is prudent to secure resilience using technology and capable infrastructure that allows reliable communication and management of these food-energy-water (FEW) systems. Hence, there is a paradigm shift required in achieving urban resilience. The adaptation of the Building-Integrated-FEW (BIFEW) strategy that ensures a resilient food supply and creates a distributed network of resources without stressing the existing infrastructure is an important proposition. However, the model does not project a solution to replace current large-scale commercial farming practices but advocate a strategy to incubate urban agriculture projects and supporting policies by utilizing a specifically developed toolbox of analytical instruments and computational algorithms. In conclusion, the chapter summarizes recommendations to address policy gaps in urban planning that support the necessity of both integrating the management of a building's energy and water with the localized production of food.

BI-FEW Implementation Strategy Utilizing FRUIT

Building Integrated Food-Energy-Water (BI-FEW) is a proposed implementation strategy that is a scalable solution for both food insecure urban areas and for areas vulnerable to infrastructural challenges. The objective is to establish both a closed-loop and net-zero system that can be implemented in any existing building and/or proposed new building. The goal is to create an integrated self-sufficient building system(s) model for occupants to constantly maintain accessibility to food, energy, and water in urban areas, even in the event of a natural or man-made disaster that may cut-off the regular supply of these resources.

The model is constantly in operation, balancing fluctuations and supporting gaps in the supply and demand of food, energy and water within the individual building. It works with the grid to support these gaps, reducing the burden on infrastructure, not replacing it. In the advent of a disaster it can function by itself in network of other buildings. When the model is distributed within the neighborhood, whether in adjacent buildings on the same block or agglomerated along transit corridors, they create a resilient closed-loop micro infrastructural network with an adaptive food response, particularly essential during and post natural disasters. The most essential parameter for this closed-loop system is that it does not generate any waste. Therefore, it is a net-zero system. Outputs from different subsystems are absorbed as resources for supporting functions of other systems which is further explained in the following section. When food production and distribution is localized, it provides greater accessibility to citizens and reduces the opportunity for waste to be incurred along the conventional food supply chain. Hence, the model comparatively reduces demand on energy and associated transport related carbon dioxide emissions for supplying food and other resources (Lemonnier and Ainsworth 2018).

"Food Resilience Urban Infrastructure Tools (FRUIT) is a set of analytical instruments developed for improving food accessibility and reducing food waste; and thereby improving the economic viability of adopting urban agriculture as a sustainable local food production and distribution practice" (Brazil and Khandelwal 2019 July). FRUIT essentially is an Artificial Intelligence (AI) research and development accelerator and food security incubator. The BI-FEW model utilizes FRUIT to be one type of a theoretical implementation strategy. The model is based on technological advancements in urban agriculture farming systems that can improve the resilience of urban built environments by way of augmenting existing building infrastructure.

At FRUIT's core, is a big data platform that has established a back-end set of computational algorithms that connects the dietary requirements of a sample population, with spatial opportunities of their urban environments and the food required to be consumed by minimizing food waste, accessibility issues, and affordability concerns. The applied combination of specialized data and a set of computational algorithms that assess the technological, political, economic, real estate and social impacts of urban agriculture generate self-sufficient net-zero food-energy-water solutions for a specific site and/or target population (Brazil and Khandelwal 2019 July).

FRUIT

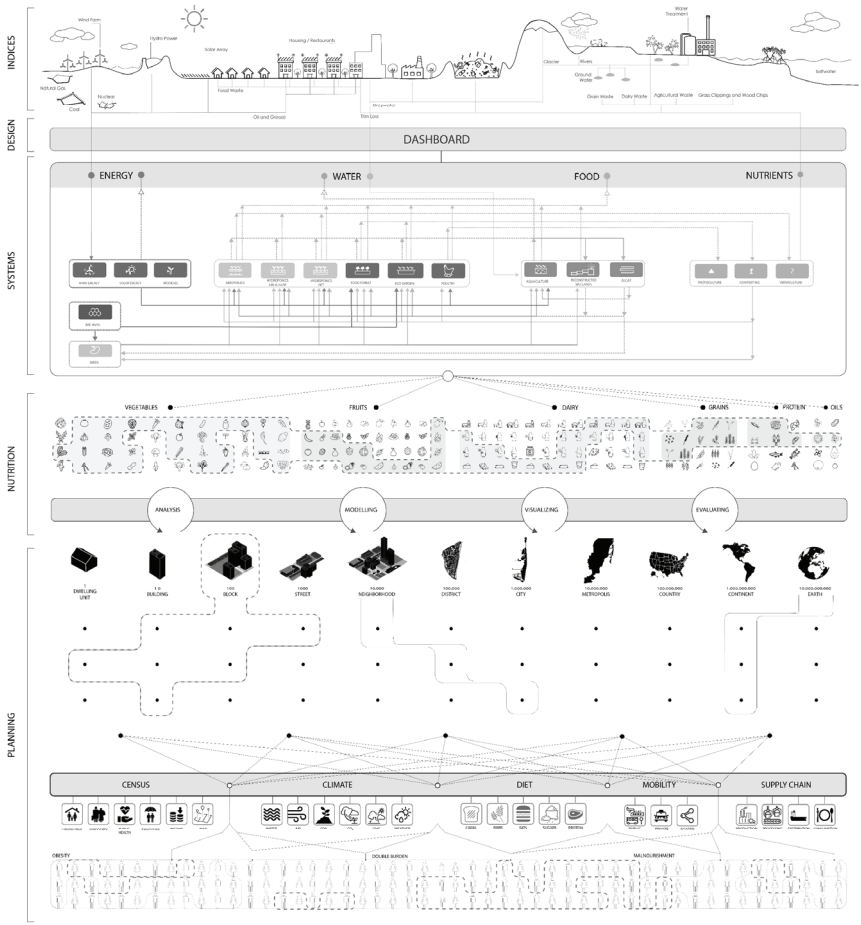

Fig. 14-1. Overview of FRUIT.

FRUIT generates a self-sufficient net-zero food-energy-water solution based on a target population. Bi-FEW model employs FRUIT to determine the required net area of a selected building, or network of buildings to meet the USDA dietary requirement of said population (Brazil and Khandelwal 2019). There are three fundamental areas of focus for FRUIT to be activated: planning, nutrition and crop selection. The planning requires the

measure of requisite yield production (lbs.) that is dependent upon the population understudy. The yield capacity (sqft) of the physical site is also regulated by planning policies that permit urban agriculture on specific locations within buildings or neighborhoods.

The build out of the FRUIT computational algorithm commences with a preliminary site identification using Geographic Information Systems or GIS mapping of the target site. Demographic estimates are extracted from censusdata.org which include gender, age, and ethnicities for the target population. This data is then matched against USDA recommended calorie intakes (KCal) for the necessary population considering reasonable food waste expected from cooking. In order to mitigate the adverse effects of the conventional food supply chain, Bi-FEW models factor in the crop selection based upon the USDA dietary requirements of the building's occupants and/or target population. These are categorically worked out according to the six food groups in the recommended USDA diet charts: vegetables, fruits, grains, dairy, proteins, and oils (Chang 2017; Food and Nutrition Service (USDA) n.d.). The final crop selections are then matched with the appropriate Zero-Acreage food production system that ensures the most efficient yield. This provides with a total nutritional requirement of the target population which is correlated to a crop selection that is sensitive to food acceptability of the target population and accommodation of crops in outdoor systems considering the site location, topography, climate and soil type. This is simultaneously encouraging the community to participate together in producing healthy food for themselves, establishing a cultural resilience towards a better access to nutritious food.

FRUIT algorithms utilize data from a self-sufficient net-zero catalog of soilless Controlled Environment Agriculture (CEA) (Aeroponics, Hydroponics and Aquaponics) and soil based (Food Forest and Eco-Garden) food production systems that calculate total production yields (lbs.). It is important to note the system also includes ancillary systems such as bees to aid pollination of the eco-garden and food forest and wherein biomass is also collected from the growing of all crops. This biomass used to create biochar, which is a soil amendment used in outdoor farming techniques, creating nutrient dynamic soils. Through local composting and vermiculture systems, the nutrients for the food production systems are replenished in the nutrient systems with protoculture systems providing necessary feed for poultry and aquaculture. Nutrients is a critical part of the closed loop and self-sufficient farming unit system algorithm. Food production systems and its ancillary systems are continually updated from data analysis of current urban farming practices.

For every unit system, the quantified data for input flows include: water (gal), energy (kwh), and nutrients (lbs.), is adjusted against output flows: yield (lbs.), biomass (lbs.), and water (gal). Once the unit model is adjusted for most efficient yield while maximizing the sub-sample population, the system is scaled to complete the total nutritional requirement of the target population. Completing this computational model, the aggregated data from these food production systems are mapped spatially within the available building area(s) or net vacant area as shown in Fig. 14-2: Spatial Typologies. Hence, this ensures an optimized equation between maximizing yield (lbs.) with intensive food production (sqft) spatially. Once the algorithmic model is set up, the visualization of the Bi-FEW implementation strategy is iterated to provide possible scenarios of farming sub-systems based on surveying existing water and energy infrastructures. Scenarios can range in levels of self-sufficiency and autonomy from the grid, depending on spatial modelling of proposed building(s) integration.

Challenges to the Proposed Model

The following sections explore four key challenges to securing food for burgeoning urban populations using a Building-Integrated approach to manage the nexus of Food, Energy and Water resources. The opportunity for urban agriculture is positively associated with higher land security and are more visible in census tracts with higher economic opportunity, Section (a) explores the real estate aspect of agriculture in urban areas wherein viability of urban agriculture with associated high rents and essentially land-use make it a crucial point for the future feasibility of local food production. Farming systems, section (b), refers to processes and challenges associated with the model. Innovation in technology, section (c), is the catalyst of integration and successful implementation of the BI-FEW model. Lastly in section (d), equitable economies are critical and yet, challenging as substantial research analysis from on-site testing is another gap in this field. While BI-FEW strategy can be adopted and scaled to secure food more efficiently for urban communities, the discussions on real estate, farming systems, technology and economics provide more depth on scenarios and opportunities for integration which may be addressed by recommendations in the policies that support the implementation of AI tools such as FRUIT.

Real Estate

Conventional urban agriculture zones include ‘home vegetable gardens, orchards, community gardens, school gardens, roof gardens, market gardens,

urban farms, aquaculture, greenhouses, animal husbandry, urban farm stands, Community Supported Agriculture (CSA) and farmers' markets' (Turk 2016). The land uses for agriculture in urban areas initially expanded due to grassroot community leadership and then real estate developers reacting to shifting cultural trends of their prospective tenants seeking more of a sense of community. Together with progressive local planning departments and city councils, there is a dialogue to develop their communities around urban resilience. Most recently urban agriculture is rapidly being commercialized by the increased viability of innovative Zero-Acreage farming technologies.

The Bi-FEW implementation strategy is based on the principle of Zero-Acreage farming that does not require additional land to conduct the farming practices (Turk 2016). Rooftops, balconies, exterior walls and interior spaces, open spaces are converted into intensive farming areas for this practice. Zero-acreage farming systems can be traditional soil-based gardens, but lighter soil-less vertical growing systems characterize this practice. These vertical systems can be intensively arranged indoors on a minimal footprint producing more frequent yields (lbs.) with controlled environmental (lighting, air and water) conditions, also known as Controlled Environment Agriculture (CEA) (Turk 2016).

The current challenge of implementing conventional Zero-Acreage farming in urban areas is the base rent, operating costs and the net profit of the crops' production value ($), which is regulated by the regional and local agro-markets. The higher the net profit from the production value for the farmer is, the more secure his business model is. However, the cost of yield ($) is inherently dependent upon net area used for production, vulnerability to associated risks on the proposed site and access to water and energy resources. There is government support by way of property tax incentives for innovative farming to offset the initial capital investment but ultimately spatial capacity constraints within the building will determine the viable real-estate model for implementation (Widener 2018 September 1).

Most recently we have witnessed an explosion of urban agriculture startups as CEA's become more viable. However, it is important to note that crops being grown at urban CEAs tend to be priced at premium rates, which are affordable to only high-end consumers and retailers (Thomaier 2013). This is primarily attributed to the high value of property in urban neighborhoods, reverberating in the urban farmer's business model in terms of disproportional higher rent. This directly challenges the premise that

urban agriculture increases food security for low-income and low-access urban populations by it being brought closer to them.

Recent studies estimate that between 70% and 80% of urban farmers do not own the property that they farm. In the case of many urban farms, they exist as part of a short-term solution or de facto rights agreement to gentrify a neighborhood in lieu of development, leaving them susceptible to future developments. This perceived interim land use is part of a legacy of sporadic support for urban agriculture that contracts once socioeconomic conditions stabilize (Goodman and Minner 2019).27 The BI-FEW model proposes to establish urban agriculture not just simply as a tenant based land-use but as a functional and necessary part of a buildings operational infrastructure (Lemonnier and Ainsworth 2018). The ongoing innovation in CEA's is critical to this model as urban farms may be adapted to interior uses in future becoming a considerably less costly application than rooftops or vacant lots.

For a BI-FEW implementation strategy to work as a viable real estate model, commercial start-ups and retailers would have to be subsidized to work at a larger economy of scale to support market incubation. Combined with increased incentives for property owners at a municipal level, BI-FEW would need to function as a network of buildings symbiotically working together to develop our communities towards a more resilient urban environment.

Farming Systems

The building integration model combines innovative farming systems with water and energy management systems to create a net-zero building infrastructure. The Bi-FEW model is an application of FRUIT's self-sufficient farming system, which considers this as a completely closed loop infrastructure where all inflows and outflows of water, energy, biomass, nutrients, and soil are managed with CEA food production systems. These include variations of aeroponic and aquaponic systems which are selected based on the efficient yield of the selected crops. These may include greenhouses with hydroponic systems connected to an aquaponic system to maintain nutrient levels as the nutrient delivery method is water-based requiring an intensive water infrastructure.

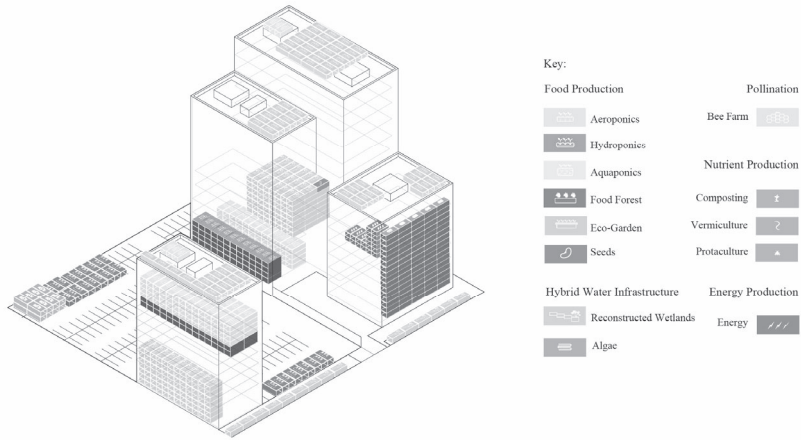

Fig. 14- 2. Farming Systems of the BI-FEW Model.

When this system is connected to a building's waste-water system, it re-circulates the water through the water infrastructure to filter and send to the food production systems where it continues the cycle. One such model developed is a 'Hybrid Constructed Wetlands' is the innovative water infrastructure feature of the BI-FEW model that manages the input-output and regulates nutrients through a combination of artificial wetlands and aquaponic systems for crop growing production systems (Arnold and Roge 2018). The rainwater from roofscapes and also greywater is directly harvested from buildings and is collected in the main tank with wetland plants. This is followed by decreasing gradient of tidal flow tanks in which the collected water is gravity fed and naturally treated. Additionally, smaller wetland crops or shrimps may be used to further treat the wastewater before flowing out to the aquaponic systems to replenish with nutrients (Arnold and Roge 2018).

This proposed innovation in water-based farming systems working in conjunction with a buildings water infrastructure is aligned with one of urban farms most robust indicators, the ability to pay for irrigation at municipal rates. A recent study into urban farms in the Bay Area found that only 70% indicate they are financially able to pay this (Goodman and Minner 2019, Arnold and Roge 2018, Khandelwal 2018).

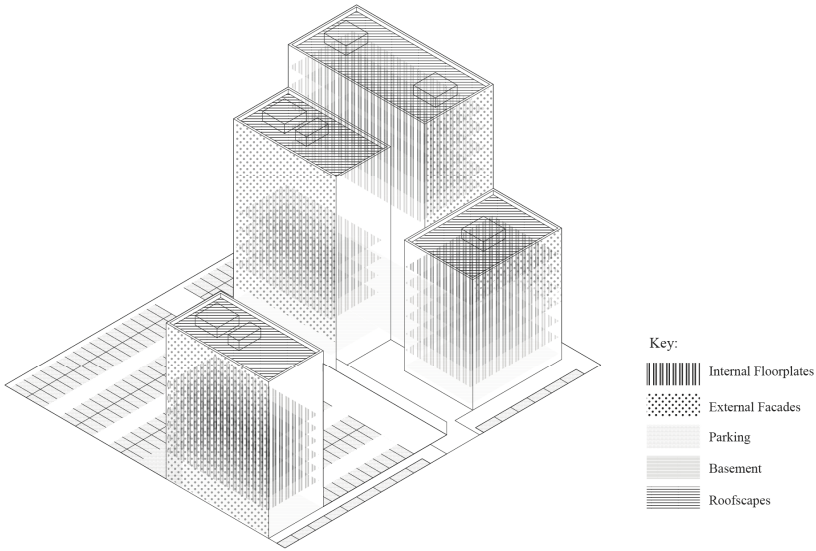

Fig. 14-3. Spatial Typologies.

The BI-FEW implementation strategy focuses primarily on the provision of non-potable water from existing infrastructure as it is the costliest expenditure of urban farms. Soilless CEA's use 75%-95% less water than traditional soil-based agriculture, have come under increased scrutiny due to their reliance on artificial lighting. Innovation with low-energy-diode or LED lighting demonstrate a considerable reduction in the carbon footprint incurred by energy consumption. However, this is based only on the comparable analysis of associated carbon footprint of select lettuce, leafy green and herb produce in the traditional food supply chain (James and Ngarmsak 2010/16).

Reducing the demand on existing energy infrastructure is fundamental to the BI-FEW model, however the implementation of CEA farming systems will place additional demand on any existing energy infrastructure, whether it be renewable or drawn from the grid. There are severe limitations to the proposition of renewable energy in urban environments, namely due to the intensive footprint requirement of such infrastructure. Alternative energy systems such as Algae and Biodiesel are potential solutions FRUIT proposes to create a reliable off-grid system that will not lose power supply during natural disasters. Algal fuel or biodiesel generated from waste oil and

waste grease collected from restaurants is still nascent in research for energy generation as potential clean energy solutions. However, they are increasingly important to introduce in buildings and districts where the resource is readily available. It requires conversion and energy generation technology that is commercially made yet its biggest challenge exists in the collection and storage of its fuel. It is estimated that roughly 341 gallons of waste oil collected from 4 restaurants can produce energy for one biodiesel generator which could feed approximately 100 people at one time (Goodman and Minner 2019, Arnold and Roge 2018). This ensures a networked operation where such systems can be installed to provide clean energy serving a larger population residing beyond one building (Arnold and Roge 2018, Khandelwal 2018).

Hence, streamlining the farming systems in an urban context can be improved by having policies to remove redundancies witnessed in a conventional supply chain model, encourage net-zero and close-loop systems suitable to the context and implementing an efficient waste management system. Cleaner systems and new technologies that can be applied to buildings, let alone support farming systems, require not only financial support from the government but more importantly a robust commitment to reducing carbon dioxide emissions.

Technology

The BI-FEW model requires a technological framework to maximize its efficiency and make it an economically viable application. The Internet of Things (IoT) network connects and facilitates data exchange using hardware such as sensors, actuators and softwares within the physical devices, appliances and other technical equipments. The embedded computing system configures a unique address that secures interoperability within the existing 'Internet infrastructure' (Al-Kodmany 2018, U.S. Energy Information Administration 2018, Khan, et al. 2017). In CEA systems, various IoT frameworks monitor, manage and maintain all aspects of crop operations (i.e. automation of seeding, lighting controls, pH sampling, growth analytics etc. to maximize yields (lbs.) and utilize resources. Additionally, 'air moisture estimation, compliance monitoring for the entire system, precision farming, crop intensification, water content in crops determination, crop yield modelling and estimation and crop nutrient deficiency detection' are important operations that will be resolved due to IoT activation (Widener 2018 September 1).

IoT technology enables a distributed intelligence throughout the entire buildings water and energy infrastructure, where remote sensing can actuate grey-water and latent energy harvesting. Low power systems such as IoT sensors may not require additional energy supply but can be provided with latent or ambient energy-harvesting systems to run effectively. These include vibrations, motions, temperature gradient, radiofrequency waves, light, acoustics, and others similar to this (Brown , Who Needs the Internet of Things? 2016, Brown, 21 Open Source Projects for IoT 2016, Bhatnagar and Owende 2015 February 17). Energy-harvesting technologies retrofitted within buildings show over 60% in savings off annual energy bills. The associated capital cost of this is considerable, yet with rapid innovation in CEA systems harnessing IoT frameworks, the BI-FEW model theorizes how we can utilize these savings as part of its implementation strategy (Bhatnagar and Owende 2015 February 17).

With increasing dependence on technology for creating efficient and viable farming systems, novel policies are required to support energy and water management with IoT applications for smart buildings and smart infrastructures. The cost-benefit analysis for smart buildings and the retrofitting of them has been well established (Marin-Perez, et al. 2019 February), BI-FEW models alternative scenarios for property owners engaged in urban agricultural practices to engage in a wider policy debate around technological innovation in the best practices of a buildings energy and water management.

Economics

Urban farming is a major disruption to the conventional food supply chain as it embeds production, processing, storage and distribution directly at the same point with the consumer. This direct distribution from the grower to the consumer ensures enhanced food access, accountability, and quality control of the produce. It also fosters economic development and entrepreneurship of a more secure individual, retail and/or commercial provisioning of nutritional produce. Additionally, this creates a stronger social bond within the community and higher market value for the farmers because of a better quality product in some cases (ITU 2019, Grind-GIS 2018). The decreased distance between farmer and consumer also mitigates the cost and negative redundancies of transportation, energy consumption and associated water and air pollution. All of which contribute to the successful marketing of produce from urban farms at a premium to consumers, creating the market for the implementation of CEA's.

Along with paying for irrigation, hiring a full-time manager is a major fiscal challenge in the management of urban farms. In the same study of urban farms in the Bay area, less than 50% were able to pay for a full-time manager with roughly half of the farms surveyed having a production focus (James and Ngarmsak 2010/16). The BI-FEW model relies heavily on the continual innovation of IoT enabled automation of systems and environmental controls of CEA's as it enables today's urban farmer to remotely manage the farm. Removing the necessity for a full-time manager and only hiring a minimal skilled workforce for day-day operations capacitates the urban farmer to handle both management and business development, attracting a new generation of entrepreneurs to champion urban agriculture. Creating jobs oriented toward low-income urban populations, the entrepreneurial urban farmer emerges as a community leader creating a socially responsible labor environment (D'Amour, et al. 2017 August 22, Cruz 2016).

The reality of urban farms is that operations are often dependent on external funding that support education or food security initiatives as production levels cannot support a sales revenue enough for it to be a completely sustainable enterprise (James and Ngarmsak 2010/16, Kauffman and Bailkey 2000). The viability of the BI-FEW model in urban environments is based on innovation in CEA's and integration of IoT management of the energy and water within the building to support food production that improve efficiency of crop yields while reducing demand from off-grid systems (James and Ngarmsak 2010/16, Dimitri, Oberholtzer and Pressman 2016 March 7).

These influence the baseline economics which these technological advancements capacitate the next generation of urban farmers in creating a food-based resilient ecosystem within the urban environment. By proposing labor policies to engage under-skilled labor will support progressive municipalities for further economic growth and development of their lands (Daftary-Steel, Herrera and Porter 2015). Detroit Food Policy Council is actively promoting equitable land-use by engaging community stakeholders to participate in urban agriculture practices (Detroit Food Policy Council 2016). Therefore, in order to prepare local residents for a skilled workforce will require education and awareness initiatives to promote local opportunities to engage in sustainable and equitable ways.

Recommendations

BI-FEW forms a symbiotic relationship in a network of buildings that work together to move towards creating a more resilient urban environment. The

model can ensure urban resilience by efficiently managing the energy-water resources of a building with food production. The integration of IoT technology enables a distributed intelligence throughout the entire buildings infrastructure and is vital to the success of the food production system operations. This makes urban agriculture a more economically viable practice to integrate as a real-estate model in cities. The models presented in this chapter require more variations to adopt in different urban contexts and therefore may require more research and development of suitable farming systems. The model also links economics with socially responsible employment and entrepreneurship practices for growing urban populations and improving the local workforce to participate in skilled jobs required to work with the technology. The policy implication is directly towards improving the economic status of the community and providing nutritious food locally that ultimately aims for the improvement of public health.

Moreover, the existing gaps in the policy frameworks required to support the application of Bi-FEW models, the paper recommends for a strong case to allow for innovative land use, building code and zoning change to facilitate the implementation of innovative urban agriculture models. The role of FRUIT is as a support tool to provide agency for these concepts and to strengthen urban resilience through resource efficiency of cities. An interconnected knowledge platform of BI-FEW models will provide a robust framework that will enhance and support multi-level decision-making on future urban development. Integration of real-time data from operational market viable CEA systems will greatly assist the future development of the BI-FEW model. Therefore, there is a need for policies that can incentivize urban farmers to train locals to actively participate in urban agriculture within their own communities with the skilled knowledge to manage CEA systems. A further research on environmental planning policies, and public health and nutrition should be explored for integrating Bi-FEW as a model that addresses food security policies in cities globally.

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CHAPTER 15

TOWARD HUMAN-CENTERED SMART CITIES: UNDERSTANDING EMERGING TECHNOLOGIES AND THEIR EFFECT ON THE URBAN EXPERIENCE

CELEN PASALAR AND GEORGE HALLOWELL

Introduction

Recent technological advances are substantially changing the way we navigate, communicate, and experience our cities. We already visually explore distant streetscapes and neighborhoods using Google Earth™, 360° video, virtual reality, and even digital photographs on social media. But as a result of these advances, sense of place, legibility, knowledge of urban areas, and hence our overall urban experience can be profoundly affected. In recent years, research on spatial and temporal displacement has given us a new understanding about how place identity (Proshansky, Abbe, and Kaminoff 1983) and wayfinding differ when experienced in person versus remotely through virtual presence (Roberts 2006). In his seminal work, *The Image of the City*, Lynch (1960, 2) describes the flow and interaction of people in a city as being as important as its physical buildings and spaces. He notes that we are not merely "observers of this spectacle, but are ourselves a part of it, on the stage with the other participants." However, this urban spectacle is changed, when we are only viewing the scene remotely and we are not physically present in the space. Additionally, advances in GPS routing and mapping software have become so commonplace that many people no longer purposefully navigate and explore the urban landscape, but rather follow a course set by the applications. With the onset of advancing technologies, such as autonomous vehicles, we may essentially remove ourselves from choosing how and what we explore in the urban context altogether, and simply become passive

observers of our surroundings. As architects, planners, and landscape architects, it is imperative that we consider how these changing technologies influence our perception of the city in order to guide future policy and design solutions that engage and benefit the public.

The concept of smart cities is an urban development strategy initiated in many places across the globe. As new smart technologies in areas such as information and communication become part of everyday life, the idea of smart cities is considered an effective way of dealing with quality of life concerns by embedding technology as the prime driver for change (Marvin et al. 2016). According to Marvin et al. (2016) the smart city concept is increasingly focused on regulating and managing urban systems through digital technologies that reshape our understanding of the city and govern everyday life. Although technology may lead to more efficient management and functioning of smart cities, we must ensure that the human dimension such as behavior, direct interaction with the environment and resulting experiences are not lost in this quest. It is critical to retain the value that urban spaces and experiences traditionally offer in our cities. If we also acknowledge that a major barrier to critical practice in any discipline is singular thinking, it is necessary to take a much broader view toward emerging technologies and how they might be changing life and experiences in cities. Hence, this chapter introduces a filter model that can guide future design theories and tools to help shape more human-centered cities. By reviewing existing design and smart city concepts and looking at recent advances in consumer-based technologies, such as GPS wayfinding apps, autonomous vehicles, virtual and augmented reality, and virtual viewing through Google Earth™, we examine how these technologies might be affecting urban identity, legibility, wayfinding, and the ways that we perceive and use our urban environment.

Theoretical Foundations

Within the scope of this study, we focus on urban experience through three primary theoretical foundations: presence, sense of place, and orientation and wayfinding. These concepts have guided urban designers and researchers for many years and provide a lens for understanding how we perceive and experience our urban environment using current technological advances.

The formal and spatial design features of an urban space often enable specific uses and behaviors (Arora and Khazanchi 2010). The notion of place acquires its meaning as a result of human activities that occur in a

space (Nova 2005). Place represents a "lived relationship with the spaces and resources that afford the group's communication and interaction strategies" (Fitzpatrick 2003, 84). Relph (1976) and Turner and Turner (2003) also suggest that places are the environment that people invest with understandings, meanings, and memories by evoking strong feelings and emotions in them via either a virtual or physical presence.

Over the last six decades, numerous conceptual models have been developed in the field of cognitive psychology to illustrate a proposed relationship between input variables to the human mind, such as oral or visual stimuli, and subjective reactions in either behavior or mental processing. Donald Broadbent was one of the first psychology researchers to use an information processing metaphor to describe the human mental processing system (Fernandez-Duque and Johnson 1999, 90). Broadbent developed a metaphor to describe how the human mind used an early selection process to offset its limited attention capacity, which he described as a filter model. Early filter models suggested that the "objective and perceived worlds are separated by an information filter (knowledge) and an attitude filter (goals)" (Rapoport 1977, 38).

According to Amos Rapoport (1977), perception is the direct sensory experience of the place for those who are present in it at a given time, and is at the heart of experiences we use to define the urban environment. He also suggests that we purposefully apply our cultural and personal characteristics as filters in the process of perception of, and action within our environment. Rapoport (1977) developed a filter model that attempts to clarify how our personal choices and cultural characteristics alter our perception, which ultimately influences our experiences of the environment (Fig. 15-1a). However, as technology continues to advance, we suggest that a new filtering process is occurring in the perception and definition of our urban environment, partially due to the technology we use to navigate, communicate, and visually experience our cities. Our suggested filter model (Fig. 15-1b) begins with choices from the real world. Depending on the technology, this could be the real physical world or it could be a partial or fully independent virtual world, such as in a gaming environment. From that original world, our perceptions are filtered in a process that Rapoport (1977, 39) describes as "...amplified, weakened, transformed, arranged and ranked, or eliminated until a construct results which is the perceived world within which people operate." The first filter layer on the left side of both diagrams illustrates the cultural, personal and temporal characteristics that mediate our perceptions of the world.

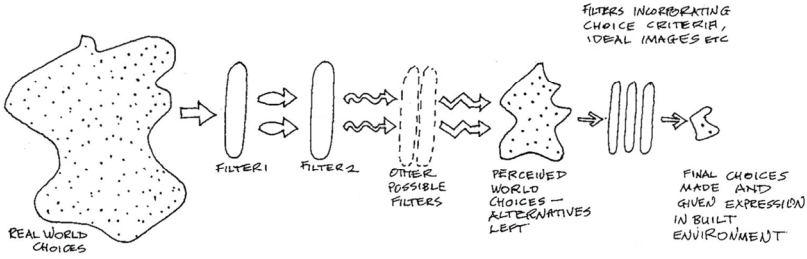

Fig. 15-1a. "Filter Model" by Amos Rapoport. Used with permission. (Rapoport 1977, 40)[1].

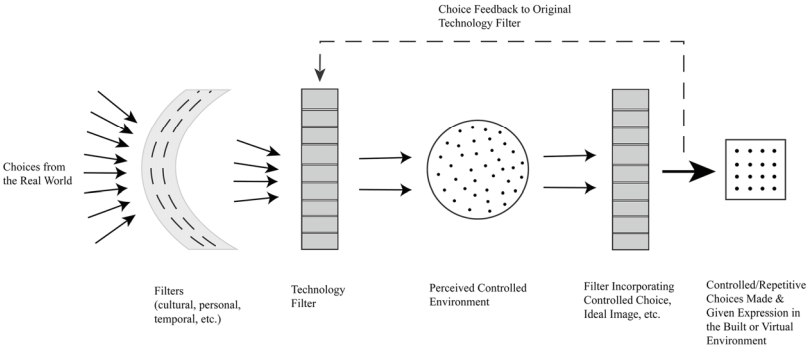

Fig. 15-1b. Technology Filter Model.

Our contention is that an additional process inherent in the technology, which most of us use everyday, also filters our perceptions of the world. Labeled as Technology Filter (Fig. 15-1b), this layer continues to separate the real and perceived worlds. As opposed to the cultural, personal and temporal filters, the technology filter is both guided and constricted by the algorithms involved in its operational software, but also in the interfaces inherent in the technology, such as visually in the use of a phone wayfinding app, or in its aural or haptic design. Because the technology filter delimits the choices that are heard, shown, or felt through its interface and operating system, this filter layer is potentially more purposeful, guided and

[1] Reprinted from *Human Aspects of Urban Form: Towards a Man-Environment Approach to Urban and Design*, First Edition, Amos Rapoport, Chapter 1 Urban Design as the Organization of Space, Time, Meaning and Communication, Page 40, Copyright (1977), with permission from Elsevier.

restrictive. The resulting perceived virtual or real-world choices are therefore more limited and uniform than the previous filter layers in the model. From this set of perceived world choices in Fig. 15-1b, a final filter occurs that incorporates our personal choice criteria and ideal images. Because this final filter is controlled by the reduced choices in the previous step, this layer is also more guided and restrictive. At this point, some communication, navigation and virtual reality applications also adapt the final device or app user choices and feed them back into the original technology filter layer to further direct and narrow user choices in the model. For example, if you are using a wayfinding app to plot a course to a specific restaurant or other destination, some algorithms will feed those choices back into what is presented on the screen as sympathetic alternatives, such as other restaurant choices. The plotted course is often shown with several alternatives, depending on your original device settings. This is, of course, a desirable set of choices for many, but it is an additional purposeful filter. In the last step of the model, the final choices are made, and as Rapoport notes (1977, 40) are given expression in the built or virtual environment.

Presence

The notion of presence historically refers to the natural perception of an environment by actually being in that place and experiencing the immediate surroundings. Our perception of reality is continuously mediated by technology, by simple personal devices such as glasses and hearing aids and by mass-market communication systems including radio, film and television. However, over the last few decades as virtual reality, simulation rides, video games, 3-D films, and immersive artificial environments continue to emerge, the notion of presence has taken on a new role in the attempt to differentiate between real and mediated experiences (Lombard and Ditton 2006). McMahan (2003) states that “when perception is mediated by a communication or viewing technology, we are forced to perceive two separate environments simultaneously: the physical place in which we are actually present, and the environment presented via the medium.” Telepresence is the extent to which you feel present in the mediated environment, rather than in the immediate physical place. In other words, presence refers to the natural perception of an environment, and telepresence refers to the mediated perception of an environment. The perceived environment can be either a temporally or spatially distant real environment, for example “a distant space viewed through a video camera, or an animated but non-existent virtual world synthesized by a computer”

(McMahan 2003, 72). Lombard and Ditton (2006) suggest that an increased sense of presence in a mediated environment can result from a combination of some or all of the following factors: a) quality of social interaction or social richness; b) realism in the environment, for example when things look, sound or feel real; c) from the effect of transportation, such as when the viewer is mentally transported to another place, or when another place and the objects within it are transported to the user; d) the degree of immersiveness generated by the interface, measured by the number of the user's senses that are provided with input and the degree to which inputs from the real physical environment are at the same time shut out; e) from the user's ability to accomplish significant actions within the environment and the resulting social and physical impact of what occurs in the environment; and, f) from users responding to the computer itself as an intelligent, social agent (Lombard and Ditton 2006; Wijnand and Riva 2003). Within the idea of presence inside a mediated environment, or telepresence, researchers have suggested further dividing the concept into physical or social (Lombard and Ditton 2006; Wijnand and Riva 2003). Physical presence is the idea of being physically located in a mediated environment, and social presence indicates a sense of being together, of social interaction with a virtual or real but remotely-located entity. An integration of physical and social presence would then be a sense of being together in a shared mediated space, or what could be thought of as co-presence. IJsselsteijn and Riva (2003, 10) suggest that a fundamental reason for studying presence is to help develop a basic understanding of mediation, asking how a mediated environment can "convey a sense of places, beings and things that are not here."

Sense of Place

The second concept used in this discussion of how we experience cities is sense of place. Steele (1981) suggests that the spirit or personality of a location creates a sense of place (Najafi and Shariff 2011). The elements that contribute to the formation of a sense of place involve cognitive and perceptual factors where people attach themselves to concepts and meanings of a place, such as in the Plaça Reial in Barcelona (Fig. 15-2). Here we see perceptual factors at work in the environment, including visual cues of people gathering amid surrounding buildings and landmarks, the size and scale of the place, and perhaps smells of food being prepared, sounds of conversations and laughter, movement in the sun and shadow, and cooling breezes. In this scene, we also anticipate cognitive variables triggered by the place, such as remembering our own conversations and behaviors in the

past, learning about new cultures and places, and orientation both in a new physical environment or perhaps adaptation to different cultural norms.

Fig. 15-2. Presence and sense of place in Plaça Reial, Barcelona, Spain. (Photo Credit: George Hallowell)

The formal and spatial characteristics of a physical setting that contribute to the sense of place include size, scale, proportion, diversity, distance, texture, color, smell, sound, temperature and visual variety (Najafi and Shariff 2011). People's relationship with place is also influenced by identity, history, fantasy, mystery, pleasure, surprise, safety, vitality, livability and memory of settings (Najafi and Shariff 2011). Hence, Cross (2001) and Steele (1981) describe sense of place as the particular experience of a person in a specific setting where people feel stimulated, excited, joyous, and so forth. Sense of place involves a personal orientation toward a place, in which the understanding of an environment and the feelings about a place become fused in the context of environmental meaning (Hummon 1992). The legibility of a place and a person's satisfaction with environmental characteristics influence how we understand the meanings, concepts, symbols, and identity of place (Najafi and Shariff 2011). It evolves through personal experiences and defines how people view, interpret and interact with the distinctive qualities of places by actually being in that environment (Relph 2007). Relph (2007) suggests that technological advances such as motor vehicles, air travel, the internet, and virtual capabilities enabled

people to move around faster and experience the world in a different way. He further argues that this causes people to have a broader but shallower sense of many places instead of a deep and focused sense of place.

Orientation and Wayfinding

In the modern context of architecture and planning, the notion of orientation and wayfinding derives in part from the early work of Kevin Lynch (1960). Lynch (1960) used the term wayfinding to refer to systems that help people navigate the world around them based on sensation and memory. His research revealed that people formed individual mental maps to paint a picture of the physical world, often based on five elements: paths, edges, districts, nodes, and landmarks (Lynch 1960). Wayfinding is about how we perceive, inhabit, and move around in urban environments by orienting ourselves in relation to a destination, how we determine a path leading to that destination, how we then monitor our progress to ensure the destination is getting closer by reading the cues in the environment, and how we recognize when we have arrived at that destination. Subsequent studies have also argued that the formal and spatial characteristics of an urban environment can influence wayfinding, making it either easier (when the visual fields are overlapping and the pathway between origin and destination landmarks are clear) or harder (when the visual chains are long or complex and visual fields are interrupted) to carry out navigation tasks and develop and retain spatial information (Omer and Goldblatt 2007). Lynch (1960) referred to this aspect of cities as urban legibility, indicating "the ease with which its parts can be recognized and can be organized into a coherent pattern." As research into wayfinding during the age of virtual reality environments develops, the idea of environmental legibility may be further divided into components of visibility, complexity, and differentiation (Omer and Goldblatt 2007). Of particular interest here is visibility, or the degree to which landmarks and other spatial and formal components of urban legibility are observable from different locations along a route. As new technologies of pedestrian and vehicular wayfinding develop, such as augmented reality apps and self-guided driverless cars, the potential loss of attention and focus on physical landmarks in the process of exploration may have particular significance in how our sense of place and presence are filtered. Along with loss of orientation, visibility is often one of the prime considerations in wayfinding within a virtual environment (Omer and Goldblatt 2007).

In the 1970s and 1980s, continued research on wayfinding helped to develop what is generally referred to as the landmark, route, survey (LRS) model of spatial knowledge representation (Darken and Peterson 2001, 4; Siegel and White 1975). This theory follows closely along the lines of Lynch's work, positing that a traveler first extracts recognizable landmarks from their environment. These landmark cues are usually dependent on orientation, fixity and visibility, and are visually separate from one another. Once oriented, the traveler begins to develop paths between these landmarks, although not necessarily optimal routes. In a study of inter-visibility and wayfinding, Omer and Goldblatt (2007) found that a high degree of overlap in view fields and short visual chains between landmarks helped people execute navigation tasks and develop long-term spatial knowledge, even in virtual environments.

Darken and Peterson (2001, 1) note that we often consider that the value of orientation and wayfinding is creating "a situation where everyone is oriented properly all the time and knows exactly where everything is and how to get there." This is certainly true in our desire to avoid the discomfort and anxiety of being lost or in unfamiliar surroundings, but this is not the only value in developing skills for orientation and wayfinding. As urban dwellers we learn a great deal more than spatial knowledge in navigating through our environments, be they real, mediated or virtual. Darken and Peterson (2001, 1) also contend that "the path of discovery rarely lies on a known road. The experience of serendipitous discovery is an important part of human navigation and should be preserved" (Darken, Peterson 2001). It would seem that the very process of orientation and wayfinding can be a key to connecting with an urban community and initiating a personal sense of place. Indeed, the "serendipitous discovery" can be the beginning of a long-term relationship with a neighborhood or urban place.

Lynch (1960) notes that we are not simply observers of the urban spectacle but are ourselves a part of it. We are also supported by the presence of others and by wayfinding devices such as maps, street numbers and route signs. But if we are not actually in the space but viewing through technologies, and not accompanied by fellow travelers and tangible physical evidence such as a paper map or signs, our perception of the urban spectacle changes as well. For example, even if 500 people were viewing an urban plaza at the same time, but only one was physically present in that space, the remaining 499 remote viewers would perceive that urban environment quite differently. By not having a physical presence in that space, we are also potentially changing, or filtering other urban explorers' sense of space.

Smart Cities

The United Nations DESA predicts that 68% of the world's population will live in urban areas by the year 2050 (UNDESA, 2018). As cities continue to grow in population, the consumption of resources and services will increase drastically. To accommodate this growth cities are seeking innovation in the management of their resources, such as water and energy. Hence, sustainable urbanism is a key concern for societies in terms of environmental efficiency and intelligent employment of public resources (Marvin et al. 2016). As a result, the notion of smart cities is being promoted, highlighting the role that information and communication technology can play in solving land, resource, infrastructure, and related urban development challenges. Various cities globally are exploring the idea of urban districts that will make use of technology to reduce energy consumption and pollution (e.g. intelligent and self-learning buildings using wireless sensor technology and data mining methods to anticipate and meet their occupants' needs), make transportation more efficient (e.g. monitoring traffic patterns in highly trafficked pedestrian areas, coordinating train times in metro stations, shared rides achieving better passenger aggregation and reducing congestion and carbon emissions), and attract affluent tenants who will transform significant portions of urban land into attractive neighborhoods filled with buildings and infrastructure using the latest innovations for safety, energy efficiency, and overall comfort of its inhabitants (Woyke 2018).

One of the most influential technological innovations shaping cities in the twentieth century was the automobile and for much of the past two decades urban redevelopment efforts centered on the reclamation of auto-centric conditions. Now we find ourselves in an era where open data, consumer-based technological applications, and the internet of things are set to transform and shape cities well into the twenty-first century. However, in a world in which smart is the buzzword and efficiency is a principle to strive for, we must also focus on the idea that smart cities should be human-centered, making the city more livable for all of its people. As technology rapidly evolves, we run the risk of losing the opportunity for real social encounters and being immersed in the urban environment for richer experiences. Fundamental changes are occurring as to what constitutes an urban gathering place, urban life, and sense of community. Mitchell (1995, 7-9) reminds us that physical gathering spaces such as the public square or urban streetscape traditionally "...framed expectations about how you should represent yourself by your clothing, body language, speech, and behavior and about the interactions that were to take place." However, the

human experience within cities is changing as a result of advancing technologies, such as interactive GPS wayfinding apps, autonomous vehicles, virtual and augmented reality, and virtual viewing through Google Earth™. Just as the evolution of the car and train as transportation modes changed the spatial arrangements, mobility behaviors and demographics of cities, so too is today's digital landscape influencing our sense of place and human interaction through digitally mediated environments (Han Hawken 2018). Two decades ago Mitchell (1995, 5) noted that the emerging civic structures and spatial arrangements of the digital era would substantially influence how we would access economic opportunities and public services, public discourse, the forms of cultural activity, as well as the experiences that shape our daily activities. The main focus on smart cities emphasizes research and applications into contents of digital technologies and their business potential in support of regulatory and economic terms (Han and Hawken 2018). Hence, a smart city has been defined as one whose urban fabric is software-enabled infrastructures and networked digital devices and sensors that are used to produce knowledge-driven, competitive, resilient urban systems (Kitchin et al. 2016).

However, smart city approaches should also be human-centric and position a city's social and physical infrastructures as part of the digital technologies driving urban innovation. In many cases technological solutions are often disconnected from society's needs and aspirations, as well as its spatial dimensions (Acedo et al. 2017). As Mitchell states (1995, 7-9) "... the worldwide computer network—the electronic agora subverts, displaces, and radically redefines our notions of gathering place, community, and urban life". Hence, we contend that smart cities must be imagined in terms of their cultural, social, and environmental innovations, enhancing a sense of place as much as their technical and economic capacities.

Filtering Experiences Through Technology

Looking at the filter model in Fig. 15-1b, it is essential to consider how perception might be filtered by new intervening layers such as technologies that add both physical and temporal displacement. Human language and cognition are often described as having the property of displacement (Roberts 2006). Displacement may be both temporal and spatial. Thus, we may think or communicate about events that occurred at some time in the past or that will occur in the future as either episodic memories or as cognitive time travel respectively. People can also think or communicate

about places distant from their current location, which we might refer to as cognitive spatial travel. The concern is not whether we can design for a given context and potential future human occupants, but rather about being cognizant of the perceived environment and context for our designs given the filtering that can occur with contemporary and future technological interfaces. We do not necessarily have a critical understanding of the context when solely experienced through remote viewing--being displaced in time or space--rather than being there in that physical space and time.

Technology in Pedestrian Wayfinding

One area of dramatic technological change in our daily lives is pedestrian wayfinding. In the past, people generally acquired spatial knowledge about cities through direct experience by walking within an environment and reading physical cues, by asking for directions or viewing a map, or by consulting an information kiosk or signage. Recent studies indicate that this age-old process often remains the most effective for long-term orientation and retained spatial memory of a place (Ahuvia and Ido 2007). In order to enhance this method of wayfinding, cities long ago began placing community-specific signage, sometimes including both fixed graphic maps and associated information about local sights and points of interest. As technologies advance, communities are merging wayfinding signage and communication applications with specific community goals and planning efforts. For example, when the City of Vancouver, BC adopted the Greenest City 2020 Action Plan in 2010, it began to encourage visitors and residents to explore the city on foot. Toward that goal, the city installed information kiosks (or map stands) across the city with neighborhood information, maps and destination sites (White 2014). Vancouver also developed guidelines for new walking route maps, generated a line of map-branded merchandise, and created a digital wayfinding map application for the public to use. Similar mapping and routing systems were also developed in cities such as London, New York, Toronto, Helsinki, Edmonton, and Melbourne using various combinations of physical map stand information kiosks and digital support technologies (White 2014).

With the advent of the smartphone and GPS-based mobile navigation apps, wayfinding has changed dramatically. Business Insider notes that apps such as Google Maps™, are among the top internet apps in the US (Hartmans 2017). Even the earliest wayfinding phone apps also include useful route information on the camera view of the phone. These routing apps, supplemented with additional information, give service providers and

developers a way to insert paid advertising, and direct user searches for specific purposes. The information provided is valuable for the end-users, but it also filters and limits their choices. For example, the mapping service provider might only include retail locations along a route for retailers that exclusively paid for such listings.

The next stage of technological change in wayfinding apps is augmented virtual reality (VR), used both indoors and outside moving along the streets and sidewalks of our cities. Several apps utilizing augmented VR, such as the publicly available wayfinding app at Gatwick Airport in London, allows the user to view the pathway to their destination as a colored virtual path drawn over the scene they see through the camera on their smartphone (Hughes 2017). However, studies have indicated that virtual environment users had the poorest learning of a complex environment, and were particularly susceptible to disorientation (Richardson, Montello, and Hegarty 1999; Allen 2009). The additional distraction and loss of situational awareness in focusing on the visual path overlay may also contribute an added layer of filtering.

More recent wayfinding apps use cartoon avatars drawn over the live phone camera view (Fig. 15-3), such as Nexus Studio's HotStepper™ app (Douglas 2017). Studies have shown that users tend to focus on the continuously updated information on their phones and pay less attention to the routes and spaces. Ishikawa and colleagues (2008) found that this local focus of attention interferes with our global processing of spatial information, which is required for people to become oriented in space. This is due to an interrelating between the surrounding space, the self, and the map, which all results in a disconnected experience (Ishikawa, et al. 2008). In addition to loss of spatial memory and wayfinding difficulty, the disconnected experience that Ishikawa and colleagues applied to navigation also suggests the need for future research into potential loss of personal sense of place and the serendipitous discovery usually found in urban exploration (Darken and Peterson 2001).

Fig. 15-3. The HotStepper™ augmented reality map guidance application. (Photo Credit: George Hallowell, image data from Nexus Studios HotStepper™ app)

Mapping/Routing Apps and Autonomous Vehicles

To drivers in large cities, GPS routing apps like Waze™ and Google Maps™ can be a boost for the weary commuter. However, unexpected consequences can also arise in their widespread use. In Leonia, NJ, for example, CityLab reported that routing and wayfinding apps had created problems by directing commuters en masse onto Leonia's normally quiet streets (Surico 2018). Indeed, an internet search for "neighborhood" and "Waze" will likely produce numerous local news stories about similar once-quiet neighborhood streets now overflowing with rush-hour jams and late-night speeders. The advantage for wayfinding with crowd-sourced routing apps or autonomous vehicles are undeniable, especially for locations and times of severe traffic congestion or directionally challenged drivers. But reported unintended consequences for previously quiescent communities suggest that additional research and forethought in the design of our streets, signage and neighborhoods, along with the establishment of reasonable guidance for navigation software developers, are necessary in order to minimize the impact on quality of life and safety.

Research also indicates reduced situational awareness and distraction among both pedestrians and drivers using mobile phones for either communication or wayfinding and mapping (Nasar and Troyer 2013). Although much of this research is focused only on pedestrian and traffic safety, it is also worth considering how a reduced situational awareness and obvious distraction is filtering our spatial and social awareness of the urban environment. As we watch crowds of urban pedestrians focused more on their phone than on crosswalks, traffic, and their neighbors, it is worth studying what effect an increased focus on the pervasive smartphone will have on our urban experience and stored perceptions.

The technology behind autonomous vehicles is also progressing rapidly. As new infrastructure is being considered for such technology, we need to reassess how our cities are designed. As the demand for semi-autonomous or driverless cars increases, this will result in more space in our cities for green infrastructure that repurpose the existing parking lots and urban highways into pocket parks and greenways thereby stimulating people's mental and physical health (Jolma Architects 2018). As noted at the outset of this chapter, it is also worth examining how advances in routing apps for pedestrians and drivers may have removed much of the choice in how we explore our cities. With the advent of autonomous vehicles, it seems likely that we will essentially remove ourselves from choosing how we explore our urban context, and simply become passive observers. The increased filtering of our perception due to this loss of choice in routing and wayfinding is also magnified by the notion that once a routing app or autonomous vehicle determines its optimal route, the same origin and destination would produce that same route again and again.

Virtual Viewing

Reliance on distance viewing in order to understand urban conditions beyond our experience can also result in unintended consequences. We rely on Google Street View™ to scan places we cannot physically visit. But we are displaced in space and in time given how long it takes for an area to be photographed and uploaded to the central server. What do we understand about those places from a simple Google Street View™, or more importantly, what are we not learning about by not visiting that physical place?

For example, a team of researchers from The New School and the University of Buenos Aires use Avellaneda, Buenos Aires as a case study in the emerging "urban digital divide" between places visible in Google

Street View™ and those that are not (Scruggs 2018). The study noted that residents of Avellaneda, had been complaining for years about pollution and trash clogging up a toxic stream in the town. But perceiving any of those concerns by merely looking at a Street View of Avellaneda is difficult since the Google Maps Street View™ avatar cannot enter many parts of the neighborhood (Fig. 15-4). Views show at worst a dry streambed and at best a muddy but relatively clean river where it can be viewed at all.

Fig. 15-4. The emerging urban digital divide through imaging (i.e. representation of places in Google Street View™. (Image Credits: Google Earth™ Map and Street View).

Filtering Effects of Virtual, Augmented and Mixed Reality

Finally, in an effort to better understand displacement and technological filtering, we must consider several terms for advancing technologies and their potential effect on perception (Lackey and Chen 2017).

Virtual reality is an artificial, computer-generated simulation of a real-life environment. It immerses the user by making them feel like they are experiencing the simulated reality firsthand by stimulating vision and hearing. The degree of immersion in a virtual environment is an objective property of a system that can be measured independently of the human experience that it engenders. Augmented reality (AR) is a technology that layers computer-generated images or information atop a view of existing reality in order to make it more meaningful through the ability to interact with it. Mixed reality (MR) weaves together both real world and digital elements. In MR, you interact with and manipulate both physical and virtual items and environments. MR allows you to immerse yourself in the world around you and interact with a virtual environment using your own hands.

The use of low-cost VR, AR, and MR technologies to preview urban design efforts is well intentioned, but a person's perception within a virtual environment still needs to be verified. In a 2015 study by Luigi et al., two groups of participants had to provide subjective measures related to the global, acoustic and visual qualities of a real environment versus an Immersive Virtual Reality (Luigi et al. 2015). Although there are cost benefits with VR tools, the effectiveness of using virtual experiences would benefit from more and varied research. Immersive interfaces like VR and AR are becoming more powerful, eliciting investment from Google™, Samsung™ and Microsoft™. As designers we must prepare for these virtual technologies, while trying to avoid unnecessary filtering of our perception.

As mentioned earlier, in the world of VR development, the concept of telepresence, or presence, refers to the phenomenon of behaving and feeling as if we are in the virtual world created within the computer, essentially "being there" (Sanchez-Vives and Slater 2005). If immersive VR could deliver the perfect illusion of experiencing a place, the concept of presence would probably never have arisen. Perhaps as technologies advance, the concepts of immersion and presence will grow closer together.

Conclusion

The emerging synergy between cities and information accessed via advancing technology and our interactions with virtual places has produced benefits in the creation of smart cities, while challenging the way we design and experience real places in the future (Parker 2015). As Dodge and Kitchin (2008) state, we are relying more and more on software to function. The networks of algorithms and apps are not only transforming human to human interactions but also interactions with the built environment and the objects and spaces that it contains (Parker 2015). The nature of the urban experience is changing and will continue to change even more radically as wearable and mobile computer networked devices become available for use across the globe (Parker 2015).

Returning to the Rapoport Filtering Model (1977, 40), he looked at perception as the direct sensory experience of an environment for those who are in it at a given time. We must now consider how this model changes when we are not physically present in the environment, but viewing it displaced in distance or time. We suggest that a parallel filtering sequence occurs given the fact that we are passive observers of that virtual environment and removed in time or distance. Virtual environments are also controlled, actively or passively, by an algorithm designed to direct and

manage our choices. This does not necessarily portend negative forces or outcomes, but it does suggest limitations in choice.

Even in something as seemingly harmless as a phone mapping app, the algorithm controlling the shortest route changes our experience of that neighborhood by repeating the same route, and only considering mean drive time. This may result in a shallower sense of place with less understanding of the characteristics of that environment.

A virtual environment has both distinctive and quantifiable limitations on choice. A virtual world is constructed by an intelligence, either human or artificial, and managed by an algorithm that directs the user for reasons of a predefined narrative or limitations within the virtual environment. In both cases, the choices of the user within a virtual reality are controlled for specific reasons. The next step in the parallel Rapoport model (Filters Incorporating Choice Criteria) would also be controlled and directed to serve the VR developer goals. Moreover, this step in the model, would likely be a feedback loop, taking user choices and re-inserting them back into the previous step (perceived world choices).

The resulting parallel path in the Rapoport model of perception has the likely outcome of producing an environment of rigid and repetitive choices from a formed and guided image of the built environment, as illustrated in Fig. 15-1b. As Tenner (1996) warned, it is often difficult to predict the effects of introducing new technologies. Whether we arrive at side effects or revenge effects (when technology has the exact opposite effect of its original purpose) depends a great deal on whether we, as urban designers, consider the full range of consequences of our actions. Future smart cities will rely on their distinctive informational ecosystems to address economic, social, and environmental needs. Creating high-quality, human-centered places for everyday experiences, rather than a single-dimensional race to reach efficiency will be the true success for future cities.

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Chapter 16

Coproducing Hybrid Infrastructures

Marantha Dawkins

Introduction

Landscapes are territorialized by power relationships that configure and refigure material and movement. Anthropogenic articulations of space have engendered self-perpetuating modes of spatialization that degrade biodiversity, exploit resources, and disempower voices of dissent in a networked society of control wherein urban form is codified by invisible procedures. Zoning laws, building codes, traffic standards, financing mechanisms, management regimes, logistical norms, and development patterns inscribe limits that shape public spaces, urban ecologies, mobility networks, the design of buildings, the rhythms of everyday life. This conditioning embeds and transmits information to rationalize dynamic space in the service of a constant maintenance of neoliberal cartographies developed for dividuation in a frictionless and data-rich world. Design practices that engage in active form (Easterling 2012) and advocate for new forms of knowledge production and dissemination can become articulations of resistance. The work described in this chapter uses behavior as a productive media of the city to navigate the unexplored affordances of ecological affinity.

Positioning the Urban Body

The Anthropocene is an age in which human activity has become the dominant influence on Earth's climate, geology, and ecosystems. It describes a dynamic where geological effects are considered externalities in the production of history, and where environments are instrumentalized and isolated into products for historical, cultural, and material manipulation. Central to this crisis of instrumentalization is the translation of space as landscape to property as exchange value, which delimits the bad infinity of

capital as a structuring mechanism for the city and inhibits social and ecological agency.

Of particular significance to the way this translation is wielded in contemporary Pittsburgh is the concept of blight, which has come to describe conditions of vacancy, overgrowth, disrepair, and poverty. The term was originally borrowed from agricultural science in the early 20th century by social reformers to describe perceived problems of the city (Mock 2017). Through its life as an urban concept, blight transformed from an issue of public and moral health to an issue of economic growth. On a small scale, blighted properties were understood as having the power to destroy a neighborhood. But at a large scale, blighted neighborhoods were considered potential *tabula rasa* upon which newer, better cities and economies could be built. When it came to larger demolitions, urban renewal programs often exaggerated the extent of decline. This contributed to depressed appraisal values and mass displacement in service of large development projects (VPRN 2015, 11). The pseudo-scientific, ill-fitting ideological transference of blight allowed for the obfuscation of intentions behind physical intervention, disguising a value-laden cultural construct as a natural phenomenon that soon became a conceptual anchor for urban restructuring.

Blight has a long history in Pittsburgh: the spatial pattern of resident displacement and neighborhood redevelopment is a familiar refrain. In 1939, Robert Moses advised that the Lower Hill, a neighborhood in the historically black Hill District, should be cleared due to what he deemed sub-standard housing. In 1956, 1,324 buildings, 1,551 families and over 400 businesses were removed to make room for a new civic arena (Crowley 2005, 83). The demolition was part of a postwar movement dubbed the “Renaissance”. The site is now a 28-acre parking lot.

Much of the more recent demolition and replacement work in Pittsburgh has occurred in conjunction with the redevelopment of East Liberty, “one of the ten coolest neighborhoods in America right now” (Leonhardt 2017). East Liberty has been written up in papers like the Wall Street Journal and New York Times for its revitalization with titles like “A Neighborhood's Comeback” (Hagerty 2012) and “Slumbering Pittsburgh Neighborhood Reawakens” (O’Toole 2018). Developers have leveraged each other’s successes to encourage further, more complex forms of development: big box stores quickly led to lifestyle strip malls, the demolition of existing housing in favor of luxury apartments, a 2009 real estate market value

ranked healthiest in the nation; and a shift towards poke bowls, up-scale coffee, and an increasingly exclusive kind of urban palatability.

The process began with Home Depot opening up in 2000; Whole Foods followed in 2002 as a part of a shopping center which has expanded to include an expansive luxury apartment complex; Google moved into the Bakery Square shopping center in 2010 and the Bakery Square luxury apartments soon followed; Target opened in 2011; in 2014, the public housing community directly behind Target was slated for demolition and redevelopment; and in 2015 the residents of Penn Plaza received 90-day eviction notices as a plan for a new Whole Foods and upper-floor housing complex was revealed, one block away from the existing store (Rutan 2018). The plan was rejected by the Planning Commission and Whole Foods pulled out. In 2017 the last of the Penn Plaza apartments were demolished with no further news on development to take place, underlining the insecurity of affordable housing in the neighborhood and relative value of the speculated neighborhood to come.

The past year has seen continued infill on Penn Avenue, the neighborhood's main street. Storefronts under construction were covered in prints of historic neighborhood photographs. When they lifted, they revealed typical signs of neighborhood upheaval: from banal storefronts of upscale chains to the contradictory but symbiotic urban forms of vacancy and redevelopment at the neighborhood's limits. Vacant lots and new development relate directly to one another at moments of intervention—demolition, sale, construction—but have otherwise very different rhythms, operating procedures, dispositions, and potentials. Vacant properties are usually left fallow before they are sold off, and through maintenance practices like clear cutting, become ecologically inhospitable and infrastructurally inadequate echoes of uneven urban development and social inequity. Nonprofits and government programs have started to encourage vacant lot maintenance, repurposing, and sale, but the rhetoric driving seemingly well-intentioned programs continues to be entrenched in concepts of blight that reify market value, continue to prepare ground for development interests in the city, and undermine the emancipatory and ultimately ecological potential of the land that stretches across Pittsburgh.

Repositioning vacant spaces, pulling them out of narratives of blight and considering them part of the infrastructural, experiential, and ecosystemic networks of the city, uncovers latent conditions that can be alternative points of engagement for design practice. This requires embracing an ecological subjectivity that operates beyond the alienated concept of human history as

marching through crumbling natural resources into its own demise; an ontological shift which is open to socio-ecological equity.

Design practices can unsettle neoliberal urbanization practices with alternative ontologies to replace the constricting inevitabilities of sterile lifestyle developments with the myriad other natures of the city. The following section attempts to articulate an ecological subjectivity as a response to the capital hierarchies of the city and of urban form that can get in touch with the behavioral, active, and expressive substrates of ecological form.

Fig. 16-1. Vacancy and Green Network in Pittsburgh, PA.

Expressive Superorganisms

During Pleistocene glaciations, pressurized sheets of glacial ice refracting deep blue light advanced through great plains, damming rivers, creating lakes, leaving boulders behind and deepening channels to form hummocks, mountains, and valleys. They shaped conditions for networks of forests, animal territories, and millions of years later for human accretion at Pittsburgh's three river's edges as sites of colonization and industry, of smoke, steel, and soot that would block out midday sun and coat buildings for hundreds of years; signaling progress, alienation, civilization, and transforming landscapes into a Hell with the Lid Taken Off (Parton 1868) that would later become carbon dioxide domes entrapping particulate matter at rates that have kept Pittsburgh in the top ten most polluted cities in the

nation, disturbing rhizospheric nutrient transfer, and increasing risks of lung disease and asthma in long-term residents (Breathe 2018).

The historical dynamics leading to Pittsburgh's contemporary landscape, while bound up in human logics of resource extraction and Rust Belt revitalization, can simultaneously be read as dynamic expressions of geology, of organisms and how they divide space, of habitations and formations that encompass more than the exclusive "little provincial space defined by the drives and interests of a single species" (DeLanda 2005, 103). Deleuze and Guattari discuss expression in *A Thousand Plateaus* as autonomous, alloplastic distributions that are "able to bring about modifications in the external world" (Deleuze and Guattari 2014, 60),

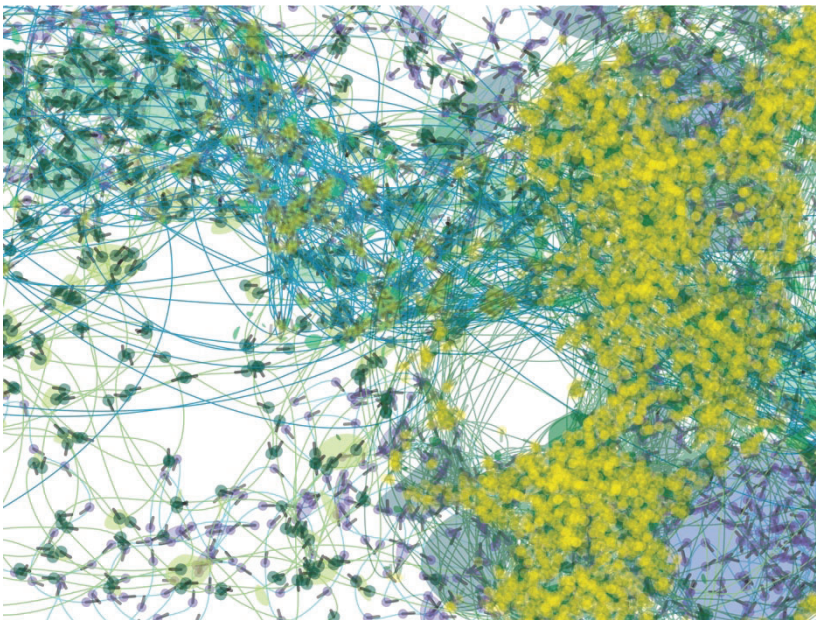

Fig. 16-2. Expressive Swarm.

whether they originate organically or inorganically. The expressive body is not just a thing but "a coding, a dynamic structuration, a dynamic formation" (Ibid. 61). Expressivity is both a declaration of identity and a communication with environment that selects and composes boundaries and arrangements, altering fields of intensities to create superorganismic entities which emerge and dissolve as they navigate the world. The superorganism is related to the

theories of ecological niche, augmented by a fluidity which transforms conditions of identity, action, and response into conditions of embodiment, communication, form, and relation. Expressivity frees the superorganism from the inertia of being primarily a container for animate organisms by focusing on them as things with metabolisms, behaviors, properties, and sentience all their own: irreducible selves that are permeable, highly unstable, and deeply connective.

Superorganisms complicate notions of individuality and interiority by herding shapes and figures into ecological organizations that are accommodating, multiple, unfinished, and permanently partial (Haraway 2004, 13). They thicken and focus. Rather than relying on known classifications to structure the world, the effects of communicative interaction instigate modes of partnership, dynamic difference, and change. Expressions are acts of attunement (Morton 2018, 90) and adaptation, where the spaces between objects can reveal a duplicity, or multiplicity, inherent to ecological intimacy. Deleuze and Guattari call on this in their description of the double-figure of the orchid and the wasp, where an orchid will take on characteristics of female wasps to engage male wasps in a courtship. As the orchid engages in a becoming-wasp, the wasp engages in a becoming-orchid: it becomes the orchid's reproductive organ, transferring pollen from flower to flower (Deleuze and Guattari 2014, 10). This is not simply an act of mimicry, but of true incorporation through trans-species expression. Expressivity calls for a different understanding of being; recognizing the intimacy between things represents a critical ontological framing wherein subjectivity is constructed around sensitivity.

A position of humility, openness, and unfamiliarity uncovers subjective and ultimately ecological effects hidden by normative practice. More than a reimagination and reconnection to the city around us, this position invites us to reimagine ourselves from inside out and from outside in. We do not escape the culture/nature dichotomy by placing man in nature — the constructs need to be deconstructed. To rethink subjectivity allows us to confront what it is to be ecological, within and through human subjects as casualties of the ideology of capital.

A chasmic space is built into the formation of our subjectivities. We do not know ourselves, that is the cost of being a subject. The irony of this not knowing reveals contradictions that reverberate outward and leave every whole unresolved (Haraway 2004, 7) — stripped of its illusions of exclusivity and permanence. Lacan conceptualizes the gap between the self and the object of the self as embodied in another object known as the *petit*

objet a, often considered the object of desire, understood more expansively as the absence of knowledge of the self which performs a pathological self-haunting: a function of the desiring-machine that produces new material effects, holes, and vagueness. This pathological self-haunting is a direct result of embodiment—of not just being, but being a thing. In *The Visible and Invisible*, Maurice Merleau-Ponty argues that the divergence "between the sentient and the sensible" is constitutive of the subject. Merleau-Ponty suggests that the realization that the world is not simply an object "does not mean that there was a fusion or coinciding of me with it: on the contrary, this occurs because a sort of dehiscence opens my body in two, and because between my body looked at and my body looking, my body touched and my body touching, there is overlapping or encroachment, so that we may say that the things pass into us, as well as we into the things" (Merleau-Ponty 1968, 123). Understanding subjectivity this way removes it from realms of Western dualist abstraction and puts it in closer touch with the material world surrounding it.

Biologists might describe this dehiscence in terms of genotype and phenotype, wherein the relationship between inherited genetic information and environmental factors determines an organism's morphology, development, and behavior. As an analogical mode of thinking in design, the genotype and phenotype refer to typology and contextual response. This puts a great deal of pressure on the definition of the type and questions of contextual representation, which are often exercises in discovery through systematization rather than open exploration. The concept of horizontal gene transfer moves beyond bidirectional exchange and describes transference of genetic material between organisms through relationships other than that of parent to offspring. In her 1970 work *The Origin of Eukaryotic Cells*, Dr. Lynn Margulis described the significance of symbiotic events on the complexity of many forms of life. For example, chloroplasts, which are secondary bodies in algae and plant cells that carry out photosynthesis, are theorized to have evolved from symbiotic cyanobacteria. The DNA of chloroplasts was discovered to be different from the DNA of their hosts, provoking the theory that nucleated cells are more like symbiotic communities than single individuals (Margulis 1970). Making space for a symbiotic model, as both a subjective and material turn, has the potential to inform an ecologically haunted design practice more open to passages between and within.

Though diminished through much of the progression of the discipline during the 20th century, Frederick Clement's first book on ecology in 1905, *Research Methods in Ecology*, explored multiscalar communities of

organisms as forming complex organisms themselves. These superorganisms possessed their own functions, structures, and developments that destabilized the theoretical balance between the whole and the sum of its parts (Cook 2014, 222). The looseness that was lost through the dissemination of bunked concepts like the equilibrium paradigm is critical to the observation, representation, and formation of matter; as ecological expression manifests through cooperation within constantly shifting thresholds rather than an exercise in balancing equations. Shaping and thinking the superorganism is an exercise in creating affinity, not through a notion of universal interoperability empowered by concepts like the Internet of Things but through the delineation of a more critical design imagination. The superorganism is enabled by leveraging tools of division, waste, isolation, and specialization towards affinitical embodiments that operate through, and take advantage of, the chasms of not knowing in an experimental spirit of partiality, inseparability, and solidarity.

Simulation and Simultaneity

Using ecological relationships as a structuring mechanism for the urban field changes the terms by which it is possible to consider the city. Refiguration is not a form of explosive nihilism but an exercise in defamiliarization that works in service of the accommodation of other species and things, creating looser definitions more open to change and reinterpretation. This exercise invites the consideration of different scales, materials, and rhythms; introducing alternative hierarchies and new regimes of authorship. Thinking in terms of thick and connective ecologies rather than through representations of a crystallized, permanent form of advanced capitalism defends against inert urban genericism upon which frozen yogurt stores and appropriative yoga studios can unroll.

Performance and expressivity frame life as an intensive and inclusive field from which vivid connections can be made. Framing space and ecology in this way enables design thinking that considers material, relational, and temporal intervention that is strengthened with modes of practice that relate digital space to urban systems by adapting deterministic media of space and power into malleable objects of design research. Creative mapping can destabilize standard metrics toward a new epistemological horizon. It allows for the deconstruction and subsequent reassembly of space, disrupting embedded value systems and uncovering spatial conditions which can offer new modes of representation and understanding as well as new trajectories for practicing projective design (Mah 2015, 23). The capacity to distill space

into layers of information has led in many cases to a new determinism, or new techniques used to justify naturalizations of linear design logics which have in turn given way to reactionary tropes of indeterminacy that often engender noncommittal design. But it has also enabled methods of unfolding that engage ecology and environment as connective, self-organizing tissue.

Landscape design and mapping practices have deep disciplinary roots in issues of time, phasing, and contingency. Contemporary digital tools allow for these themes to become a part of design space, transforming them from analytical tools to modes of design. Cartographic abstraction does not remain just an "early stage through which things pass on their way toward more complex forms of intelligence, but rather forms a core principle of that very complexification" (Bratton 2017). The conceptual and representational transformation of existing spatial conditions uncovers new avenues of composition, visualizes invisible conditions, and illuminates spatial contingencies; moving beyond abstractions of property lines and of unlanded diagrams of indeterminate networks to urge material practice toward the superorganismic composition of specific political geographies and ecological territories.

Simulations are a design space in which it is possible to work with performative power and process to investigate how practice can directly engage complex superorganismic behaviors, which include and encompass subjectivity, the environment, and social relations (Guattari 2014). Contemporary digital methods, when treated as synthetic operational tools rather than simply means of proof empower better informed design imaginations around dynamics that are multi-scalar, simultaneous, and temporally unbound.

Behavioral Landscape is a project developed in collaboration with Nicolas Azel (Dawkins and Azel 2017) that negotiates vacancy in Pittsburgh using conceptual and methodological transformations enabled by digital mapping, computation, and behavioral algorithms which inform the activity and decisions of a robotic agent. In this project, geospatial and simulation tools are used to understand environmental conditions across time, abstracting seasonal cycles of organic seed dispersal into behavioral path systems to bring together urban land and nonhuman ecological authorship in design space. The prototypical site is in Larimer (Fig. 16- 4). Larimer is a neighborhood adjacent to East Liberty which has significant amounts of vacant land and is surrounded on nearly all sides by small valleys, its topography enabling strong potential participation in green infrastructure

and stormwater management at the urban scale. The site is in the midst of long-term neighborhood redevelopment plans, is included in more immediate resident-led plans for urban agriculture, and is currently well situated to connect existing woodland to urban plant communities.

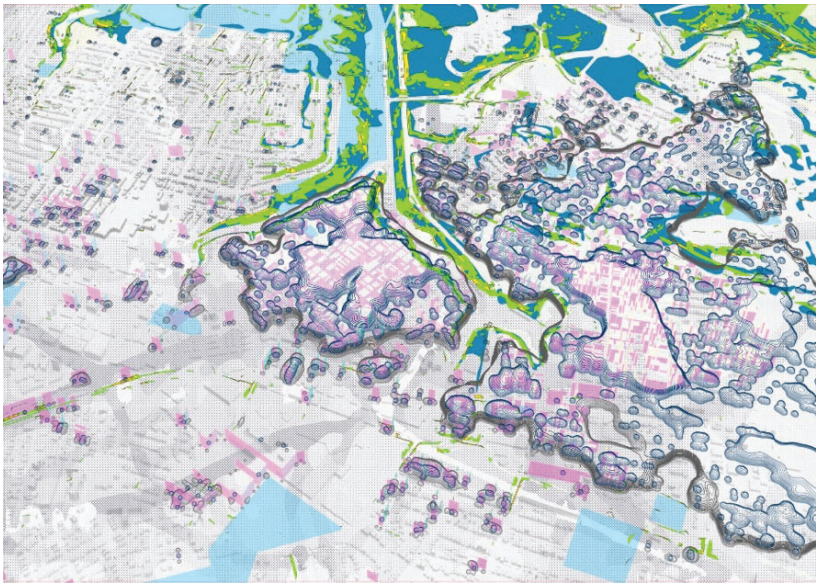

Fig. 16-3. Larimer Site Map.

Behavioral Landscape

Behavioral Landscape (*BL*) is a project developed in collaboration with Nicolas Azel that proposes partnership between a robotic agent and urban plant communities in a Pittsburgh vacant lot. In the context of the subsumption of a neighborhood by exclusionary gentrification and a denuding land maintenance strategy, we designed a framework for ecological codetermination between robotic and plant intelligence. The rover becomes a catalytic agent of mutant urban environments through autonomous planting behaviors; it uses sensors to gauge environmental and site conditions to behave in real-time, pushing earth and planting seeds using an open database of plant communities to transform the landscape.

The database is comprised of climactically appropriate plants resilient to stressors like soil contamination, inundation, and drought (see Fig. 16-5).

They are classified into social groups, which are used to order them into biodiverse communities with associated robotic behavioral schemas. The rover sows the seeds in stages. Its paths are dependent on morphological, habitual, and contextual cues that determine speed, repulsion, and attraction. The rover begins its rounds equipped with simple sensors and actuation devices: a distance sensor, image sensor, light sensor, moisture sensor, motors, and a cohort of seeds representing diverse subsets of the following groups: anchors, structure, body, and groundcover. The species were selected from the database to respond to community goals for urban farming and site conditions gleaned from investigative mapping. Based on morphology and social behavior, each of the typologies has a corresponding wandering algorithm — infrequent stops and even spread for the anchor species; tighter, even clumping patterns for the structure species; long drifts for the body species; and fast, close, clumping mats for the groundcovers.

Fig. 16-4. Behavioral Landscape Data and Site.

The rover makes exclusive passes per seed type, dropping seeds along its path if sensed conditions are within an acceptable range. At first, the most influential conditions are light and moisture levels. As plants begin to grow, the rover engages in avoidance and attraction behaviors to further develop plant community, using the landscape as its memory – reading and writing

directly onto the environment rather than accessing predefined paths and seeding locations.

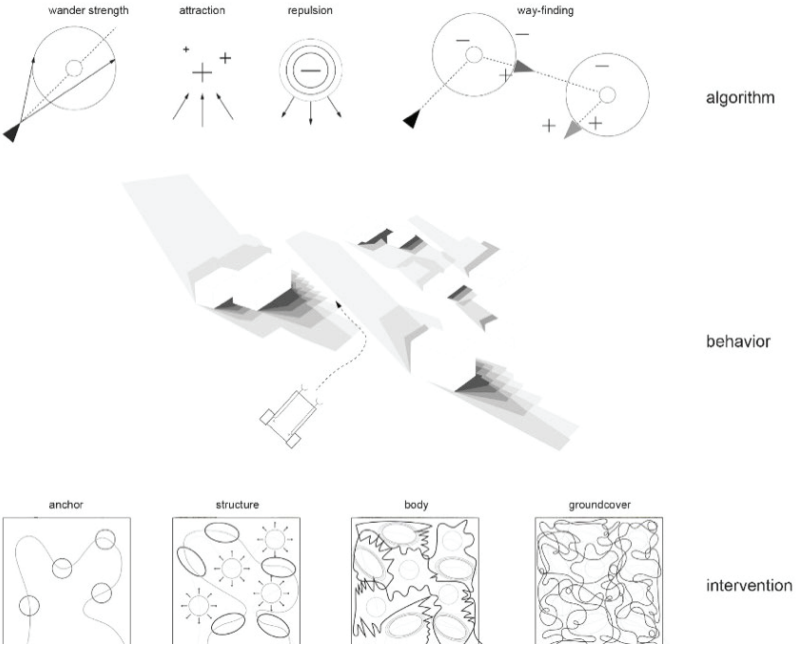

Fig. 16-5. Algorithm Diagram.

The epistemic framework for robot behavior is directed towards the formation of subjectivities and intelligences using logics theorized by Valentino Braitenberg. Neuroscientist and cyberneticist Valentino Braitenberg develops a conceptual model for robotic development in *Vehicles: Experiments in Synthetic Psychology,* which explains a series of vehicles that make use of simple interactions between motors and sensors to produce behaviors like fear, aggression, love, and exploration. The introduction of threshold devices can prompt the emergence of value systems, decision-making, and phenomena that look very much like logic and knowledge. Concerning the issue of memory in a system, often argued fundamental to its capacity to learn and adapt, Braitenberg argues that "there is room for memory in a network of threshold devices, if it is large enough" (Braitenberg 1986, 24) — i.e. if a light sensor rings a bell when it hits a certain threshold, the ring signifies that the vehicle passed a light, triggering another reaction which does not necessarily need to rely on the memory of passing a light in

the way that we traditionally understand memory (as a repository that is called upon). In a situation where a vehicle must, for example, perform a calculation too large for its limited parts, the vehicle can make use of its surroundings to help it. Braitenberg introduces the example of a vehicle on a beach, crawling on the sand, making marks to represent large numbers such that it can crawl back and follow its own track to read the numbers to put back into its calculations. The vehicle is "never able to comprehend these large numbers at any one moment. But using itself as an instrument in a larger scheme involving the environment, and partly directed by it, it ends up with the correct result" (Ibid.). Using its environment enables the vehicle to work on increasingly complex problems.

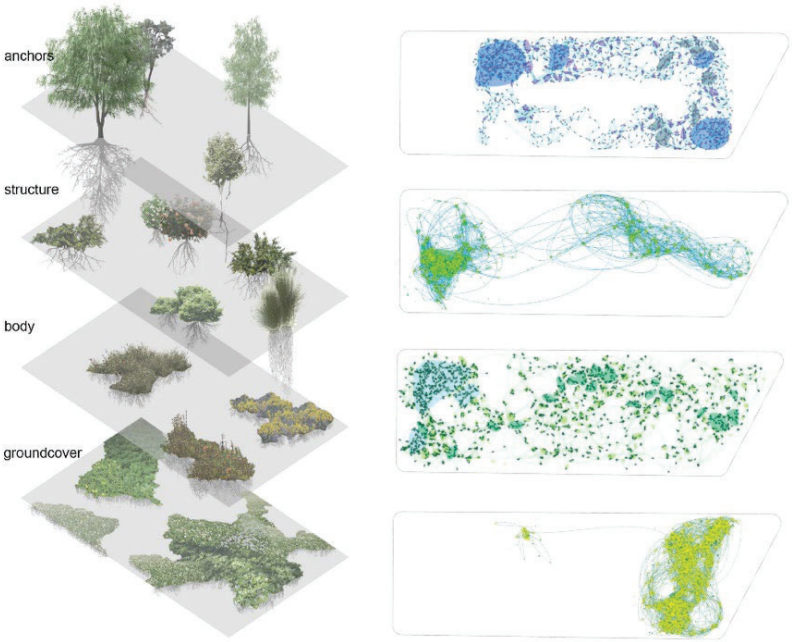

Fig. 16-6. Morphologically Determined Behavioral Schemas.

Such a relationship between agent and environment builds upon an epistemology in which the material and logical boundary between the two begins to blur. *BL*'s rover behavior was designed in this spirit, where the rover builds an intimate relationship with its environment as not its ward, but as its memory and capacity to think. We intend for the codependency coded into our model to put machinic behavior in touch with plant

community interactions to create living, dynamic intelligences that translate into complex urban landscapes. Rather than producing, controlling, and navigating data-rich digital environments towards specific performative goals, the intention is for the machine to be data poor and for the environment to be materially, intelligently, and ecologically rich. *BL* acts as a subjective and material bridge powered by an open-ended epistemological framework that recasts the relationship between mechanical and natural to untether itself from Anthropocentric systems and the human brain.

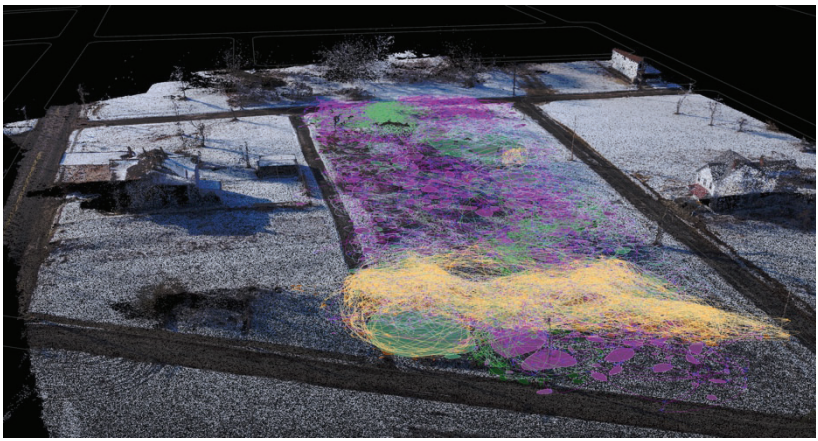

Fig. 16-7. Site Work, Robotic Paths.

This project is informed by a superorganismic ecological ontology and enabled by geospatial tools that together construct an urban context able to accommodate necessary cognitive shifts across scale and time, to design with other species and to unlock alternative forms of urban connectivity. Weaving this ontology with hacked robotic tools is an attempt to design in participation with alternative epistemologies to exaggerate, play with, and intervene in the hybrid ecologies that spread through the city. Urban-adapted species colonizing vacant lots, escaped garden plants, and novel species associations enable rethinking cultural and scientific knowledge of the ecologies we inhabit, providing methods for the design of codetermined landscapes.

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POSTSCRIPT

FROM CRITICAL TO ETHICAL SPATIAL PRACTICE

JANE RENDELL

> I suggest a new term, 'critical spatial practice', which allows us to describe work that transgresses the limits of art and architecture and engages with both the social and the aesthetic, the public and the private. This term draws attention not only to the importance of the critical, but also to the spatial, indicating the interest in exploring the specifically spatial aspects of interdisciplinary processes or practices that operate between art and architecture (Rendell 2006).

In this essay, I explore how 'critical spatial practice' has evolved in my work, from my introduction of the term as a new conceptual frame for considering public art, through the practice of situated criticism – site-writing – that I developed out of it, to current projects which engage with ethical concerns.

Introducing Critical Spatial Practice

I first introduced the term 'critical spatial practice' to describe projects located between art and architecture, and the standpoints theory offered for playing out disciplinary definitions (Rendell 2003). I later consolidated and developed the term by exploring a series of projects located between art and architecture, which I defined as critical spatial practices since they sought to question and transform the social conditions of the sites into which they intervened, as well as test the boundaries and procedures of their own disciplines (Rendell 2006, 1–2, 4, 6, 9, 12, 66 and 191; Rendell 2013b; Rendell 2016a). I located critical spatial practice at a three-way crossroads: between theory and practice, art and architecture, and public and private; and I was keen to stress three particular qualities of these practices: the spatial, the critical, and the interdisciplinary. I have said something about the importance of these three qualities in the foreword to this book, so here

I will discuss the specificities the three axes by briefly examining each in turn.

I will start with the theory-practice relation, because it was reading critical theory that opened up my world and allowed me to understand architectural practice differently, expanding my expectations of what it was possible for architecture to do. But it took me a much longer time to realize that concepts derived from critical theory did not provide practice with answers or solutions, rather that the relationship between theory and practice was not one of continuity but characterized through interaction, indirection, transformation, and sometimes even discontinuity (Adorno 1998).[1]

The relays described in a fascinating conversation between the philosophers Gilles Deleuze and Michel Foucault that took place in 1972 held my attention. Here Deleuze reveals quite directly, though certainly abstractly, how he comprehends a 'new relation between theory and practice'. But instead of understanding practice as an application of theory or as the inspiration for theory, Deleuze suggests that these 'new relationships appear more fragmentary and partial' (Foucault and Deleuze 1977, 205), and discusses their relationship in terms of what he calls 'relays':

> Practice is a set of relays from one theoretical point to another, and theory is a relay from one practice to another. No theory can develop without eventually encountering a wall, and practice is necessary for piercing this wall. (Foucault and Deleuze 1977, 206)

I would certainly agree with Deleuze that the relationship between theory and practice is fragmentary and partial; and I enjoy his concept of a relay in which one discourse forms a link or passage between aspects of the other. But although the notion of relays at first appears symmetrical – theories travel between practices and practices travel between theories – it turns out not to be, for the suggestion that theory needs practice to develop is not accompanied by its reversal. This may be because, for Deleuze, theory is 'not for itself':

> A theory is exactly like a box of tools. … It must be useful. It must function. And not for itself. If no one uses it, beginning with the theoretician himself

[1] Page 276 of Adorno 1998 argues that the relationship between theory and practice is one of discontinuity.

> (who then ceases to be a theoretician), then the theory is worthless or the moment is inappropriate. (Foucault and Deleuze 1977, 208)

It is this useful aspect of theory that interests me, as does Deleuze's suggestion that theory is 'local and related to a limited field' and should be 'applied' in a more distant 'sphere' (Foucault and Deleuze 1977, 206). Yet, although I would agree that theory needs to travel far afield, I prefer to think of theories throwing trajectories, or suggesting paths out into practice, rather than being used as 'tools' of 'application'. It is the proactive and inventive aspect to Deleuze, his thinking about what theory can do, that holds appeal for me, as does its corollary, what practice can do (for theory). And my position is probably closest to Deleuze's when he says that in its encounter with 'obstacles, walls and blockages' theory requires transformation into another discourse to 'eventually pass to a different domain' (Foucault and Deleuze 1977, 206). It is this possibility of transformation – the potential for change that one may offer the other – that I want to focus on.

Rather than post-rationalizing practice by drawing out general 'rules' and then describing these rules as theories for 'how to do' practice in the future, and so using theory to explain practice, or practice to justify theory, theoretical concerns can be introduced to set a scene, to frame a debate, and to raise particular questions or issues that are then further explored through practice. Here, discussions of theoretical ideas can draw attention to particular forms of practice, and then, moving back in the other direction, these practices, and the connections and differences between them, can in turn pose questions of the theories. So, in this way, practice can take theoretical ideas in new and unexpected directions, but also, and perhaps most importantly, challenge the theories themselves as well as inventing new ones.

I have talked about the differences between theory and critical theory in the foreword to the book, so here I would like to engage directly with practice. When I first came into contact with public art practice, in the mid to late 1990s, it changed my understanding of the relationship between art and architecture. Art and architecture might be most easily distinguished by considering how one relates closely to the visual and the other to the spatial, or, as Walter Benjamin has described it, how one is received in concentration and the other in distraction. Benjamin differentiated between concentration as the optical mode of viewing a painting, in which the work absorbs the viewer, and distraction as the tactile experience of architecture, in which the viewer absorbs the work:

> Distraction and concentration form polar opposites which may be stated as follows: A man who concentrates before a work of art is absorbed by it. … In contrast, the distracted mass absorbs the work of art. This is most obvious with regard to buildings.' (Benjamin [1936] 1992, 233)

But one of the most interesting distinctions between art and architecture can be made by considering their differing relationships to use and to function. Unlike architecture, art may not be useful or functional in traditional terms, for example in responding to social needs, giving shelter when it rains or designing a room in which to perform open-heart surgery, but we could say that art is useful or functional in providing certain kinds of tools for self-reflection, critical thinking and social change (see also Wright 2013). Art offers a place and occasion for new kinds of relationship 'to function' between people, and considering how we use rather than view art, might offer a more appropriate way to approach the spatial, and more specifically architectural, concerns of much contemporary art. And, working back in the other direction, if we consider an expanded version of the term function in relation to architecture, through the critical and the relational, we realize that architecture is seldom given the opportunity to have no function, to consider the construction of critical concepts as its most important purpose or to focus on the construction of relations or subjectivities as one of its core functions.[2]

Architecture's curiosity about contemporary art can in no small way be connected with the perception of art as a potentially subversive activity apparently freer from economic pressures and social demands; while art's often ambivalent interest in architectural sites, structures and processes can, I think, be understood by considering architecture's so-called purposefulness, and the symbolic as well as material aspect of its functional role, as well as, the control and power often assumed to be assigned to the architect as the designer in the social production of space (though architects frequently see this role as fragile and highly contested especially in relation to the position of developers and project managers who are closer to controlling the financial side of procurement, commissioned and production).

When art is located outside the gallery, the parameters that define it are more obviously called into question and all sorts of new possibilities for thinking about the relationship between art and architecture are opened up. Art has to engage with the kinds of restraints and controls frequently related to a range of institutional technicalities and practicalities to which only

[2] Here we might consider the work of muf and Doina Petrescu. See Katherine Clarke of muf (1999), and Petrescu (n.d.).

architecture is usually subject. In many public projects, art is expected to take on 'functions' in the way that architecture does, for example to alleviate social problems, comply with health and safety requirements, or be accessible to diverse audiences and groups of users. But in other sites and situations art can adopt the critical functions outlined above and works can be positioned in ways that make it possible to question the terms of engagement of the projects themselves. This type of public art practice is critically engaged, it can operate in relation to dominant ideologies yet at the same time question them, and explore the operations of particular disciplinary procedures – artistic and architectural – while also drawing attention to wider social and political problems. It is for this reason, that I suggested that this kind of practice might best called 'critical spatial practice', for as well as being located at the intersection of art and architecture, the term also allows for a new way of considering the spatial aspect of public art more carefully, in particular the relation of the public to the private.

In the early 1990s, it appeared that artists in Canada and on the west coast of the USA were leading the way in public art and its discourse. They were developing practices out of a community base, which rather than avoid the distinctions between different modes of art, worked to extend and critique them. At that time, artist Suzanne Lacy (1995) coined the term 'new genre public art' to describe what she saw as a new trajectory where public art could include conceptual and critical work with a focus on collaboration, interaction, process and context. Also published in 1995, the various essays in art critic Nina Felshin's edited collection *But is it Art? The Spirit of Art as Activism* (1995) pointed to the potential of socially engaged public art practice as a tool for political critique, while writer Tom Finkelpearl (2000) describes this period as a time in which artists, administrators and communities 'reinvented the field of public art'.

Yet in the UK, in the same time frame, despite the noticeable increase in the funding of so-called public art projects, the category of 'public art' came to be considered a problematic or 'contested' practice (Harding 1997). In *Art, Space and the City*, cultural theorist Malcolm Miles (1997) described two of the main pitfalls of public art, its use as wallpaper to cover over social conflict and tensions and as a monument to promote the aspirations of corporate sponsors and dominant ideologies. And in extending their field of practice outside the gallery, some 'fine artists' encountered the criticism that their work was overly concerned with personal interests or the ongoing debates of the art world and not attentive enough to the specific concerns of a particular site and audience, while other public works were considered too

deterministic and design-based, or, because they grew out of community practice, as insufficient aesthetically, and not operating at a challenging enough artistic or intellectual level. Perhaps because of these problems, terms such as site-specific or contextual art began to be used in the UK in the 1990s, and it was at this time, that I introduced 'critical spatial practice' to try and shift the debate to allow an even more focused consideration of the kinds of spaces and audiences that the term public might refer to, and to those disciplines and practices that art interacted with when located outside, as well as inside, the gallery.

So if the category 'public art' had been traditionally understood to refer to a certain kind of artwork, a large sculpture placed in an external site; the 'art' part was most often linked to the object, and the 'public' part to the site in which the art was placed or to the audience or the body of people 'for' whom the art was intended.[3] And yet what did it mean, as art theorist Rosalyn Deutsche asked, '… for space to be public? The space of a city, building, exhibition, institution or work of art?' (Deutsche 1996, 269).

It is clear that the boundaries drawn around notions of private and public are not neutral or descriptive lines, but contours that are culturally constructed, change historically and denote specific value systems. The terms appear as social and spatial metaphors in geography, anthropology and sociology, as terms of ownership in economics, and as political spheres in political philosophy and law. Public and private, and the variations between these two terms, mean different things to different people – protected isolation or unwelcome containment, intrusion or invitation, exclusion or segregation. In the Western democratic tradition, 'public' stands for all that is good, for democracy, accessibility, participation and egalitarianism set against the private world of ownership and elitism. And for those who support the public realm, 'privatization' is associated with the replacement of public places by a series of private places with exclusive rules governing entry and use. But if we take instead a liberal-rights-based perspective, then privacy is understood to provide positive qualities, such as the right to be alone, to confidentiality and the safeguarding of individuality (Squires 1994). For those who support the private realm, public spaces are seen as potentially threatening, either as places of state coercion or sites of dissidence in need of regulation.

[3] Patricia C. Phillips argues that art should be designated as public not because of its accessibility but 'because of the kinds of questions it chooses to ask'. See Phillips 1992, 298. '

The terms ‘public’ and ‘private’ do not exist then as mutually exclusive categories; rather, their relationship is inter-dependent and open to change. For example, public art located outside the private institution of the art gallery may still be inside the corporate world of private property and finance, and further still inside the private world of the fine art network (Rendell 2000, 2002a, see also 1999). And yet, over the seven-period in which I taught public art and was closely involved in debates and conferences around this term, despite the possible social and spatial nuances of the word ‘public’, when the term ‘public art’ was used it tended to work as a genre that over-determined more fluid understandings of this mode of art practice. By around 2003, I had given up on trying to rework the term ‘public art’, and decided that engaging with a new term, ‘critical spatial practice’, that indicated a process, attitude and field, opened up more possibilities. In this way art could be considered a form of practice engaging with architecture, design and urbanism, transforming and being transformed by them, at the same time making relations between the social, the ethical and the aesthetic explicit, and so opening up critical and theoretical discussions concerning the intersection of public and private aspects of space.

I examined the spatial, temporal and social aspects of critical spatial practice, aiming to explore the various possibilities for this mode of practice from the artistic to the architectural and more urban design-focused. I investigated the spatial by thinking about how the relationship between site, non-site and off-site had shifted in a 30-year period, starting with Robert Smithson’s work in 1966 at TAMS on designs for Dallas Forth Worth Airport, where, to communicate aspects of exterior works on the air field to those indoors in the passenger building, he came up with the notion of the non-site. Commenting on the ‘non-site’ (Boettger 2002, 55–58; and see Smithson 1967/1996, 291), and on this project, Smithson states: ‘I was sort of interested in the dialogue between the indoor and the outdoor … I developed a method or a dialectic that involved what I call site and non-site … so I decided that I would set limits in terms of this dialogue ….’[4] In Smithson’s work, the non-site is a location in which a site-specific work can be communicated or represented through documentation elsewhere, and in using the term ‘non’, the suggestion is that the gallery – the non-site in the relation – is the site of lesser importance. But in a strange reversal, in the 1990s in the UK, many contemporary galleries came to adopt the term ‘off-site’ to describe the commissioning and curatorship of works situated

[4] “Earth” (1969) symposium at White Museum, Cornell University (Flam 1996, 178) .

outside the physical confines of the gallery, reclaiming the gallery as the site of the work, and those outside or external spaces as off-sites.

The second spatial theme I explored was the notion of an 'expanded field', first introduced by Rosalind Krauss's in 1979 (Krauss 1985),[5] where she drew on a term from Robert Morris as an extended physical and mental terrain for understanding 'sculpture'. Krauss argued that in post-Renaissance art, sculpture has been defined as not-architecture and not-landscape, but that modernist sculpture had lost any relation to site, even a negative one, and had become an abstraction or pure negativity. Adopting a technique called the 'Klein' group, or the semiotic square, Krauss repositioned contemporary sculpture in relation to the positive as well as the negative aspects of landscape and architecture. Within this field, as well as 'sculpture' (not-architecture and not-landscape), Krauss identified three new sculptural conventions: 'site construction' (landscape and architecture), 'marked site' (landscape and non-landscape), and 'axiomatic structure' (architecture and non-architecture). I aimed to bring this up to date by examining the curation of shows in diverse and extended sites which engaged debates concerning function, use and utopia across the disciplines of art, design and architecture.

The third spatial possibility I investigated, followed de Certeau's notion of 'space as a practiced place' (de Certeau 1988, 117), in thinking about how creative interventions could work to transform places into spaces of social critique. Here I looked at the work of commissioners – namely New York's Public Art Fund and Art Angel of London – and the spatial practices produced by configurations of interventions into sites over time, rather than individual works by particular artists, galleries or curators.

In order to highlight the importance of the temporal dimension of critical spatial practices, I discussed the relation of the past and present in allegorical, montage and dialectical constructions and the time of viewing and experiencing art and architecture. I suggested that projects that focused on aspects of the ruin, disintegration and transience not only inspired feelings of melancholic contemplation in the viewer, but also provided experiences where critical transformation could occur through quiet but active thought. I also described how that the principle of montage, when used in contemporary works, in which new insertions into sites produced juxtapositions which displaced dominant meanings and interrupted particular contexts, created visual, audio and tactile environments where the

[5] This essay was originally published in *October* 8 (Spring 1979).

experience initially included shock, but over time started to engage with the subtle ambiguities usually associated with allegory. A focus on history and the position of the dialectical image as a threshold between past, present and future, allowed me to understand, through the writings of Benjamin, how artworks could be thought of as insertions of new fragments into existing contexts, to reclaim or unearth certain aspects of history lying buried in the present.

Finally, in shifting emphasis to the social, I reflected on how the spatial construction of subjectivity allowed an investigation of the relationships people created in the production and occupation of art and architecture as an important aspect of critical spatial practice. Here I drew strongly on conceptual insights from feminist and psychoanalytic theory, but also on the history of earlier works such as Merke Laderman Ukeles *Touch Sanitation* (1978–84) and Joseph Beuys's *7000 Oaks* begun in 1982 at Documenta 7, in Kassel, Germany to consider how a work might be considered less as a set of things – or objects – than as a series of exchanges or relationships that take place between people – or subjects – through processes such as art-architecture collaborations, or in Beuys's case, social sculptures.[6] But it was the work of environmental artists Platform and their walk through London, following the line of the buried river Fleet, highlighting what is at stake when you try to bury nature, that allowed me to understand how the processes of generating critique could come out of the spatial practice of engagement itself – here walking – and so might offer, not only a critique of current norms, but also a suggestion of how new situated possibilities could emerge through the embodied imagination.

Site-Writing: A Situated Practice of Criticism

Perhaps because of the powerful impact Platform's walk had on me, I ended *Art and Architecture* by arguing that since responses to art and architectural works happen *in situ*, we understand them to take place *somewhere,* and that thus criticism must itself must be recognized as a form of situated practice. The desire to work with variations in voice to reflect and create spatial distances and proximities between works and texts, artists, writers and readers, became the motivation for *Site-Writing*, a collection of essays and documentations of textworks produced between 1998 and 2008 which

[6] See for example, Joseph Beuys, 'I am searching for a field character' (completed in 1974 and translated by Caroline Tisdall), (Harrison and Wood 1992, 903). This article was originally published in an exhibition catalogue (ICA 1974)

question and perform notions of situatedness and spatiality in critical writing (Rendell 2010).

While geographers had been developing new modes of place-writing,[7] and art critics suggesting how the practice of criticism was a way of performing artworks (e.g. Butt 2005, 1–19; Jones and Stephenson 1999), architectural and urban criticism appeared slower to experiment with different writing forms. *Site-Writing* explored the position of the critic, not only in relation to art objects, architectural spaces and theoretical ideas, but also through the site of writing itself, investigating the limits of criticism, and asking what it was possible for a critic to say about an artist, a work, the site of a work and the critic herself and for the writing to still 'count' as criticism.[8] While a number of critics were focusing on studies and critiques *of* situated practice, including site-specific art,[9] I argued for, and attempted to produce, a criticism which was *itself* a form of critical spatial practice, and that took up and produced different kinds of poetic relationships with the works of art it was encountering, engaging with, interpreting, and responding to.

I located site-writing as a feminist critical spatial practice, and connected it to the ways in which, over the past thirty years, feminist philosophers and geographers had been articulating new ways of knowing and being through spatial terms, proposing conceptual and critical tools such as 'situated knowledge' and 'standpoint theory' for examining the relationship between the construction of subjects and the politics of location.[10] The work of feminist philosopher Rosi Braidotti (1994) exemplified this attitude beautifully for me, with her figure of the 'nomadic subject' describing not

[7] See for example the work of Caitlin DeSilvey, Hayden Lorimer, Mitch Rose and John Wylie.

[8] For another account of the conceptual framework that underpins my practice of 'site-writing' see Rendell 2005.

[9] On art and site-specificity see for example, Coles 2000, Kaye 2000, and Kwon 2002.

[10] Donna Haraway's 'situated knowledges', Jane Flax's 'standpoint theory' as well as Elsbeth Probyn's notion of 'locality', use 'position' to negotiate such ongoing theoretical disputes as the essentialism/constructionism debate; see Flax 1991, 232; Haraway1988, 583–88; and Probyn 1990, 178. See also Seyla Benhabib's critical articulation of 'feminism as situated criticism' Benhabib 1992, 225–28 and bell hooks' discussion of the margin (hooks 1989). Sandra Harding (1986) has defined three kinds of feminist epistemology: feminist empiricism based on women's authentic experience, feminist stand-point based on a feminist angle of interpretation, and feminist postmodernism, a stance rejecting the possibility of any universal theory.

only a spatial state of movement, but also an epistemological condition, a kind of knowingness (or unknowingness) that refuses fixity.

Post-minimalist art, notably that which derives from feminism and postcolonialism, was also an important context, in developing a more sophisticated understanding of how the viewer's experience of encountering an art work could vary according to cultural identity and geographic location, producing an intimate as well as public set of situated engagements. Some art of this type came to be described as 'relational', following Nicholas Bourriaud, or 'dialogical', following Grant Kester, and these modes of practice focused on how the viewer's interaction, participation and collaboration was central to the production of art's aesthetic dimension.[11] However, this set up histories, and related trajectories, that tended to ignore the work of earlier feminist theorists and practitioners, such as Suzi Gablik (1995, 80; see also 1991, 96–114) and Suzanne Lacy around 'connective aesthetics', while debates around the position of the critic as a specific kind of art-viewing subject were only just beginning to be worked through.

Umberto Eco in his classic essay from 1962, 'The Poetics of the Open Work', argues that the 'poetics of the work in movement … installs a new relationship between the contemplation and the utilization of a work of art', so setting in motion the important notion that a work might be used as well as contemplated (Eco 2006). That Eco's comments come out of his reflection on music helps to explain his adoption of the terms performer and interpreter in this text. In a footnote he notes that, 'For the purposes of aesthetic analysis, however, both cases can be seen as different manifestations of the same interpretive attitude' (Eco 2006 n.1).

It is precisely this difference in interpretative attitudes and their performative manifestations, which interested me in *Site-Writing*, produced as they are, according to the distinctive locations of interpretation and the varying distances and conditions of responsibility interpreters and performers have to authors and audiences. This observation is of special relevance to art criticism since it draws attention to the various types of art

[11] For Nicholas Bourriaud (2002), in relational art, the work of art operates as a partial object, a vehicle of relation to the other producing open-ended conditions that avoid prioritizing the producer and instead invite the viewer to participate in the construction of the work. See). Grant H. Kester (2004) examines artworks that are based on conversation through a theoretical framework developed in response to the writings of Emmanuel Levinas on 'face-to-face' encounter and the irreducible 'Other' and as well as literary critic Mikhail Bahktin's work on how meaning is constructed between the speaker and the listener, rather than simply given.

interpreter and performer and the specific sites of their engagement with art, from the curator to the collector, from the critic to the invigilator, from the viewer to the user, and from someone who has visited the work once in situ, to another who has seen photographs of the work in a catalogue a thousand times from a million miles away. In *Site-Writing*, I considered how the critic was a particular kind of art *user*, since for me this term suggested a more active and inherently spatial role, one which includes the optic but which is not driven solely by the visual and that involves both interpretation and performance.

In her work on the history of installation art, art critic Claire Bishop (2005, 13 & 131) argued that categories of viewing experience should replace those of genre, drawing attention to specific kinds of viewing subjects. She described the tension between the activated spectator who in engaging with the work is understood to politically interact with the world, and the decentered experience favored by feminist and post-colonial artworks as a critique of dominance, privilege and mastery. Bishop (2005, 133) suggested that it is the 'degree of proximity between model subject and literal viewer', which may 'provide a criterion of aesthetic judgement for installation art'. But although she did refer, in passing, to the processes of writing criticism in terms of the implications of not experiencing the work first-hand (Bishop 2005, 10), Bishop did not discuss the critic as a precise category of viewing subject. I proposed, however, that with his/her responsibility to 'interpret' and 'perform' the work for another audience, the critic occupies a discrete position as mediator between the artwork and Bishop's viewing and model subjects.

This led me to consider in more depth the spatial potential of the practice of criticism, and to examine in detail the kind of writing that might emerge from acknowledging the specific and situated position of the critic by experimenting, trying 'to do' things with words. *Site-writing* explored how the specific aspect of the critic's position as interpreter and performer of the work for others could be addressed in spatial terms, in order to draw attention to the situatedness of critical knowledge. My interest, as writer based in the discipline of architecture, was in how criticism as a practice *spatially* performed acts of interpretation, and how the changing positions and sites of criticism – material, conceptual, emotional and ideological – produced, and were produced by, our interpretative and performative acts. In so doing site-writing is a response to Howard Caygill's notion of immanent critique where a position of judgement is 'discovered or invented' through the process of criticizing (Caygill 1998, 34 and see also 79), and parallels Gavin Butt's 'call for … a mode of contemporary criticality' which

is 'apprehended within – and instanced as – the performative act of critical engagement itself' (Butt 2005, 7).

Site-writing, as a form of situated practice, is concerned both with position and relation, and so prepositions have been of particular interest to me, since they are able to make connections through language between spaces and subjects. As stressed by cultural critic Irit Rogoff (1998, 28, artist and film-maker Trinh T. Minh-ha has drawn attention to the significance assigned to the shift in use of prepositions, particularly from speaking 'about' to speaking 'to'.[12] Following Minh-ha, Rogoff (1998, 28) underscores how, by 'claiming and retelling narratives ("speaking to"), we alter the very structures by which we organize and inhabit culture'.[13] Adopting the preposition 'with' rather than 'to', Rogoff (2008, 104) discusses how the practice of 'writing with' is a 'dehierarchization' of the social relations governing the making of meaning in visual culture. I have also explored the use of prepositions, especially 'to' (Rendell and Wells 2001),[14] in order to investigate how position informs relation so altering the terms of engagement between critic and artwork, moving from a situation in criticism where the artwork is 'under' critique, to one where the relation between criticism and art is of two equivalent entities. Initially this followed feminist philosopher, Luce Irigaray's insertion of the term 'to' into 'I love you' producing 'I love to you', to stress the reciprocity and mediation, the 'in-direction between us' (Irigaray 2000, 17–29; see also Irigaray 1996, 110–13), but I developed a more explicitly psychoanalytic understanding of these transitional spaces in relation to D.W. Winnicott's 1969 paper 'The Use of an Object'.

A shift in preposition allows a different dynamic of power to be articulated, where, for example, the terms of domination and subjugation indicated by prepositions like 'over' and 'under' can be replaced by those that set up a more lateral equivalence like 'to' and 'with'. In an early attempt to define the aims of site-writing, I expressed my intention as an impulse to 'write' rather than 'write about' architecture, in order to shift the relation between the critic and her object of study from one of mastery – the object *under* critique – or distance – writing *about* an object – to one of equivalence and analogy – writing *as* the object (Rendell 2002b, 26). I understand this

[12] See Irit Rogoff's discussion of Trinh T. Minh-ha's assertion in Rogoff 1998, 28.
[13] Gavin Butt also refers to how artist/writer Kate Love 'attempts to write with the experience of art'. See Butt 2005, 15 and Love 2005, 167.
[14] See also Rendell 2006, 150–51 where I discuss the potential of the phrase 'I love to you', deriving from the work of Luce Irigarary, for art criticism.

use of analogy – the desire to invent a writing that is somehow 'like' the artwork – to allow a certain creativity to intervene in the critical act as the critic comes to a practice of interpreting the work through a remaking of it on their own terms. And in this way, such a practice can be connected to philosopher Michel Serres's focus on the transformational potential of prepositions:

> That's prepositions for you. They don't change in themselves, but they change everything around them: words, things and people … Prepositions transform words and syntax, while *pré-posés* transform men (Serres 1995, 140 &147).

For the past decade, through my research and pedagogy, I have been exploring site-writing's potential not just for a spatialized art criticism, but as a situated practice of urban theory and architectural history, examining in my own work and those of the students who I guide, how writing can operate as an active form of critical spatial practice in design research as well as history and theory, so complementing investigations of the role of writing in practice-led fine art research (see e.g. Macleod and Holdridge 2005; Barrett and Bolt 2007; Smith and Holly 2008).

Developing a practice of site-writing can allow architectural and urban research to be propositional and as well as analytic, experimental and open-ended while retaining precision and rigor. With reference to works produced through my site-writing workshops, I have reflected on the multiple ways in which this can happen. First, through an exploration of the materiality of visio-spatial processes which combine written texts and images. Second, in the development of the particular spatial and architectural qualities of storytelling. Third, by a blending of personal and academic writing styles to develop multiple voices and different subject positions. Fourth, by investigating how physical journeys through architectural spaces work in dialogue with changes in psychic and emotional states. Fifth, by articulating the interactive relationship between writing and designing. Sixth, and finally, an examination of how responses to specific sites can pattern the form as well as the content of texts, generating new genres for architectural writing based on (auto)biographies, diaries, guidebooks, letters, poems, stories and travelogues. Taken together, I suggest that these spatial writing practices, have the potential to reconfigure the relations between theory and practice, research and design, in existing architectural and urban methodologies, by prioritizing the emotional and political qualities of interactions between subjects and sites, and the role they can play in creating

subtle but meaningful propositions in response to existing conditions (see Rendell 2013b, 2013c).

Ethical Spatial Practice

And then something changed. My practice and position as an intellectual in the academic institution shifted dramatically, in relation to an event that occurred, that involved me, but without my explicit consent, and to which I had no choice but to respond. This situation allowed me to understand how one's attempts to describe a life-changing experience can generate conceptual thinking – that theory comes out of the practice of everyday life – a process Sara Ahmed has discussed in terms of a form of labor that, in her words, produces 'sweaty concepts' (Ahmed 2017. 12–3). I had not been engaging with ethics from philosophical perspective at that time, but it was to ethics that I turned to help me make sense of this particular occurrence, or situation, which, by *not* directly involving me, had still managed to change the direction of my work as a writer and academic.

On the 11th June 2011 a deal was sealed in which Malcolm Grant, the then Provost of UCL, accepted $10 million of funding from the Anglo-Australian multinational mining and petroleum company, BHP Billiton, to create an International Energy Policy Institute in Adelaide, and the Institute for Sustainable Resources in London at the Bartlett Faculty of the Built Environment. I was told of the decision in a meeting in January 2013, almost two years later. I was Vice Dean of Research for the Bartlett at the time. I had not been consulted on the donation and I did not agree with the decision to accept it. In my view, it posed a conflict of interest. How could independent research on sustainability be funded by profit gained from mining fossil fuels? And even if UCL had 'done its homework', and had the right governance structures and due diligence procedures in place, could these really protect the independence of academic research?

In trying to come to terms with this decision, I spoke to many senior managers at UCL, some of whom argued that universities must engage with businesses in order to change them. But I was never able to grasp the stated logic, that, on the one hand, when the funding is at arm's length, the giver of the gift – in this case the charitable arm of BHP Billiton – should not influence the research that is funded by the gift it has given, or benefit from the research done, but that, on the other hand, the receiver of the gift – in this case UCL – can and should influence the activities of the giver. I also encountered a further series of divergent and inconsistent views, from: 'it's not where the money comes from, it's what you do with it' to 'we have a

duty as a university to change business' and most surprisingly the position that 'there are as many problems with state funding as there are with private.' In the end, I wasn't able to live with the contradictions, especially due to my own work on critical spatial practice, and decided to 'stand down' from my role as Vice Dean of Research in as public a manner as I could bear.

I made my own acts of questioning the corporate funding of university research part of my own practice, both my research as well as my institutional work. So when, in November 2015, I was invited to be 'thinker in residence' for a month at the Tasmanian College of the Arts in Hobart, I combined my visit to Australia (and all the air miles this entailed) with a research field trip to a number of sites connected to BHP Billiton, including the corporation's 'birth place', Broken Hill, a town in the Barrier Ranges of south Australia, which started with the discovery of a mineral lode rich in silver – hence its name Silver City.

While I was in Tasmania, I wrote an article called 'Giving an Account of Myself, Architecturally' in which I consider my own reaction to the relationship between UCL and BHP Billiton through an interplay of diary inserts that chart the events leading up to my act of standing down from my role, and theoretically-informed reflections on that act (Rendell 2016b). At the Tasmanian College of the Arts I met artists Justy Clarke and Margaret Woodward, who were embarking on a new initiative called A Published Event, which explores the spatial, temporal and aesthetic processes of publishing as a form of art practice. They invited me to join a specific project called Lost Rocks, that started life owing to 'a find' in a second-hand junk shop – a board of Tasmanian rocks – of which 40 of the 56 had been lost. Justy and Mags decided to invite 40 artists, over the next five-year period, to respond to a chosen lost rock, in the form of what Justy has called a 'fictionella' – a version of a novella, which she describes, not as made up, like a fiction, but made with, lived experience.

My own fictionella, Silver, is composed of stories of my relation to BHP Billiton and its history arranged in response the structure of the metallic element itself. Silver's atomic number is 47, with its 47 electrons arranged on 5 shells. So Silver, the fictionella, corresponds with a five-part structure 2, 8, 18, 18, 1, containing narratives arranged first in a pair, then eighths, then eighteenths, then eighteenths again, finally ending with a monologue (Rendell 2016c).

The first four fictionellas were launched in March 2017 as part of a larger arts festival called 10 Days on the Island, and a curated event called Sites of Love and Neglect, at a number of sites, including the Zeehan West Coast Heritage Centre. Zeehan is an old mining town, in the west of Tasmania, founded on silver, by a mining magnate also involved in the establishment of Broken Hill and BHP. I reconfigured aspects of my fictionella into Silver: A Courthouse Drama, that was positioned and performed in the Courthouse, a site, as part of the West Coast Heritage Centre, where in the past legal proceedings related to Zeehan took place. The Courthouse has five clearly labelled positions – Witness, Clerk of Court, Police Prosecutor & Lawyer, Defendant, Magistrate, and benches where the Audience sits – and my script contained descriptions of settings, instructions for action, and words to be spoken, as well as a list of characters, positions, and settings and times.[15] Silver: A Courthouse Drama deals with issues of justice and ethics connected to mining, including reference to the environmental disaster that occurred in Brazil in November 2015, when the tailings dam of a mine operated by Samarco, a joint venture between Vale and BHP Billiton, ruptured in Minas Gerais, Brazil, and ore residues and mining waste flooded the surrounding area, causing Brazil's worst environmental disaster, burying communities, leading to the death of 17 people, and displacing 725 others.

It was only later, that I was able to contextualize my actions and so understand them more conceptually, by relating them to the philosophical accounts of critique, ethics, and subjectivity that I drew out of the work of Judith Butler and Michael Foucault (Butler 2002, 2005; Foucault 1999, 2001, 2007). I considered them beside other forms of artistic practice enacted in response to institutional structures, specifically what has been described by curator Maria Lind, talking of the work of artist/architect Apolonija Šušteršič, as 'constructive institutional critique' (Šušteršič and Lind 1999), and what art critic Gerald Raunig (2006) calls 'instituent critique'. I began to realize that the actions of 'speaking out' that I had taken at home and work in various institutional settings, were forms of critical spatial practice, that responded to the specific cultural and political conditions at play in both sites and sought to intervene into these sites and situations in order to critique them, but also, with others, to attempt to activate them politically. And it was at this time, that I started to document

[15] SILVER: A Courthouse Drama, for CROCOITE. CROCOITE. SILVER. SILVER/LEAD (17–28 March 2017), curated by Justy Phillips and Margaret Woodward, West Coast Heritage Centre, Zeehan Tasmania, as part of Sites of Love and Neglect, (17 March 2017).

traces of those actions and reconfigure them in text form, wondering if these subsequent site-writings might operate as non-sites with respect to those sites themselves which had been activated by critical spatial practices in the form of speech interventions (Rendell 2016a, 2018, 2019).

I thought again about my act of 'standing down' as Vice Dean of Research, and wondered if it might also involve an act of 'standing up'; that by getting more involved in institutional work on ethics, I might be able to help enable those changes that I wished for to take place. My action had already precipitated a new policy on the ethics of research funding, and in July 2014, my research proposal, Practicing Ethics, for a year-long project examining ethics in built environment research – pedagogically and professionally – received Bartlett funding. That project unfolded, and ended in June 2015, with an international conference, where speakers from academia and industry explored ethics in housing, international development, sustainability and governance. This developed into the Bartlett Ethics Commission (2019) and Bartlett Ethics Working Group, in which, with representatives from across the faculty and the university more widely, we engaged practically with UCL's review of ethics procedures.

As part of that work, Bartlett Ethics Fellow, David Roberts, has produced a mapping of ethical issues in Bartlett research practice, the ethical codes that govern around sixty built environment professions, and developed ethical guidance for students, as well as started to produce a set of guidance documents – 'protocols' – that help students and staff deliberate ethical dilemmas and make difficult judgements. We have hosted many events, including training sessions, questioning if the ethical principles drawn from medicine that universities have adopted for working with all human subjects, such as 'informed consent', 'confidentiality', and 'benefit not harm', are the most appropriate for humanities and, in particular, practice-led and participatory research.

Some of the conferences hosted, such as Rich Seams/Dark Pools, have focused on issues connected with sustainability directly, such as the need to divest from fossil fuel, and as a result have had to take place under Chatham House rules, as they have involved managers, administrators as well as staff and students, who wish to speak frankly outside their institutional roles. Others, such as Speech ExtrActions, co-organized with Diana Salazar, The Colombian Solidarity Campaign and London Mining Network, have involved more cross-cultural initiatives where those directly affected by mining activities were invited to UCL, as part of a visit to the AGM of BHP Billiton, to discuss their experiences.

It was this work with Diana from the Bartlett's Development Planning Unit, and the Colombian Solidarity Campaign, that connected me with colleagues working on ethics and development planning. I was invited by Caren Levy to join a project called KNOW: Co-production of Knowledge for Urban Equality, and now lead a 'work package' on 'The Ethics of Research Practice' for a large-scale funded project at the Bartlett's Development Planning Unit.[16] Working with me, Research Associate, Yael Padan, has been examining the western-centric bias of many ethical values and terms that stem from enlightenment thinking that privileges the individual over the communal or collective group. We have been critiquing the usual triad of applied ethics – consequentialist, deontological, and virtue ethics – and instead looking at how to navigate the relation between universal principles and specific cases, between on the one hand, the abstract and the general, and on the other, the lived and experienced. And currently we are starting work on a lexicon, or glossary of terms, that we hope to translate into the languages used in the countries that are part of the KNOW project.

Many of the chapters in this book are concerned with, for example, issues around extraction and how the legacies of colonialist projects more broadly have created huge inequalities in land distribution and ownership. If these injustices are taken in relation to the climate crisis and the extinction of species, then it is here that the current debate around critical spatial practice becomes most urgent, and where we must find ways of responding – as soon as possible – to the social and economic challenges facing us, by inventing forms of spatial practice that need to be critical and ethical. For this reason, I propose, following those that I outlined in the foreword to this book, a final adjustment to critical spatial practice, one which moves from the critical to the ethical, not removing the critical but placing new emphasis on the ethical. For if we are to survive, as a planet and its species, we will need to find different ways of relating to one another and living together, through spatial practices that are critical but also ethical.

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Post Postscript: In between writing this essay, and receiving the proofs to check on 16 October 2019, I received the uplifting news that UCL had decided to divest from fossil fuel:

[16] This research has been conducted as part of Work Package 3: The Ethics of Research Practice. https://www.urban-know.com/wp3-ethics

> UCL has announced it will divest from fossil fuels by the end of 2019, as the university today launches its bold new sustainability strategy.
>
> The university has committed not to invest in companies involved in fossil fuel extraction or production and will make public its portfolio of investments to be transparent about its investment decisions. (UCL, 2019)

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CONTRIBUTORS

Jonathan Bean

Jonathan is an Assistant Professor at the School of Architecture at the University of Arizona. He holds a B.A., M.S., and Ph.D. from University of California, Berkeley, all in the field of architecture. His doctoral degree in Social and Cultural Processes in Architecture and Urbanism focused on the connections between people and the built environment. At Berkeley, he was affiliated with the Berkeley Institute of Design, an interdisciplinary group, and collaborated with colleagues in the fields of Human-Computer Interaction. His interest in technology and domestic space led first to a collaboration, and later an academic career, in marketing research and architecture. His coauthored work on taste regimes was published in Journal of Consumer Research, the leading publication in his field. Bean contributes a regular column for a mixed audience of professionals and academics to the magazine Interactions, the Association for Computing Machinery's flagship publication on human-computer interaction.

Hélène Bélanger

Hélène Bélanger is professor of urban studies at the department of urban and tourism studies at Université du Québec à Montréal. She is the principal investigator of the Collectif de recherche et d'action sur l'habitat (CRACH: Collective of Research and Action on Habitat), a collective of academics, students and activists whose mission is to develop research on the city in a critical, feminist and intersectional perspective. Hélène Bélanger research interests are linked to the right of housing and the making of the city, more specifically to gentrification, social mix, public spaces revitalization and the meaning of home, in Canada and in Mexico. She regularly collaborates on research with housing committees, and concertation tables on Montreal issues related to gentrification (including commercial gentrification) and social housing. Her actual research program, for which she has received a grant from the Social Sciences and Humanities Research Council of Canada, focuses on the impacts of public spaces revitalization on their appropriation and how it can be part of a gentrification process. Hélène Bélanger is also a member of the Centre de recherche sur la ville (CRV) and the Groupe de recherche et d'intervention tourisme territoire et société (GRITTS).

James Brazil

James Brazil is an architecturally-trained, Australian designer, researcher, and city curator of urban and public architecture. Based between Barcelona, Miami, and Mexico City, James is the founding principal of Studio James Brazil, a public art and architecture design-research studio at the intersection of geography, technology and landscape. It explores pilot projects that seed self-sufficient and resilient prototypes for peer-to-peer models of community oriented production of food, energy and/or water.

James is a leading practitioner of unsolicited urban practices in the consolidation of the public realm by fusing digital tools with participatory processes. James works with industry, academic, cultural and city partners to develop innovative and holistic strategies on how data-driven research, digital tools and/or fabrication can become accessible to artists, designers and local citizens alike. James is a visiting professor, invited critic, guest lecturer and research advisor at various institutions and participates on various advisory boards and international research projects focused on resiliency.

Courtney Crosson

Courtney Crosson is a licensed architect and Assistant Professor at the University of Arizona. She has worked for Foster + Partners, UN Habitat, and BuroHappold Engineering. Her current research advances decentralized water systems to address pressing problems facing cities – whether water scarcity in the US Southwest or safe and affordable water access in informal settlements in Nairobi, Kenya. She has won numerous national awards for her teaching, outreach, and research including the Leadership in Practice Award from the Association for Collegiate Schools of Architecture (ACSA) and the President's Award from the Association for Environmental Studies and Sciences (AESS).

Marantha Dawkins

Marantha Dawkins is a landscape architect whose work focuses on the convergence of urbanization, landscapes of climate change, and the formation of ecological niches. Marantha's recent research has probed expressivity, subjectivity, and symbiosis as they relate to ecological relationships and performance. Recent design work includes bioplastic prosthetics for small-scale food growth, an algal bioreactor installation for air filtration, and a behavioral landscape seeding process which operates as an interface between robotic and plant intelligence to strengthen habitat connectivity and mediate runoff issues in Pittsburgh. She received her bachelor's degree in Landscape Architecture from Cornell University and a

Master's of Urban Design from Carnegie Mellon University, and currently teaches in the School of Architecture at Carnegie Mellon University.

Susannah Dickinson

Susannah is a practicing architect and an Associate Professor at the School of Architecture at the University of Arizona. She is a graduate of Liverpool University, UK, and Cal Poly Pomona and is currently a PhD Candidate in Architecture and Urbanism at the European Graduate School. Her practice background is in digital design methodologies, largely gained through a decade of professional experience in the offices of Frank Gehry, Los Angeles and SHoP Architects, New York. Her research connects multi-scalar biomimetics and complexity theory with digital processes and design pedagogy; with the goal of bringing more life and sustainability into the built environment. She has published internationally in the International Journal of Architectural Research (IJAR), Passive and Low Energy Architecture (PLEA), Simulation in Architecture and Design (SimAUD) and the Architectural Research Centers Consortium (ARCC). She has served on the board of directors of the Association for Computer Aided Design in Architecture (ACADIA) and her recent design studio won the 2018 Architect Magazine Sloan Studio Prize.

Alexis Guillemard

Alexis Guillemard is a PhD student in the department of urban and tourism studies at the École des sciences de la Gestion - Université du Québec à Montréal. He is a student member of the Centre de recherche en développement territorial (CRDT) and the Groupe de recherche et d'intervention tourisme territoires et sociétés (GRITTS). His work focuses mainly on the adaptation of tourism coastlines to climate change, small and medium-sized peripheral cities and the touristification of everyday life.

George Hallowell

Dr. George Hallowell is a faculty member of the North Carolina State University's College of Design, in the School of Architecture, and has taught graduate and undergraduate courses for over 10 years. He is a registered architect and has worked in the profession for 30 years in Texas, Washington, New York and North Carolina. He has a Ph.D. in Design, a Master of Architecture degree, and B.A. in Urban Geography. His research focuses on urban and suburban morphology, change, and the concept of structural inertia relating to the formal and spatial characteristics of older urban neighborhoods. Other research and publications have concentrated on acoustics, environmental justice, healthy and smart city design, and sharing

technologies and their relationship to the design and use of urban public spaces. He has presented at numerous architecture and urban design conferences and has peer-reviewed articles or proceedings published by *ISUF, EDRA, ACSA, AAG, ARCC, Spaces and Flows, Landscape and Urban Planning, International Journal of Architectural Research, Terra@Plural Journal,* and the *Journal of Space Syntax*.

Aletheia Ida

Aletheia is an Assistant Professor in Architecture at the University of Arizona developing interdisciplinary design theory for robust frameworks to inform applied research in emergent environmental building technologies. She holds a Doctorate of Philosophy in Architectural Sciences from the Center for Architecture, Science, and Ecology at Rensselaer Polytechnic Institute; a Masters of Architecture post-professional degree with an emphasis in Design and Energy Conservation from the University of Arizona; and a Bachelor of Architecture professional degree from the University of Oregon. She has over fifteen years of experience in professional architecture practice and is fluent with building performance analytics. She has recently lectured at Yale University, Princeton's Andlinger Center for Energy and the Environment, and the Center for Ecosystems and Architecture at the New Lab in Brooklyn. Her design and research is published with *Metropolis* "Source Materials," ACADIA, World Sustainable Built Environments, Materials Research Society "Programmable Matter," Cambridge University Press *MRS Advances,* Society for Optics and Photonics, ACSA-AIA Intersections, IGI Global Press "Energetic Forms of Matter," AIA BRIK Knowledgebase, PLEA, *Arquitectura Ciudad y Region*, Simulation in Architecture and Design (SimAUD), Advanced Building Skins (ABS), Building Technology Educators Society (BTES), and Architectural Research Centers Consortium (ARCC). Her research is funded with the National Science Foundation and recognized by the United Nations Office for Disaster Risk Reduction.

Julia Jamrozik

Julia Jamrozik graduated with a Bachelor of Arts from the University of Toronto with Majors in Architectural Studies and Art History and holds a Masters of Architecture from the University of British Columbia. She has worked at Herzog & de Meuron in Basel and taught at the ETH in Zurich. She is currently an Assistant Professor in the Department of Architecture at the University at Buffalo SUNY and has a multidisciplinary creative practice with Coryn Kempster (www.ck-jj.com). Their work was recognized

in 2018 with the League Prize for Young Architects and Designers by the Architectural League of New York.

Eduardo Kairuz

Eduardo Kairuz is an architect and artist concerned with the spatial implications of a world in perpetual crisis. His work is focused on architecture's relationship with politics, as a means to address questions of equity and social justice. His current research looks at problems of representation of the new climatic regime, and how architecture can contribute to stimulating public action.

Eduardo has published widely, including articles for *AD, Trans,* and *Cuadernos Cuidad del Sol*. Group exhibitions include the Prague Quadrennial of Performance Design & Space and the Gwangju Design Biennale. Solo shows include *Variations* at The Substation and *Dismantled* at Centro Cultural Chacao. The latter was the subject to his recent book, *Eduardo Kairuz: Dismantled*.

Before his current role as Lecturer in Architectural Design at the Faculty of Art Design & Architecture at Monash University (MADA), Eduardo was Visiting Lecturer at the School of Architecture at University of Technology Sydney and Assistant Professor at the Faculty of Architecture and Urban Planning at Universidad Central de Venezuela. Prior to these appointments, Eduardo worked in slum rehabilitation projects in Venezuela, including the *Communal House of Barrio La Vega* and the *Vertical Gym of Barrio La Cruz*, Chacao.

Kathleen Kambic

Kathleen Kambic is an Assistant Professor in the Department of Landscape Architecture at the University of New Mexico and is an affiliate with the Water Resources Program and the Department of Geography. Before teaching at UNM, Kathleen taught landscape architecture, architecture and design history courses at the University of Colorado, where she is also an affiliate with the Center of the American West. Her research interests include water infrastructure, marginalized urban space, political ecology, and landscape theory. Her current research explores feminist critique of landscape architecture as well as water governance in arid landscapes. Recently, Kathleen has taught graduate seminars and studios on decentralized water infrastructure, site planning, drawing, and typologies. She has also won multiple international design competitions on interdisciplinary faculty teams.

Najlaa Kareem

Najlaa Kareem holds a PhD in Architectural History, Theory, and Criticism from the University of Cincinnati, School of Architecture and Interior Design (2018). She is a Deleuzian architect and urbanist whose research interests examine the transdisciplinary implications among architecture, urban design, and philosophy. The theory, criticism, and practice of these disciplines occur in her work via the Gilles Deleuze's theory of *Difference and Repetition*. Najlaa recently presented a scholarly paper at the annual Association of Collegiate Schools of Architecture (ACSA) Conference in Detroit, Michigan, 2017. Her paper, was entitled *New Territories for Old Architecture: Nomadic History as a Design Strategy in the Re-Development Urban Project for the Kadhimiya Historical Site, Baghdad, Iraq*. Najlaa explores how the possibility of using history as a dynamic, intensive force in an urban design thinking process can escape the historicism and representational image functionary towards a re-engineered creative historical/architectural dialogue. Najlaa is also an Associate Lecturer and Member of the Board of the Engineering Consultancy Committee, the top Engineering Consultancy Board at Thi-Qar University, Iraq where she participated in designing and drafting a wide range of architectural and urban design projects, including commercial and residential projects.

Shruti Khandelwal

Shruti Khandelwal is a doctoral candidate within the School of Planning, Design and Construction at Michigan State University. Her dissertation is about investigating food-related health risks emerging from challenges of accessibility to fresh and healthy foods in vulnerable communities. Shruti is a licensed architect in India, has a Master of Urban Design degree from Ball State University, and a Master of Science in Architecture from the University of Miami.

Shruti's research interests include strategies to integrate ecologically designed built-environments facilitating the food production within neighborhood and community development projects. She is an engaged, interdisciplinary urban designer and researcher whose work encompasses food studies, public health, active transportation, vertical urbanism and placemaking, both within the domestic context focusing on various communities in the U.S. and internationally focusing on cities within India. She primarily focuses on providing resilient and multidisciplinary research informing design and planning solutions for enhancing physical, health and socio-cultural urban environments.

Joern Langhorst

Joern Langhorst, currently Associate Professor of Landscape Architecture at the University of Colorado Denver, was educated in Landscape Architecture, Architecture and Urban Planning in Germany and Europe, and has taught in Landscape Architecture, Architecture, Urban and Regional Planning and Urban Design in the US and abroad. His practice has focused on projects in highly contested situations, such as redevelopment and remediation in post-industrial cities, brownfield sites, and post-disaster recovery, and is consulting on these issues nationally and internationally. His research and teaching are exploring the processes and actors that make and unmake place, space and landscape, focusing on places of incisive and radical change, such as post-colonial, post-industrial and post-disaster cities. His approaches involve multiple perspectives and disciplines, and establish a methodology he calls "landscape forensics". He examines how concepts such as social and environmental justice, resilience, and sustainability are conceived and implemented, arguing for a "right to landscape". Langhorst scrutinizes the role of emergent technologies, alternative processes and the relationships between traditional and new actors and agents, and foregrounds contestation and conflict as unavoidable processes central to landscape and place change. Joern is a Fellow at the Colorado Center for Sustainable Urbanism and a Fellow of the Royal Geographical Society, as well as serving on the board of directors of the Design Communication Association.

Dominic Lapointe

Dominic Lapointe is Professor of tourism and tourism development at the department of urban and tourism studies at Université du Québec à Montréal. He holds a Ph.D. in regional development from Université du Québec à Rimouski. Responsible of the Groupe de recherche et d'intervention tourisme territoire et société (GRITTS), he works on the production of tourism space and its role in the expansion of capitalism. His recent research focus on climate change, social innovations, biopolitics, indigeneity and tourism in peripheral areas, all of them using a critical geography perspective. Dominic Lapointe has published scientific articles, book chapters and research reports as well has presented scientific papers in international conferences and presented his work in different peripheral communities with whom he collaborates.

Janet McGaw

Janet McGaw is a Senior Lecturer in Architectural Design in the Faculty of Architecture, Building and Planning at the University of Melbourne. She is a qualified architect and has a PhD by Creative Works from the University of Melbourne. Janet has been Pathway Coordinator in the undergraduate degree for the past five years, and has developed and coordinated a multi-disciplinary Design Research elective. She also coordinates the graduating studio, Design Thesis, in the Masters of Architecture degree. Janet's research work, teaching and creative practice investigate ways to make urban space more equitable. She draws on philosophy, feminist theory, anthropology, geography and political ecology to critically reflect on architectural discourse and practice. Janet uses methods that are discursive, collaborative, creative and sometimes ephemeral. She has published widely in journals and scholarly books.

Kepha Ngito

Kepha Ngito is a Kenyan organizer based in Nairobi with more than 10 years active experience in social and environmental rights advocacy. He has led and secured funding for successful projects using geographic information systems (GIS) to map infrastructures within informal and rural socio-economic contexts such as Kibera settlement in Nairobi. Such infrastructures include water points, toilets, garbage dumpsites, open defecation sites, and burst sewers. He is the founding Director of Forum 43 Kenya, which uses technology tools to conduct research and support the design of environmental and social justice projects in poor and marginalized communities across Kenya.

Celen Pasalar

Celen Pasalar, Ph.D. is an Assistant Professor of Landscape Architecture at College of Design, North Carolina State University. She has a Ph.D. in Design, A Master of Science in Urban Design, and Bachelor of Architecture. She is a registered architect in Northern Cyprus. Her research interests focus on human-environment interaction and how design of spaces, city infrastructure, and movement can nurture sustainability, as well as the creation of smart, equitable, healthy and resilient communities. Her current research explores the impact of sharing technologies on human experiences in urban public spaces. Dr. Pasalar has also worked on numerous award-winning participatory design visioning projects promoting economic and sustainable development in urban and rural communities. She has partnered with the Hurricane Matthew Disaster Recovery and Rebuilding Initiative (HMDRRI) on the development of *Homeplace* guidebook, which won the

2018 ASLA Professional Award. Dr. Pasalar has presented at numerous national and international architecture, landscape architecture, and urban design conferences and has peer-reviewed chapter, articles, proceedings, or abstracts published by *EDRA, ARCC, ISUF, ACSA, CELA, Comportements, Informatics, International Journal of Architectural Research,* and *Terra@Plural Journal*. She also serves as a reviewer for *ICE Urban Design and Planning, Elsevier* and *Emerald* journals.

Maya Przybylski

Maya is an Associate Professor at the School of Architecture at the University of Waterloo where she runs the DATAlab research group (www.datalab.uwaterloo.ca). She is a graduate of the Faculty of Architecture, Landscape and Design at the University of Toronto (M.Arch) where she was awarded the Royal Architectural Institute Medal. She previously earned a degree with a specialization in Software Engineering at the Department of Computer Science at the University of Toronto. Maya combines these backgrounds in her pursuit of a more complete engagement with both the sociocultural agency and technical capacity of the computational components increasingly embedded within design work.

Maya is a founding editor of [Bracket] (www.brkt.org), a publication series that, since 2010, has documented the intersection of architecture, environment and digital culture and co-author of Pamphlet Architecture 30: Coupling — Strategies for Infrastructural Opportunism (Princeton Architectural Press). Maya has collaborated with a range of design practices including: RVTR, Lateral Office, WilliamsonWilliamson, and Bruce Mau Design. Her work has been supported by various funding agencies including the Graham Foundation for the Arts and the Social Sciences and Humanities Research Council of Canada (SSHRC).

Jane Rendell

Jane Rendell (BSc, DipArch, MSc, PhD) is Professor of Critical Spatial Practice at the Bartlett School of Architecture, UCL, where she co-initiated the MA Situated Practice and supervises MA and PhD projects which explore writing as ethical, poetic and situated praxis. Jane has introduced concepts of 'critical spatial practice' and 'site-writing' through her authored books: *The Architecture of Psychoanalysis* (2017), *Silver* (2016), *Site-Writing* (2010), *Art and Architecture* (2006), and *The Pursuit of Pleasure* (2002). Her co-edited collections include *Reactivating the Social Condenser* (2017), *Critical Architecture* (2007), *Spatial Imagination* (2005), *The Unknown City* (2001), *Intersections* (2000), *Gender, Space, Architecture* (1999) and *Strangely Familiar* (1995). Working with Dr David Roberts,

Bartlett Ethics Fellow, she leads the *Bartlett's Ethics Commission*; and, with Research Associate, Dr Yael Padan, she leads 'The Ethics of Research Practice' for *KNOW* (the ESRC funded project, *Knowledge in Action for Urban Equality*: PI Prof Caren Levy). In 2018, she received the RIBA Research Award for History and Theory, for *May Mo(u)rn,* her research on housing and psychoanalysis, and a UCL Provost's Education Award for her work on ethics.

Luz Marie Rodríguez

Luz Marie Rodríguez holds a Ph.D. in Theory and History of Architecture from the Superior Technical School of Architecture in Barcelona at the Polytechnic University of Cataluña. She is an independent architectural historian based in Dublin, Ohio. Dr. Rodríguez taught History of Architecture and research for design studios at architecture and interior design programs in Puerto Rico. At the Pontifical Catholic University of Puerto Rico's School of Architecture, she served as Associate Dean (2012-2014) and Interim Dean (2014-2015). Before, she was the Senior Archivist at the UPR's Architecture Archives (AACUPR). Her research focuses on the intersections between architecture, urbanism, and the notion of difference and how class, racial, ethnic, cultural, and gender asymmetries manifest in or inform the design of spaces/places. Other work of hers questions the patriarchal and colonizing underpinnings of Westernized architectural education and practice. In 2018-2019 she received a grant from the Graham Foundation in support of her research on New Deal (colonial) architecture in Puerto Rico. With Dr. Yara Colón Rodríguez, she co-founded the *Colectiva para la Investigación de la Historia y la Teoría de la Arquitectura y el Diseño en Puerto Rico* (CIHTAD-PR). She lectures and her work has been published locally and internationally.

Yara M. Colón Rodríguez

Dr. Yara M. Colón Rodríguez studied at the Universidad de Puerto Rico, the Universitat Autónoma de Barcelona and the Escuela Superior Tècnica d'Arquitectura at Universitat Politècnica de Catalunya, where she completed her doctoral degree. She is an architectural historian and professor of history and theory of architecture and design. She teaches several courses in history, theory and historiography of architecture or design at the Universidad Politécnica de Puerto Rico and the Escuela de Artes Plásticas y Diseño de Puerto Rico. As a researcher, she authored the nomination that certified the inclusion of Casa Vigil to the National Registry of Historic Places. Dr. Colón Rodríguez has presented the results of her inquiries at multiple international conferences. She is editor of Polimorfo,

journal of the School of Architecture of the Universidad Politécnica de Puerto Rico, ArqPoli. In 2019, she co-founded with Dr. Luz M. Rodríguez López the Collective for the Investigation of History and Theory of Architecture and Design in Puerto Rico (CIHTAD-PR).

Sam Spurr

Dr Sam Spurr is an architectural theorist, academic and designer. Her practice incorporates text, event, installation and curatorial design, developed through a commitment to collaborative, aleatory and diagrammatic processes. She is interested in feminist philosophies of collective political subjectivity and how these can be used to transform our built environment. Her current research is on Mining Ideology and Coal Capitalism, examining the agency of spatial practices to make legible the complex forces at play in the age of the Anthropocene. Sam's doctorate was titled 'Performative Architectures' awarded from the University of New South Wales, Australia in 2008.
Sam has exhibited at international biennales, curated major symposia and conferences and been invited to present workshops and talks around the world. She writes for both academic and architecture, design and fine arts publications. Sam is an Associate Professor in the School of Architecture, Newcastle University, Australia.

Kathy Waghorn

Dr. Kathy Waghorn teaches architecture design studio at the University of Auckland. Her research sits at the intersection of art, architecture and urbanism and acts as a critique of normative architectural procedures and concepts of agency, instrumental design and disciplinarity. With her collective HOOP-LA [www.hoop-la.nz], Kathy develops public realm initiatives in her neighbourhood of Tāmaki Makaurau Auckland. In this work the agency to transform place is opened to a wider constituency and is as much social and performative as it is material.

Beth Weinstein

Beth Weinstein (BFA Syracuse Univ., M.Arch GSAPP) works between discourses and practices of architecture and performance, and across scales from drawing to installations to invite reflection on critical issues. As a practice-based doctoral candidate (Univ. of Tasmania) she is exploring installations and performances of spatial labor as means to reveal entanglements of the architectural, political, and (in)visible. Her work has recently been presented through the Jeu de Paume Museum at the Cité Internationale des Arts (Paris) and in the Tucson Museum of Art's 2015 and 2018 Arizona Biennials. Her research and creative work have been

published in *Performing Architectures*, *The Routledge Companion to Scenography*, *Architecture as a Performing Art*, *Disappearing Stage: Reflections on the 2011 Prague Quadrennial* and in the *Journal of Architectural Education, Journal of Artistic Research* and *Performance Research.* She co-edited *Ground|Water: the Art, Design and Science of a Dry River* (2012) and she is authoring a book titled *Architecture + Choreography: Collaborations in Dance, Space and Time* (Routledge). Beth is an Associate Professor in the School of Architecture of the University of Arizona.

Andrea Wheeler

Andrea is an Associate Professor of Architecture at Iowa State University where she teaches classes on Green and Sustainable Architecture and she is a studio instructor. Since completing her doctorate in 2005 on the work of Luce Irigaray she has been working on issues of gender and sustainability in the built environment. Most recently she has presented papers at conferences organized and hosted by Luce Irigaray including "Thinking Love" at the University of Bristol in June of 2016 and "To Be Born: Genesis of a New Human Being" at the University of Sussex in February 2017. She has a chapter published in *Towards a New Human Being* a contemporary collection of essays and in summer 2019 was a visiting research fellow at the Center for Research in the Arts Social Sciences and Humanities (CRASSH) The University of Cambridge. Her current project is working towards a book on a political and ecological aesthetic in architecture.