Uses of Mapping in Design Criticism and Practice

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ABSTRACT
This exegesis presents a selection of my published work of the last twenty years as original research into the uses of mapping in design practice and criticism. The argument springs from three understandings of the term ‘mapping’: as a *practical* term, denoting the practice of map-making and visualisation, as a *relational* term, describing the discourse-driven approach to design writing and criticism advocated here, and as a *reflexive* term, describing a process of situated self-reflection.

While a substantial part of my work published since the book *Else/Where: Mapping* (Abrams and Hall, 2006) covers mapping and visualisation outcomes as its subject matter, my interest in mapping as a research method extends the scope beyond things that look like diagrams and maps. Of particular relevance is the use of mapping to denote the designerly methods of framing, selecting, connecting and arranging causal relationships in the service of uncovering new possibilities. When informed by psychogeographic traditions, the map-maker does not pretend to detached omniscience, but is implicated the relational structure developed. Each mapping, whether its output is visual or textual, is a formative iteration. In this sense, this exegesis is also a mapping of my critical development, tracing the passage of design writing from the reporting methods learned on trade magazines to more critical methods of design research and analysis.

I will aim to show how my research, initially framed by professional agendas, particularly in relation to the activities of professional designers in North America and Europe, was subsequently informed by a more critical inquiry into the shifting nature of design practice. As my focus shifted from journalism to academic research and teaching, platforms for my writing moved to book chapters and academic papers. Accordingly, I moved beyond the primarily instrumentalist and often hagiographic agendas of professional publications. The material I was unearthing as a journalist and commissioning as an editor could be put to the service of larger research questions than permitted by the short deadlines and narrow jurisdiction of design publications and mainstream media.
The relational approach to writing and criticism I have subsequently developed seeks, through mapping, to make visible processes, influences, drives and outputs that surround and result from design practice. A reference point is Bruno Latour’s argument that *things* are not to be seen as discrete, sealed “matters of fact”, but as indeterminate “matters of concern” (Latour 2004, 231). The challenge of mapping the thing comprehensively in terms of its relations to other things, I argue, is the challenge of professional design practice and criticism today.

All this might indicate that to move forward with an effective mapping-based design critique requires a position outside of the institutional system of design practice and criticism. However, I suggest in my conclusion that a permeable, mutable and responsive account of design discourse, drawing from Latour’s object-oriented philosophy and Peter Sloterdijk’s spherology, fruitfully supplants a systems-based analysis that places the map-maker inside or outside a system. I propose in closing that, as disciplinary boundaries are increasingly blurred, a practice based on mapped practices rather than abstract schemas or imposed diagrams can support such a design discourse, and move it forward by example.
STATEMENT OF ORIGINALITY

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed: ________________

Date: ________________
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ACKNOWLEDGMENT OF ASSISTANCE IN PURSUIT OF RESEARCH AND PREPARATION OF THESIS

I am the sole author of all the works discussed in this exegesis, with the exception of “Where/Abouts”, the introduction to Else/Where: Mapping, which was jointly authored with the book’s co-editor Janet Abrams. The extent of my contribution to the book and its introduction is described in a statement by Janet included in the supplementary volume of my published works. In addition, I have included in the same section statements from my co-editors Michael Bierut and Stefan Sagmeister clarifying that I was the sole author of the main texts in the books Tibor Kalman: Perverse Optimist and Sagmeister: Made You Look, which are also excerpted in the supplementary volume of published works.

I’d like to acknowledge the support, vision and guidance of my principal supervisor Tony Fry and associate supervisor Andrew Leach in the writing of this exegesis at Griffith University. Thanks also to Paul Cleveland, director of Queensland College of Art, for his support and to deputy director David Lloyd for some timely suggestions.

Many book, journal and magazine editors with whom I have worked as an author have played a role in the development of subject ideas and content in the published works presented here. Martin Pedersen and the editorial staff at Metropolis initiated many of my 50–plus articles published by Metropolis; some of the ideas on categories of visualisation in the essay “Bubbles, Lines and String” emerged out of discussion with students at the University of Texas at Austin and separately with Lizzie Coles-Kemp at Royal Holloway University of London — Andrew Blauvelt and Ellen Lupton also helped frame the essay concept; Constantin and Laurene Boym contributed ideas to the essay “The Discreet Charm of the Ordinary”; Donald Albrecht helped frame the essay “Graphic Design” and Andrea Codrington and Michael Rock initiated the idea for the essay “People as Pixels”.
Chapter 1: Introduction

1.1 Introduction to the Research Area

Writing in the 1990s, the critic Fredric Jameson argued that the postmodern condition, with its vast global networks in which we are “caught as individual subjects”, calls for “an aesthetic of cognitive mapping” (Jameson 1991, 51). Over the subsequent two decades, Jameson’s hypothesis was effectively tested in the wave of cultural activity around mapping, partly enabled by the accessibility of two formerly military technologies: satellite navigation and the Internet. Mapping and information visualisation were relinquished from the tight grip of professionals into the spheres of amateur, open source and experimental practice.

The term ‘cognitive mapping’ has been subject to a wide variety of uses since the term was first applied to design and planning processes by Kevin Lynch in 1960 (Kitchin and Freundschuh 2000, 1–8). Jameson’s use was broad, advocating a personal, cultural and political response to the “bewildering new world space” of late capitalism (Jameson 1991, 6). Like Jameson, I am interested in social and cultural effects of mapping rather than defining cognitive processes and functions related to spatial models. My specific interest as a design writer is in the disciplinary discourse of design in its current state of flux.

That the practice of design is in flux is a relatively uncontested point, reflected in the blurring of disciplinary boundaries in the context of the postmodern shift described by Jameson (1991, 12), wherein design’s First World practitioners now inhabit a “postindustrial society” from which traditional production has all but disappeared (if to be displaced elsewhere) along with traditional notions of design as simply styling, packaging and branding products. It might be added that the disappearance of traditional production has been accompanied by the appearance of the biophysical consequences of production and the postindustrial vanishing act.¹ As

¹ Ulrich Beck’s characterisation of a reflexive modernity (Beck 1987), Peter Sloterdijk’s theory of a shared, animated space in which humans become aware for their “mutual poisoning” (Sloterdijk 2005, 230) and Bruno Latour’s critique of
the complex and indeterminate nature of design problems has become more apparent, disciplinary discourse has moved in two seemingly opposite directions: on the one hand, towards strategic consultancy in the form of ‘design thinking’ that is necessarily interdisciplinary and, at its best, takes a temporal view of design practice, acknowledging design’s real and potential impact. On the other hand, the discourse has moved towards a parochialism wherein traditional standards of practice, disciplinary silos and a stiflingly narrow historical canon are anxiously patrolled. As a practice, mapping deliberately moves against the latter tendency, purposely hopping disciplinary silos in its embrace of design as a “disorderly” reasoning (Rittel 1987) that has the epistemic freedom to tackle complex problems. The design theorist who has made the most sustained argument for repositioning design practice in light of the postmodern condition is Tony Fry, whose influence will be evident throughout this exegesis.

1.2 Overall Structure of the Exegesis
This exegesis aims to position a selection of my published work of the last twenty years as original research into the uses of mapping in design practice and criticism. It springs from three understandings of the term ‘mapping’:

1. *Practical*: map and visualisation-making in design practice (Chapters 3 & 4);
2. *Relational*: mapping as a relational and discourse-driven approach to design writing and criticism (Chapters 2 & 5);
3. *Reflexive*: mapping as a means of reflecting on my personal development as a writer and educator (Chapters 1–6).

Mapping as a design practice (1) usually results in a printed or interactive visualisation or map, or the translation of a mapping into built or performed form. While a substantial part of my work published since 2006 covers practices of mapping and visualisation outcomes as its subject matter, my interest in mapping as

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modernity’s asymmetrical account of the non-human (Latour 1991) have all influenced my sense of the context for the ongoing disruption of professional design practice.
a research method extends the scope beyond things that look like diagrams and maps. The case for mapping as a model for a relational approach to design writing (2) is developed in this exegesis through reference to my published works and a theoretical framework. Of particular relevance is landscape architect James Corner’s use of mapping to denote not only the spatial plotting of data, but also the methods of framing, selecting, connecting and arranging causal relationships in the service of uncovering new possibilities. Corner describes mapping as a kind of “doubly operative” activity of “digging, finding and exposing” on the one hand, and “relating, connecting and structuring” on the other (Corner 1999, 225). Informed by psychogeographic traditions, the map-maker does not pretend to detached omniscience, but is implicated the relational structure developed (Corner 1999, 228). To the extent that this exploring and seeing happens in a period of time, each mapping, whether its output is visual or textual, is a formative iteration. I will therefore endeavour to treat this exegesis itself as a mapping of my critical development (3), tracing the passage of design writing from the reporting methods learned on trade magazines to more critical, that is, literary and—eventually—spatial methods of design research and analysis.

Since my practice originates in design journalism, specifically reporting on the activities of professional designers in North America and Europe, this exploration is primarily concerned with the practice of design within and outside, but in relation to, this discursive field. I will endeavour to show how my research was initially framed by professional agendas, but subsequently by a more critical inquiry into the shifting nature of design practice.

1.3 Overview of the Chapters

Chapter 2 begins with a discussion of methods, in particular the impact of journalistic methods on my work. Having spent thirteen years (1987–2000) working exclusively as a journalist writing about design in many of its forms for

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2 See also Sadler 1998: 15–66.
professional design publications and mass media (newspapers, radio), and then the subsequent twelve years (2000–12) moving gradually into the academic field of design scholarship and teaching, the bulk of my early published work is news reporting, analysis and criticism in the trade journalism tradition. As my focus shifted to academic research and teaching, platforms for my writing shifted to book chapters and academic papers. Accordingly, I moved beyond the primarily instrumentalist and often hagiographic agendas of professional publications. The material I was unearthing as a journalist and commissioning as an editor could be put to the service of larger research questions than permitted by the short deadlines and narrow jurisdiction of design publications and mainstream media. As I became more interested in the potential of theory from non-design fields to interrogate the cultural assumptions underpinning my line of trade journalism, I developed a more considered and reflexive method for design writing.

One observation derived from this transition is that much design writing adapts its method and evaluative system from the art-history conventions under which design was first conceived as a subject of study, and that dominated in the second half of the twentieth century as forms of canonisation and connoisseurship.\(^3\) This approach differs from the primary and secondary research methods used by a trade journalist writing on design. In their mission to reveal economic motives and disciplinary practices, the trade journalist is more interested in how things work and how they came to be than how they conform to the historical movements, styles or grand narratives favoured by the design historian working in the canonisation and connoisseurship traditions. If the journalistic craft of information-gathering can be unshackled from a simplistic epistemology that assumes an objective uncovering of truth, and instead acknowledge that all journalistic methods are entangled with the production of meaning, then it becomes possible to imagine a more discursive and reflexive mode of inquiry.

\(^3\) See Fry (1989) and Fallan (2010) for an extended critique of “connoisseurship” and “art history of design” models of design history respectively.
In Chapter 3, I discuss the book I co-edited with Janet Abrams, *Else/Where: Mapping—New Cartographies of Networks and Territories* (Abrams and Hall 2006). Published by the University of Minnesota Design Institute, the book embraces the idea of mapping as a trans-disciplinary process that can simultaneously represent and enact new possibilities. In its approach, content and execution, the book represents a hybrid of journalistic reporting and academic scholarship. It also purposely sets broad parameters for what constitutes a map and a mapping, as is evident in two essays I wrote for the book, one on airport wayfinding and one on the navigational methods of pigeons.

*Else/Where: Mapping* launches from Jameson’s prescient call for a kind of cognitive mapping that moves beyond the pragmatic and professional initiatives of mid-century researchers and planners—such as Kevin Lynch, whose *Image of the City* (1960) suggests that residents form persistent mental pictures of their cities. Jameson set the stage for a broader “co-ordination of existential data (the empirical position of the subject) with unlived, abstract conceptions of the geographic totality” (Jameson 1991, 52); to an extent, *Else/Where: Mapping* attempts to visualise this correlation by juxtaposing experimental, subjective projects and essays with those concerning more abstract mappings of space, be it territorial or networked. The book has become a frequently cited source for subsequent discourse, and paved the way for my own subsequent investigations.  

Two quite different trajectories converge in mapping and visualisation. One is what might be described as a positivist impulse; to develop a global standard of representation that will achieve the status of a scientific discipline, replete with techniques and practices and an embedded body of knowledge. In professional design discourse, this trajectory commonly links back to the influence of Otto Neurath’s pictorial statistics, and his motto that “words divide, pictures unite” (Nikolow 2011). The other trajectory is the rejection of the positivist impulse, which

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4 I will cite key parts of *Else/Where: Mapping* in Chapter 3 of this exegesis.
favours a hermeneutic approach that acknowledges the situatedness of the mapmaker, reader and their respective ontologies and systems of knowledge production. Johanna Drucker’s work has been particularly influential in challenging positivism in information design and interactive design discourse, drawing from the humanities and digital humanities. But a strenuous critical tradition can also be found in geography and cartography: for instance, Neurath’s motto is challenged by a critical position articulated by J.B. Harley, who, after J.H. Parry, saw maps as “slippery witnesses” (Harley (1990) 2001, 34). Several recent works, including mapping and Geographic Information System (GIS) texts by Denis Wood (2010) and Jeremy Crampton (2010) help develop a critical approach to cartography that recognises its transformation amid amateur, open-source and experimental practices. Else/Where: Mapping, in its broad conception of mapping as an interdisciplinary mode of inquiring and disclosing, is aligned with these approaches.

The vast majority of texts that focus on information design and visualisation take a positivist approach, be they oriented towards design craft and technique (for example, in the work of Edward Tufte, David McCandless, and Ben Fry6) or towards “scientific” advancement (for example, in the work of Colin Ware or Ben Shneiderman7). Three of my essays published after Else/Where: Mapping will be discussed as a response to the positivist impulse’s dominance in Chapter 4. “Critical Visualization” (Hall 2008a) and “Disorderly Reasoning in Information Design” (Hall 2009b) both survey current trends in information visualisation as practiced in the sciences and arts, and make a case for a non-linear or “disorderly” (Rittel 1987, 2) approach as a foil to the overbearing dominance of visualisation and statistics as “technologies of management” (Crampton 2010, 9) driven by a “positivistic instrumentality” (Sack 2011, 129). A third essay, “Bubbles, Lines and String: How Visualization Shapes Society” (Hall, 2011a) scrutinises the contexts in which visualisation is practiced and argues for more interdisciplinary correspondence between artistic, scientific and journalistic approaches.

7 See Ware (2004) and Shneiderman (2004).
The second, relational approach to writing and criticism advocated here seeks, through mapping, to make visible processes, influences, drives and outputs that surround and result from design practice. Of particular pertinence is the influence of Michel Foucault’s “eventalized” approach to history (Foucault 1980, 226–28), and Bruno Latour’s “object-oriented philosophy” (Harman 2009, 16). Both writers present a relational means of opening up the analysis of designed artefacts, be they prisons or public transport systems, in ways that are quite distinct from the biographical or periodisation approaches of more conventional histories. Foucault’s modes of analysis, characterised as archaeological, genealogical and problematisation-based (Flynn 2006, 30), evoke, sometimes explicitly, spatial metaphors to contrast with the linear historiography that he was countering. Latour’s methods, derived from a systematic anthropology of science (Actor–Network Theory, or ANT), similarly suggest spatial rather than chronological modes of analysis. Both theorists present an interest in the multiplication of causes, an approach that can be linked to Martin Heidegger (Pizer 1995, 175; Gordon 2001, xx). This impulse to spatially array and analyse, rather than reduce, causal relations has been formative in my efforts to theorise a mapping-based approach to design and its critique, and is discussed in Chapter 5.

A key reference point is Latour’s call for a visual or conceptual way to “draw together, to simulate, to materialize, to approximate, to fully model to scale, what a thing in all of its complexity, is” (Latour 1999, 12). Mapping, I believe, provides a formal and conceptual means to unpack the “thing”, a term Latour uses to reference Heidegger’s concept of the Ding, as a gathering or assemblage of interests. In Heidegger’s analysis, the meaning and agency of the thing is to be understood by its operations in the world; hence the “thinging of the thing” refutes any attempt to isolate an object apart from its temporal, spatial context (Heidegger 1951, 174). Latour’s related argument that things are not to be seen as discrete, sealed “matters of fact”, but as indeterminate “matters of concern” (Latour 2004, 231), is essential to my understanding of how things might be mapped and unpacked relationally. The
challenge to that project is the impossibility of mapping the thing comprehensively in terms of its relations to other things. The relevance of this challenge to professional design practice is that the matter of fact—the final, visible output of much design activity, and its representation in mediated form—is popularly mistaken for the subject of design discourse. It has been effectively “black-boxed” (to use Latour’s term) by the processes of commodification and historicisation (Latour 1987, 1). But, as Fry has argued, the ongoing transformation of design practice and criticism requires a relational perspective to break down its tendency to instrumentalism. “Developing an ability to think relationally is not marginal to design and redirecive practice but central to it” (Fry 2009, 39).

Further consideration is given at this point in Chapter 5 to the discourse around design history and design studies as fields gradually detaching themselves from the disciplinary branches of art history (Fallan 2010, 4–10;27). While design history was first formalised as an offshoot of art history, the problems of using an art-historical framework for design have been clearly articulated in recent years. One common theme of these critiques is the recognition that art-historical approaches fail to accommodate the pragmatic imperatives of architectural and design practice, a deficit that partly drove the emergence of design studies in the 1990s (Margolin 1995, 14). Mapping, as defined in this essay, aligns itself with design studies in that its interest is not in producing “good” history but in how history can inform a recalibration of current practice.

In Chapter 5, my essays on the uses of failure (Hall, 2010c and forthcoming, see Appendix A) apply Latour’s tactic of arriving “before the facts and machines have been black-boxed” or following “the controversies that reopen them” (Latour 1987, Appendix 1) to design criticism. I do this by looking for design failures (examples include the Space Shuttle Columbia, the Pruitt Igoe housing estate and the Arnell
Group’s rebranding of Tropicana orange juice\(^8\) and revealing how, with failure, icons of design become easily unravelled, exposing the messy workings and negotiations that exist ‘behind the scenes’. The same process can then be used for those lionised objects of design history that are routinely exhibited on pedestals in white-walled museums, removed from their contexts of use, manufacture and disposal. Here it is possible to take cues from works that seek to correct the predominant heroic narratives of successful innovations, which imply that “the success of an artifact is an explanation of its subsequent development” (Pinch and Bijker 1987, 22). Failures do the opposite; they reveal contexts by begging explanation for their lack of success.

In my essay “True Cost Button-Pushing” (Hall 2009d), I attempt to unravel a dominant narrative of American industrial design history by exposing its presumptions and entanglement in other disciplinary narratives. Based on the premise that history is constantly being rewritten (Crouch 1999, 1; Doordan 1995, 76), and design history is new enough to warrant vigorous contestation, the essay calls for the pre-history of American industrial design to be re-examined. I use key texts such as Jeffrey Meikle’s *Design in the USA* (2005) to find the seeds of an early industrial era design practice more cognisant of its environmental impact. The designer emerges less as an autonomous historical celebrity than as the nexus of conflict, sometimes articulated, sometimes concealed, in an appeal to success narratives, often through careful curating and framing of prototypes, renderings, and sketches to contribute to a designed public image. My recent essay on the legendary US designer Norman Bel Geddes (Hall 2012b) seeks to critically reassess Geddes’s contributions by analysing his well-tended archive and rhetorical armoury. Success, in this instance, was built on the scrupulous manufacture of an image of corporate visionary, with disastrous effects on the American landscape.

The final chapter discusses recent essays that return to the topic of mapping in the

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\(^8\) These three cases are discussed respectively in Tufte (2006), Bristol (2004) and Kirk and Berger (2011).
context of architecture and planning, drawing from the experience of teaching and research efforts around mapping. “Diagrams and Their Future in Urban Design” (Hall 2010b) discusses architectural discourse’s tendency to fetishise diagrams, and explores the possibility of relational diagrams that simultaneously map and stimulate emergent systems. “Afterword: On Mapping and Maps” (Hall 2012a) examines the distinction between maps and mapping, and the potential and limitations of mapping as a performative, participatory tool of use in design education and, by extension, the planning arts. This is explored with reference to my own experiences leading mapping projects with students. I conclude that we should always be wary of over-inflating the participatory rhetoric in mapping, and cultivate a critical method for reviewing such projects.

My current research is aimed at developing a framework for design praxis. In workshops planned with schools and students, my aim is to explore alternative models of growth that are informed by a mapping of the past, present and future. A forthcoming essay “Counter-Mapping and Globalism” (see Appendix B) explores the extent to which mappings and visualisations can be mobilised against the dominant forces that have prompted the current crisis of confidence—by which I mean confidence in a viable political and environmentally sustainable future. After exploring various attempts to reimagine the representation of space to disclose its fluidity as practiced, I conclude that a map or visualisation by itself is doomed to remain gestural unless it is part of what Latour calls a “cascade of inscriptions” that encompasses the accumulated power of an assembly of allies and interests (Latour 1986, 17).

By exposing the indeterminate nature of the language of mapping, it becomes possible to see how it can be repurposed, re-appropriated, and turned against dominant territorial interests. A rich diversity of work already exists that aims to resist maps with mappings; for example, in post-election Kenya (2007), geographers used maps to represent the customary practices of indigenous groups in contested areas, or to map instances of violent oppression, while in Haiti in 2010, others
mapped the needs of residents in a region impacted by an earthquake. In these instances, a dominant, static map is supplanted by a live, “crowd-sourced” map to corral media attention or a relief effort.9

The essay closes by considering further issues that will inform my future research: I discuss Tim Ingold’s (2008) critique of the reductive nature of the concept ‘network’ (specifically as used in ANT) and Doreen Massey’s consideration of the degree to which spatial metaphors have been considered a product of temporal processes rather than correlative with them (Massey 1992). I consider Niklas Luhmann’s theory of autopoietic social systems as a model for the operationally closed system of the design profession and discipline inasmuch as it explains its constant impulse to self-replicate and thus self-preserve.10 I reiterate that mapping must always be seen as a spatial and temporal tool with which to help mobilise, focus and articulate interests—one that necessarily requires constant reinvention. As the geographer Denis Cosgrove remarked shortly before his death, “Always make maps; always question maps” (Ross 2006, 187).

As disciplines, design criticism and history are still in relative infancy, which presents the possibility of a broader re-conceptualisation. A relational understanding of design suggests that artefacts or things are understood in terms of their connections, possibilities and indeterminate nature, allowing the designer, design researcher, historian or critic to see links that traverse disciplinary boundaries.11 Yet, the reactive impulse to codify, professionalise and securitise design criticism and history as a discipline is seemingly relentless. Mapping, as framed here as a cross-disciplinary impulse, aims to counter the striating forces that seek to segment and delimit design. A relational understanding of design is essential to gain a more comprehensive picture of the lifecycles, services, impacts and

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9 See Sheller (2012); Ushahidi (n.d.).
10 Luhmann’s systems theory and ANT are discussed in Taschwer (1996).
11 Also relevant to this discussion are Petran Kockelkoren’s (1998) notion of a “relational” inner perspective and Cameron Tonkinwise’s (2005) invocation of “unfinishedness” in design.
possibilities of designed things as well as their agency and effect on human behaviour. I align with those scholars who contest that design is misconceived in art-historical terms as object-based or, contrastingly, in socio-historical terms, as anti-object (wherein the overarching narrative reduces the object to a minor role, stripping it of its agency) (Candlin and Guins 2009, 1–18). My aim is to demonstrate that mapping, as perspectival seeing, and as a tool for “digging, finding and exposing on one hand, and relating, connecting and structuring on the other” (Corner 1999, 225), provides a fundamentally useful means, method and mode for furthering design practice and criticism in the twenty-first century.
Chapter 2: Methodology

To write is to struggle and resist; to write is to become; to write is to draw a map: 'I am a cartographer'.
—Deleuze 1988, 44

The critic is not the one who debunks, but the one who assembles.
—Latour 2004, 246

A critique does not consist in saying things aren't good the way they are. It consists in seeing on what type of assumptions, of familiar notions, of established, unexamined ways of thinking the accepted practices are based.
—Foucault 2000, 456

2.1 Introduction

In an interview published in 1976, the editors of the geography journal Herodote ask Michel Foucault to explain his “profuse” use of spatial metaphors as a means of analysing discourses in specific time periods. Foucault responds that analysing knowledge in spatial terms yields insights on the process by which knowledge disseminates the effects of power. This, he argues, prevents the misconceived presumption of a “great collective consciousness” that results from purely temporal analyses (Foucault 1976, 69).

In a paper published twenty-eight years later, Bruno Latour reflects on the apparent demise of critique signalled by the use of social constructionist arguments and relativist positions by the American right to cast doubt on global warming. He proposes a critique that seeks not to debunk but to assemble. This, he argues, requires a closer analysis of “matters of concern” (things in a relational sense) rather than the tendency to identify a singular external reason that explained away the “matters of fact” under critical scrutiny. This requires a "stubbornly realist attitude": “The question was never to get away from facts but closer to them, not fighting empiricism but, on the contrary, renewing empiricism” (Latour 2004, 231, original emphasis).
In the following, I endeavour to discuss my research methods as they developed to adapt from journalistic to academic contexts of design criticism, noting the particular influence Foucault and Latour. I am specifically interested in where both thinkers demonstrated ways of assembling pictures of relationality that explicate designed artefacts. Underlying my interest is a relationist view—that things are defined only in terms of their effects and alliances (Harman 2009, 75). While obvious differences exist between Foucault’s archaeologies and genealogies of power relations and the generalised symmetry sought by Latour and his colleagues in ANT, I argue that the two thinkers share a relational approach, and that bringing them together provides for a reflexive method and framework for a mapping-based criticism. By this, I mean a criticism that assembles, explicates and configures evidence according to an understanding of the translation of power through human and non-human actors. Specifically, I am not interested in a criticism that seeks to identify trends or movements, or to evaluate designers or designed artefacts, in terms of an ahistorical matrix or collective consciousness, but one that seeks to reveal relations between the various actors that constitute designed things and the situation or perspective from which the critic interprets and understands them.

In order to discuss how my reflexive method developed, I begin by considering the limits and potential of my journalistic apprenticeship. As a news reporter on a London-based weekly focused on the business aspects of design, and as an editor and writer employed by, primarily, I.D. Magazine and Metropolis magazine in New York, I increasingly struggled with the inadequacy of dominant interpretations of design practice that defaulted to either ‘genius’, ‘innovation’ or ‘spirit of the age’ narratives. Crudely stated, the fodder of design journalism has tended to be dominated by celebrities and styles, reducing discourse to individual or company ‘profile’ articles or trend-spotting. At the same time, the interests of news reporters are, initially in the primary information-gathering process, empirical and necessarily broader than the agendas of their commissioning magazines. A journalist is trained to look for conflict, controversy and counter-opinions to the narratives being forcefully peddled by those seeking publicity.
To make this methodological case, it is worth considering the marginal role journalism holds in the academy. Technique-focused and tied to the industry it serves, journalism, as taught in undergraduate programs, has been repeatedly criticised for “narrow vocationalism” (Peterson 1986, 5): a practical training that oversimplifies the complexities explored in disciplines such as philosophy, sociology, psychology and anthropology (Parisi 1992, 4). A separate essay could be written about the parallel dilemmas facing educators in design, but here I will focus on what I see as journalism’s potential as a part of a relational approach to research and criticism—one that acknowledges the critic’s particular spatial and temporal position in interpreting a subject, and their relational understanding of that subject.

Mapping is meant here in the reflexive and relational senses outlined above. My own shift away from vocationally dictated horizons towards a relational approach to design criticism will itself be mapped in this essay as a development of theoretical and practical investigations.

2.2 The Crisis of Objectivity

A recent critical history of journalism begins in the seventeenth century with the emergence of a social class with sources of power outside direct royal or ecclesiastic control in England during Oliver Cromwell’s protectorate (Atton & Hamilton 2008, 12). As a way of writing and understanding, journalism developed as an amalgam of a number of forces: the empiricism of Francis Bacon, meaning “gathering and cataloguing evidence from which to generalize and test universal cause and effect relationships”; the popular form of essays and commentary, which relied on a writer’s “powers of observation, reasoning and writing skill” for its claim to authority; reportage, the long-standing practice of hiring agents to travel to distant lands and report back to their benefactors; and the evolving standards of legal disputation, whose rules included “using details of time, place and circumstance; identifying and evaluating witnesses and their testimony; and rejecting second-hand
accounts in favour of direct testimony and personal observation” (Atton & Hamilton 2008, 13–14). Citing a number of scholars, Atton and Hamilton summarise the characteristics of early journalism as such:

The use of credible sources, impartiality, a clear separation of the fictional from the factual, a distinction between reporting facts and speculation based on those facts, and the use of plain and unadorned prose. (Atton & Hamilton 2008, 14)

By the mid-eighteenth century, these characteristics had become entrenched as the “coin of the realm” for public debate in European countries and their colonies, employed by all sides that sought to be deemed legitimate (Atton & Hamilton 2008, 15). Thus, the pursuit of objectively describing the world was attached to a rising bourgeois class that sought for social transformation. With the rise of a public sphere and the emergence of an educated bourgeoisie, enabled by the expanding book publishing industry, the press was, for the first time, proposed as a “genuinely critical organ of a public engaged in critical political debate” (Habermas 1989, 60). Via the penny presses of the nineteenth century, “bourgeois journalism”, which initially sought to challenge existing orders, was eventually absorbed and then replaced by what Raymond Williams calls “commercial-popular journalism” (Atton & Hamilton 2008, 15; Williams 1970, 14-26). The rise of the capitalist ruling class brought a division of newspapers into radical and respectable titles, the latter less enamoured of critical discussion. By the end of the nineteenth century, commercial consolidation had brought about the “institutionalization of objectivity as both a writing technique and a professional creed” (Atton & Hamilton 2008, 17). Journalistic objectivity, like cartography,\(^\text{12}\) began to be explicitly promoted as an attempt to cope with popular scepticism following World War I and the Bolshevik revolution.

The particular brand of trade journalism into which I was inducted in late 1980s’ Britain was a direct offspring of the commercial-popular journalism that Williams

\(^{12}\) See Wood (2010, 121–26).
identified. As a trainee reporter on DesignWeek, a weekly magazine of the burgeoning UK design ‘industry’ modelled on the successful advertising industry journal Campaign, I was introduced to conventions such as the “inverted pyramid” construction of the news story—reporting the most significant facts of a story first and the rest in descending order of importance (see Schudson 1982, 99). Practices framed as pursuing objectivity, such as seeking out both sides of a story and cross-checking sources, were largely taught without reference to the critical discourse that had targeted journalistic objectivity in the 1970s and 1980s. While it might have occurred to many of the magazine’s staff, who had recently graduated from British universities with humanities degrees, that journalistic objectivity concealed prefigured decisions about what and whose views counted as news, such questions were generally dismissed amid the frenetic pace, commercial imperatives and industry-championing agenda of the weekly publication. Gaye Tuchman’s critique of objectivity as a “strategic ritual” of self-protection, Stanley Cohen and Jock Young’s notion of “manufacturing the news” and Stuart Hall’s account of how journalists oriented by institutional sources towards particular “definitions of social reality” (Tuchman 1972, 665; Cohen & Young 1973; Hall et al. 1978, 57–58) were not the stuff of editorial staff meetings. This acceptance of “taken-for-granted, standardized routines and conventions” reflects the ongoing institutionalism that persists in news organisations (Kaplan 2006, 174).

In their case for re-evaluating objectivity in journalism, Andrew Calcutt and Philip Hammond draw an analogy between the journalist’s desire to avoid ‘hack work’, “to move beyond fixed routines of reporting—and the hope of not having to reduce the world to a fixed pattern in our reporting of it”—and the sociologist’s desire to extend the range of academic research and make it more adequate to its objects of study. Their exemplar of the latter is Max Weber, whose “method of understanding” involved confronting “the conventional habits of the investigator and teacher in thinking a particular way” with “his capacity to ‘feel himself’ empathically into a

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13 For an overview of criticisms of journalistic objectivity, see Calcutt and Hammond (2011, 99–104).
mode of thought which deviates from his own” (Calcutt & Hammond 2011, 123).

Calcutt and Hammond’s account is useful in that it names the source of my own disillusionment with journalistic writing on design: our increasing cynicism as we recognise that we are unmoved by our own productive activity. As reporters we find ourselves both energised by the lure of legwork—“getting to the place where it’s happening and getting it down, fast” (Calcutt & Hammond 2011, 122)—and alienated by the ultimate products of our labours. But Weber’s “method of understanding” also points to a more productive model of how we establish knowledge and move beyond conventional habits. Specifically, Calcutt and Hammond’s discussion of these professional and academic crises recalls a larger “uneasiness” felt throughout intellectual and cultural life that Richard Bernstein identified in 1983 as being expressed by the opposition between objectivism and relativism. Either we ground knowledge in “some permanent, ahistorical matrix” (Bernstein 1982, 8) or we are led to relativism and, by extension, nihilism (1982, 3). Bernstein identifies the source of this uneasiness as “Cartesian Anxiety” that stems from René Descartes’ meditations—a text used to introduce philosophy when I was an undergraduate. Descartes systematises doubt until he is left, he believes, with proof of a foundational point—the ‘I’ who doubts and whose finite knowledge is contingent on the existence of the complete knowledge of a Creator (Descartes (1641) 1979).

In contrast to the Cartesian view, Bernstein argues after Hans-Georg Gadamer and Heidegger that understanding is never achieved from a foundational point; we bring both blinding and enabling prejudgment to the process and then recalibrate that prejudgment in terms of the things being investigated. This “hermeneutical circle” implicates the situatedness of the subject in the process of understanding (Bernstein 1983, 109–37). In short, we proceed in making sense of the world through a dialogical encounter with what is at once alien to us (128–9). Latour extends this concept of hermeneutics to allow interpretation by non-humans, as a means of
explaining the agency of things (Latour 2005, 245).\textsuperscript{14}

During my three-and-a-half years in London, my sense of the limits of the ‘objective’ reporting methods into which I had been inducted were more intuited than articulated. However, that intuition (and disillusionment) helped prompt me to move to New York in 1991, initially to work as a freelance journalist and eventually as a writer and editor at \textit{I.D. Magazine}. Though the publication had a venerable history as a vehicle of the emerging American industrial design profession, founded with the support of George Nelson in 1953 and pioneering some significant design discourse through its first decades (Abercrombie 1995, 64–65), \textit{I.D. Magazine} had become somewhat subservient to narrow professional interests in the 1980s. Fortuitously, my arrival coincided with a change of management at \textit{I.D. Magazine}, which provided a valuable platform through which to develop more reflexive journalism. Under new ownership, the creative direction of Bruce Mau and the editorship of Chee Pearlman, \textit{I.D. Magazine} fashioned itself as a place to publish lively critical discourse and reporting on the transformations in design practice, particularly amid the impact of digital media. A notable \textit{I.D. Magazine} article exemplifying the critical approach was the semiotician Marshall Blonsky’s account of the graphic identity and wayfinding design of the Euro Disney Resort theme park (now Disneyland Paris), which opened in 1992. After interviewing the designers of the park’s graphics, Blonsky rebuffed their claims with a semiotic unravelling, characterising the colour and typography choices as an attempt to redefine the Disney empire for a European audience as sophisticated rather than brash, infantile and American (Blonsky 1992, 60–65). As an English literature and philosophy graduate, I recognised in this deconstructive reading of design some of the tools of literary criticism to which I had been exposed. The suggestion that a less circumscribed discussion of design practice was now possible was faintly liberating.

Equally influential was the situated approach to profile writing being performed in

\textsuperscript{14} See also Kockelkoren (1998, 47–48).
the magazine by its editor-at-large Janet Abrams. Rather than report on the work of a particular design celebrity and conclude with an attempt to evaluate his or her work in terms of a design canon, Abrams undertook profile writing as an extended encounter between journalist and subject, a dialogical exchange characterised by combative questioning and the author’s self-reflection. In this regard, her 1993 profile of Paul Rand is an exemplary piece of journalism; it acknowledges the tension, empathy and even tears elicited by their extended encounter in which the reified graphic designer paints himself into a formalist corner by pronouncing formal and social issues in design to be incompatible (Abrams 1993, 50). The development of these texts was far from the efficient, write-to-fit method of weekly news reporting; drafts were invariably late and exceeded the given word count by the thousands. This model of the profile article had considerable influence on my subsequent attempts to characterise and critique celebrity designers while acknowledging the situatedness of the encounter. Examples include my articles on magazine designer Roger Black (Hall, 1996b), the design collective Tomato (Hall, 1996c) and more recent Metropolis magazine articles on Ross Lovegrove’s work for Artemide (2009e), Hani and Karim Rashid (2006c; 2001f), and Marcel Wanders’ cultivation of design as a set of conjuring tricks (2003c). In various ways, all of these articles use the occasion of the celebrity interview to reflect on the construction of a media ‘image’. For instance, the Lovegrove-Artemide article reflects on the shift in the way Artemide’s designers talk about themselves and their work. Lovegrove’s constructed public image, exemplified in a “techno-organic-super-patter” honed for the benefit of the public at events such as the TED conference, is juxtaposed with the humbler accounts of design projects in the years immediately following World War II, when Artemide emerged amid Italy’s economic recovery.15

Celebrity Monograph: Kalman (and Sagmeister)

15 The New Journalism of the 1950s and 1960s also influenced Abrams’s and my efforts to position the feature article as an encounter between people rather than authoritative trend-spotting or history-making. Tom Wolfe’s “memo”, published in Esquire magazine as “There Goes (Varoom! Varoom!) That Kandy Kolorod Tangerine-Flake Streamline Baby” (Wolfe 1963, 9–14) was written out of frustration with the deadline and word count constraints of a commissioned article. Hunter S. Thompson’s “gonzo” journalism similarly placed the predicament of the writer at centre stage. “He climbed in and out of his own stories, dissolving the distinction between reporter and reported, and punched his way through the fact–fiction divide like it was a paper bag” (Calcutt & Hammond 2011, 125).
My first collaborative book *Tibor Kalman: Perverse Optimist* (Bierut, Hall and Kalman 1998) marks an attempt to address the crisis of objectivity within an unlikely format. While the book appears to be straightforward hagiography, its content reflects a struggle between conflicting agendas, including those confronted by the individual subject, Tibor Kalman, as he tries to reconcile a commitment to social transformation with the commercial demands of running a New York design firm. To revisit the event in light of Latour’s philosophy, my efforts to achieve polyphony in a monograph can be seen as an impulse to flatten a celebrity narrative by giving voice to the actors involved in the works featured. In Latour’s “irreductive” terms, as defined in a 1988 work on Louis Pasteur, no work can be explained away by appealing to authorship, society or nature (Latour 1988, 158–75). Instead, the critic’s task is to open the black box of a designed artefact and reveal the human and non-human actors that have achieved its formation, be they economic, aesthetic, social, political, or material in nature. More pervasive in design criticism, however, is a ‘reading’ of a designer’s oeuvre that finds explanations in what Latour calls the “folklore of the people studied” (Latour 1988, 9). In the case of Tibor Kalman, prominent folklore pointed to various narratives: the contrarian radicalism of Kalman as ‘the author’, his creative genius and its influence on the profession, or—from dissenters—the entire Kalman enterprise as a form of commodified dissent, an image-making through the co-opting of gestures of non-conformity. These narratives will be discussed below.

Kalman, the founder of M&Co, was celebrated in the 1980s/1990s US design scene for flouting the disciplinary boundaries in design, for ridiculing the blinkered outlook of contemporary graphic design practice and for calling for more socially engaged practice. His background as a journalism student and member of the radical Students for a Democratic Society (SDS) had directly influenced his efforts to use commercial design projects to further political debate and promote humanitarian causes. However, by the time our book was planned, Kalman was approaching the

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end of his life and had no doubt begun to consider the proposed book as his testament.

When Kalman approached me to write the main text and edit contributions by selected authors, the book was no longer a collective account of the firm he founded. It had been provisionally named after Kalman, and was likely to feature a portrait of Kalman on the cover. This decision was made by Kalman and the book's co-editor Michael Bierut and publisher Edward Booth Clibborn out of recognition of Kalman's celebrity and influential role in design, but rendered in the ironic spirit of the firm's work. In conversation with Kalman and Bierut, I resolved that my role should be to produce, through extensive interviews, a chorus of dissenting voices on the featured design projects. This would be achieved by interviewing as many former M&Co employees, collaborators and clients as possible, and writing a running narrative through the book, disguised as extended captions. My goal was to represent the projects through a detailed account of their process and development, as the products of many people and many conflicting agendas. This would be achieved simply by juxtaposing quotes and narratives drawn from the interviews with collaborators.

A section on Colors magazine provides a flavour of the journalistic methods in use. The section is introduced with a subheading, “Looking for Trouble” followed by a narrative account of ‘celebrated’ Italian photographer Oliviero Toscani’s visit to New York, where he was “looking for a partner to help conceive his new baby—a magazine”. The narrative tone is chatty and wry, gently hinting at the “trouble”—the battle of egos between Toscani and Kalman—that was to follow. The book’s creative director Michael Bierut had already sketched thumbnail layouts of the entire

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17 The chosen portrait was by a Bombay street artist, commissioned by Kalman during a visit to the city; combined with a large typographic treatment of Kalman’s first name on the spine and a predominance of red and black, the book was intended to resemble the official publication of a smiling dictator, recalling *Quotations from Chairman Mao Tse-Tung* and early Soviet propaganda.

18 My rationale for this approach was that Kalman had already asked several renowned design critics and essayists to write pieces for the book: the radio broadcaster Kurt Andersen would conduct and transcribe an in-depth conversation with Kalman; the critic Rick Poynor would write on Kalman’s approach to design; and the writer, historian and *New York Times* art director Steven Heller would produce a history of the firm.
sequence of text and images, so the word 'baby' could be deployed in the text with full awareness that the opposite page would feature an image of the cover of the first *Colors* issue, showing a newborn baby, umbilical cord and blood included. An extended quote from Toscani follows, including the petulant-sounding remark that he chose Kalman for the job of editing the magazine, “not so much because I was impressed with his design—his work was a little nostalgic for me—but for his brain” (Bierut, Hall and Kalman 1998, 242).

The interviewees’ voices represented on subsequent pages provide critical reflections on the design process. Karrie Jacobs, executive editor for the first four issues of the magazine, reveals that the baby image was in fact a composite of different pictures. “They (Toscani and Kalman) had this incredible slice of reality but they had to art direct it so that reality was this much better. That to me was the theme of the magazine” (Bierut, Hall and Kalman 1998, 243). Designer Emily Oberman points to a problem with the entire *Colors* project in a subsequent quote: “The worst thing I can say about *Colors* is that it never entirely lost the ‘white people looking at the rest of the world’ thing” (Bierut, Hall and Kalman 1998, 252, punctuation added).

In his essay in the book, Rick Poynor indirectly addresses Jacobs’ and Oberman’s critiques. He notes that, with *Colors*, Kalman used communication techniques long ago refined by advertising—arresting images, short blocks of copy—in a bid to transmit progressive “leftist” ideas to a 15–25-year-old readership. The fact that the magazine was lavishly funded by the Italian clothing manufacturer and retailer Benetton, however, confused the issue of objectivity. Could a magazine simultaneously promote cultural diversity and a homogenous retail chain built on a globalised manufacturing and distribution network? This confusion was manifest in a curious blend of authoritative narrative and ironic reflection on that voice of authority. A prevalent language of information graphics and reported facts, and an editorial stance of putting cultural difference on an equal plane suggested a revival of 1950s’ “family of man” liberalism. The magazine’s New York-centric editorial
perspective, however, was made explicit: “The message of this magazine is that your culture (whoever you are) is as important as our culture” (*Colors* 1991, 63).

Poynor boldly argued that Kalman’s use of Benetton’s money for his own political message-making in the first thirteen issues of *Colors* amounted to a “kind of TAZ” (“temporary autonomous zone”) (Poynor 1998, 238). American theorist Hakim Bey’s concept of a post-revolutionary political, social and cultural resistance proposed the TAZ as a parasitical but temporary insurrection within the body of a host organism, which, as long as it goes unnoticed, makes “complete freedom” possible for its participants. This idea was attacked, however, by the critic Thomas Frank in a savage review of *Perverse Optimist* published in *Artforum*. Arguing that Kalman’s securing of corporate funding for supposedly progressive, radical projects reflected how well corporations had learned to commodify a language of dissent to sell back to youth, he dismissed *Colors* as “agitprop emptiness”.

However, Frank’s lofty dismissal of Kalman’s entire project is not helpful in understanding the process by which the designed artefact is the aggregation of many agendas, nor how designers strive to negotiate their own desire for social change within such aggregations. This last issue was discussed extensively after the publication of *Tibor Kalman: Perverse Optimist* and the re-publication of the First Things First manifesto, co-signed by Kalman, in 2000 (see Soar 2002). Critic and designer Andrew Blauvelt characterised Kalman’s modus operandi as “the position of trying to dismantle the system from within—the position of an insider. By its very nature, it is an impure position—complicated, contradictory, and necessarily compromised” (Blauvelt 2004).

In my view, the book sought to both lionise Kalman and problematise the celebrity system that was essentially driving the production of the book. Critic and designer

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19 "The consensus is that Kalman’s radicalism shines through nevertheless, that somehow *Colors* subverts the corporate project. What I found, though, was the opposite: Powerful images and strong language skillfully combined in the service of fatuous corporate sentiment. A consistent tendency to reduce every question to a gesture, to something you don as easily and unproblematically as a Benetton sweater." (Frank 2002, 252)
Andrew Blauvelt noted a testing of limits in his review of *Perverse Optimist*. While Kalman was “his own best spokesman”, his involvement with the project meant that “real groundwork” towards a critical discussion of Kalman’s work was lacking (Blauvelt 2004). Such problems were symptomatic, argued Blauvelt, of the self-published monograph (although *Tibor Kalman: Perverse Optimist* was not self-published, it was obviously compiled with the archival curation and input of its subject). Behind the adulation of authorship among graphic designers was a deep insecurity about the fact that rarely did designers originate or even control the content to which they were giving form; authorship thus became a topic of intense interest in graphic design discourse.

The journalistic methods I used in the book certainly brought a degree of breadth and detail in the coverage of projects and revealed more than standard hagiographies or even Frank’s arch-critical stance about the way in which designs are brought into the world. As evidence of its significance to professionals and aspiring professionals—the target audience of such monographs—the book has been reprinted three times, and is commonly cited in graphic design histories and books-of-influence surveys (for example, Eskilson 2007, 361; Godfrey 2009, 202).

Similar conclusions might be drawn from the book’s natural successor, *Sagmeister: Made You Look*, which I wrote and edited with the celebrated Austrian-born designer Stefan Sagmeister and published in 2001. Sagmeister, a former M&Co employee, approached me directly after reading the Kalman book, suggesting that a similar approach might be taken to presenting his studio’s work to date. Due to its subject’s celebrity *Sagmeister: Made You Look* is ubiquitous; it has been reprinted, earned several design awards, and is featured, like the Kalman book, in compilations and histories (Godfrey 2009; Eskilson 2007). However, further discussion is

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20 “Are these self-published monographs foreclosing or at least delaying independent critical and historical analysis? Is there not a broader set of issues and cultural phenomena against which to read Kalman’s work? Of course, these questions and problems are not specific to this publication. While this book certainly ranks above the typical fare being offered to the design community these days, it raises these issues only because it allows us to see just a glimpse of the cracks in its own strategies more clearly” (Blauvelt 2004).

unnecessary for the purposes of this essay, since *Sagmeister: Made You Look* largely replicates the methods of the Kalman book: project development is mapped through interviews and told in extended captions, juxtaposed with hand-written excerpts from Sagmeister’s personal journals. While the project earned praise for its ‘warts and all’ approach, revealing failed projects as well as candid accounts of unsuccessful ideas, tortuous project development phases and troublesome rock star clients, the narrative rarely ventures beyond the designer/client perspective. As Sagmeister himself writes on the book’s credits, “This is a traditional show-and-tell graphic design book. No revolutions or big theories in here” (Hall and Sagmeister 2001, 12). Indeed, with self-consciousness characteristic of the era, Sagmeister and I agreed that the book’s slipcase should feature a promotional sticker with the words “Another self-indulgent design monograph”.

Both the Kalman and Sagmeister books can be considered as providing a “first draft of history” (Calcutt and Hammond 2011, 128). In the context of this essay, they can be seen as having established a discursive approach to history-writing, where a singular narrative is avoided in favour of multiple viewpoints. As such, they laid the groundwork for my theoretically informed efforts at a mapping-based critical writing to come.

### 2.3 Critical Frameworks

With my appointment as a lecturer at Yale School of Art in 2000, I gained a forum in which to explore, with postgraduate graphic design students, how designed works might be interrogated from different perspectives that take into account social, cultural and political factors. Starting from a literary perspective, I began advocating a relational account of influence that empowered the reader or receiver of designed works to draw connective links between works and ideas. My seminars in the early 2000s adapted the literary concept of intertextuality to introduce the concept that works of design, like texts, lack independent meaning, but instead derive their meaning through the reader, moving between of a network of texts and non-texts.
Before my arrival in 2000, the Yale program was already much indebted to the presence of Michael Rock, whose various writings sought to problematise the notion of design authorship with reference to Foucault’s essay “What Is an Author?” (1969) and Barthes’s “Death of the Author” (1968) (Rock 1996; 2009). Having demonstrated through Foucault’s essay how authorship has been historically constructed and elevated, and how graphic designers modulate meaning between the user and the world, Rock presented the model of the film director (auteur) who, while not originating content, gave it form. His design strategy is summed up in the 2007 essay “Fuck Content” as finding ways “to speak through treatment, via a range of rhetorical devices—from the written to the visual to the operational” (Rock 2007).

Broadly summarised, the Yale program in the mid-2000s sought to empower designers to experiment with form in order to overcome the persistent Modernist dictum that typography and design should aspire to invisibility in the transmission of content.23 Yet, while Rock’s advocacy of speaking through treatment presented a platform for formal experimentation, student work emerging from the program at the time often remained mute on the topic of the economic, political and social mechanisms in which professional graphic design practice operate. While perhaps unintended, in many ways, this emphasis on treatment relieved the designer of responsibility for both content and choice of work, and simply prepared students to provide innovative form for the ever-hungry New York advertising and design agencies, publishers and corporations that typically comprised the job market for Yale graduates.

Nevertheless, the anti-heroic approach to design writing and criticism derived from the authorship debate proved valuable in providing a framework for journalistic

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23 The most cited and denigrated version of this latter position is Beatrice Warde’s 1930 essay “The Crystal Goblet” (published in book form in 1955) in which good typography is likened to a fine goblet: it draws attention not to itself but to the task of conveying its content, the wine. The fallacy of Warde’s argument is that it perpetuates an ahistorical concept of good typography, and has been used to support the promulgation of a particular style (typically modelled on the International Style of the post-war era) as a universal form.
investigation of design processes. Foucault’s authorship essay was written in response to criticisms of his book *The Order of Things* (1966) regarding its seemingly cavalier approach to history (Klages 2012). As Foucault himself notes in the foreword to the English translation of *The Order of Things*, his is a “comparative” method that does not seek to create a “picture of a period” or “the spirit of the century” (1966: xi), but to reveal commonalities in the organisation of knowledges—natural science, language, economic facts and philosophy—between the seventeenth to nineteenth century.

Prioritising discourse over authorship frees the writer, critic and historian from the slavish adherence to periodisation or biographical framings of design. Two of my book essays from this period, “Opening Ceremonies: Typography and the Movies, 1955–1969” (Hall 2000f), and “Designing Non-Space: The Evolution of the Elevator Interior” (Hall 2003a) indicate the emergence of a discursive, relational approach in my writing. Significantly, neither essay was premised on the work of a single designer, thereby liberating the analysis from an obligation, imagined or otherwise, to celebrate a particular individual or analyse a given oeuvre.

2.3.1 Film Titles

“Opening Ceremonies” emerged from a longstanding interest in motion graphics, particularly the role of typography in film. Having interviewed several designers working in this field, including two pioneers, Saul Bass and Steve Frankfurt (Hall 1994, 41–44), I was interested in developing an account of the seminal period of 1950s and 1960s filmic type that considered influences beyond the formal and aesthetic references commonly discussed by practitioners. While Bass had long been considered the grandfather of the film-title sequence, I could not find any discussion of Bass’s work that addressed the social and cultural context of the cinema in the 1950s. Since the essay was commissioned by Princeton Architectural

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24 For example, Foucault could consider the eighteenth-century French writer Buffon and the nineteenth-century British scientist Charles Darwin together because they belonged to the same discursive family.

25 Andrew Leach has noted how a Foucauldian approach to architectural history is “broadly constituted”, permitting the historian to view technique as a product of discourse, thus relieving him or her from the burdens of the concept architecture with its relatively recent institutionalisation (Leach 2010, 67).
Press for a volume titled *Architecture and Film*, I felt relatively free to write for a perceived general audience without an obligation to reify the ‘genre’ or, indeed, the design profession as a whole.

The tools of literary criticism are clearly apparent in my analysis. The essay makes a case for assessing Bass’s contribution to film titles in light of the period of “deep crisis and re-evaluation” (Hall 2000f, 130) in Hollywood in the 1950s, brought on by several factors. Among them were dramatically declining audiences amid suburbanisation and the spread of television; the decline of the studio system and the rise of the director-as-author in the form of figures such as Otto Preminger and Alfred Hitchcock, who both commissioned title sequences from Bass; a technology-inspired impulse to out-perform cinema’s rival, the television set; and the influence of contemporary marketing and advertising practices.

The basic mode of analysis is provided by the literary technique of close reading. For example, the opening to Hitchcock’s *North by Northwest*

> begins with an animated sequence of lines forming a slanted grid along which the typographic credits slide. Gradually, the reflections of cars begin appear in the grid and it transforms into the glass curtain-walled facade of the United Nations Secretariat Building in New York, making a seamless transition from graphic animation to architecture. (Hall 2000f, 132)

This is then interpreted with the aid of architectural critique:

> The choice of the Secretariat as the canvas for the credits is significant, as it foreshadows a key scene in the plot, set in the lobby of the General Assembly. But it is also the same structure that architecture critic Lewis Mumford derided as a symbol “that the managerial revolution has taken place and that bureaucracy rules the world”. With this cheeky use of Wallace K. Harrison’s faceless structure as a projection screen, Hitchcock and Bass elicit the preoccupations of the era, the plight of the everyman amid the machinations of the grey organisation. (Hall 2000f, 132)

Discussing typography’s role as a “choric commentator” in the opening sequence of
Barbarella (Vadim and De Laurentiis 1968) and the Bob Dylan documentary Don’t Look Back (Pennebaker 1967) my essay embarks on a close reading of the action, noting how, in the much-copied Pennebaker sequence, the cue-cards tossed nonchalantly in the street by a young Bob Dylan become “an increasingly unreliable subtitling service, carrying mis-spellings (‘suckcess’) and little maxims that don’t appear in the song at all (‘watch it/here they come’ and ‘dig yourself’)” (Hall 2000f, 136). This allows for the notion of Dylan as a singular authority on the meaning of the piece to be destabilised. I argue that three narrative authorities are being performed in the sequence: “the singing voice, the nonchalant actor and the written Dylan in the form of the hand-lettered cards” (Hall 2000f, 137). Thus, considering the choric role of the typography (the cue cards) provides the springboard for an exploded diagram of authorial voices that contradict each other, with a subtly destabilising effect: “Once the cue cards cease to provide the correct words, however, the whole relationship between the words and their meaning is upset” (Hall 2000f, 137).

2.3.2 Elevators

“Designing Non-Space: The Evolution of the Elevator Interior” was a more ambitious step towards a relational, mapping-based criticism. It benefitted from research previously undertaken for an I.D. Magazine essay on the push button (Hall 1999c), which had tracked the use of buttons through the mechanical, electronic and digital phases of the twentieth century, proposing that this seemingly banal haptic interface could have had a significant effect on human behaviour. Suggesting that this “symbol of convenience” had left us understanding little of the consequences of button pushing, the essay established some groundwork for a more robust critique of the evolution of the elevator interior, which includes its own distinctive push-button user interface. “Designing Non-Space” characterises the elevator’s transformation from mechanical wonder of the industrial revolution to an electronically automated “void” of the twentieth century, where efforts to design an uplifting experience are dogged by the absence of an operator or tangible evidence of its working mechanisms.
I combined my primary research of reporting with critical tools borrowed from Foucault and Rem Koolhaas, finding in the elevator’s historical development the key to its psycho-social attributes. In a 1978 interview, Foucault characterises his work on mental illness and prisons as “eventalization”—identifying a singular event that disrupts a conventional historical analysis and constructing around it a “polyhedron” of intelligibility to show how practices became naturalised or institutionalised. The penal practice of incarceration is analysed to its smallest details, prompting the construction of a polyhedron of practices such as schooling, military discipline, new methods of division of labour, British empirical philosophy and so on (Foucault 1980, 227–28).

Koolhaas uses a Foucauldian method in his account of a public event in 1853 when Elisha Otis demonstrated the safety features of his new elevator invention, performed by cutting through the rope that held the platform on which Otis stood aloft, only to be halted (saved) by a spring-and-ratchet safety mechanism. The taken-for-granted invention of the elevator, and by extension, the skyscraper, is cast in terms of a performance: “contained in its success is the spectre of its possible failure” (Koolhaas 1994, 27). I used this account to open my essay, and then provided the more socially and racially aware account of the spectre of failure provided by Colson Whitehead’s novel *The Intuitionist* with its frequent references to the elevator’s morbid connotations. The novel’s (African-American) protagonist observes that the cosmetic design of elevator interiors served to “distract the passenger from what every passenger feels acutely about elevators. That they ride in a box on a rope in a pit. That they are in the void” (Whitehead 1999, 46).

“Designing Non-Space” attempts to construct a “polyhedron” of causality around the elevator’s history, arguing at various junctures that each effort to redesign the interior reflects an uneasiness with the invention’s floating box-coffin connotations. My re-reading is informed by frequent reference to information gathered from primary research—an interview with a custodian of the Otis elevator company...
archive—and a technical account of the elevator’s history written by an engineer and former employee of Otis (Latvala 1991). An example of this approach can be found in the second paragraph:

The elevator interior is a space that is strikingly difficult to fit to a design discipline. Does it properly belong in the field of interior design, being a room that by the way, just happens to move? Or should it fall under the jurisdiction of the transportation designer, since it is, in truth, a vehicle?...Early elevators were even fitted with seats, so passengers could enjoy the ride. The modern elevator, however, is unique in its spartan furnishing, odd psychological ambience and limited control. It is difficult to think of another vehicle that we ride or operate without being able to see where we are going. (Hall 2003a, 61)

Revisited in terms of the hermeneutical circle, “Designing Non-Space” is an endeavour to apply theory through praxis; a critical framework is developed, informed by David Noble’s *The Religion of Technology* (1997), and tested against material, technological and professional accounts of the elevator. Noble argues that Western technological progress has been underpinned by a religious, non-scientific subtext. My discussion of the ascending open air elevators of the Eiffel Tower, reminiscent of Otis’s open demonstration platform, draws from Noble’s account of James Clerk Maxwell, whose electromagnetic equations of 1873 led the theoretical basis for developing the electric motors that came to drive elevators. Maxwell wrote daily prayers for guidance in harnessing technology “that we may subdue the earth for our use”. The American engineer and steam power specialist Robert Thurston similarly predicted in *Science* magazine that man should be able, by perfecting energy utilisation, to reach a sort of technologically assisted enlightenment. My discussion of the elevator’s heavenly aspirations was also informed by Barthes’s account of the Eiffel Tower (with its diagonal elevator shafts) as an ancient/modern hybrid “Babel complex” (Barthes 1979, 240) that conjures up a “polyphony of pleasures” (250), such as communicating with God, providing a bird’s eye view that turns city into Nature, evoking the dialectical nature of

panoramic vision and allowing people to “transcend sensation” (Hall 2003a, 61).

My close reading of literary texts in “Designing Non-Space” is supplemented with the close reading of primary sources in the manner of trade journalism, with its focus on skills and material knowledge of the trade. Larger critical frameworks are thus repeatedly tested against trade know-how and reportage; any perceived drift toward armchair criticism is checked by the interspersion of hard technological and historical facts. The failure of technologically empowered ascent to reach any sublime heights, for example, becomes apparent in the late industrial era. Here my material was sourced via journalistic ‘legwork’; I rode many of New York’s grim residential elevators and trawled through the indices of the New York Times for elevator stories.

By the late 1890s, New York City could boast more than 5,000 apartment elevators. The window onto the world began to diminish to the point where it would become little more than a grille-covered peephole in the door for establishing the cab’s arrival. (Hall 2003a, 65)

The low-cost, utilitarian elevator heralds the point that automated operation meant the eventual complete removal of the elevator operator, further amplifying the awkward, enclosed and silent environment of the elevator interior. I discuss the gradual replacement of a human with a non-human operator in terms of its effects on perception, from the perspective of the user of the interface:

The ironic result of increasingly efficient vehicles was to make riders more impatient. Removing the driver took away the last possibility of palpable human error... But the very same technological advance left riders with no outlet for their impatience and frustrations. The cheery or grumpy operator had been replaced with a faceless array of numbered disks that gave no indication that the rider’s floor request had been registered. (Hall 2003a, 69)

The essay thus begins to establish a map of tensions at work behind the elevator, an opening of an archetypal black box. After tracing the gradual replacement of the elevator’s visible and social mechanics with automated non-human operations, and
the resultantly awkward ambience created, I discuss the proposed design response: the transparency of the glass-walled elevator. As a step toward a relational mapping-based criticism, “Designing Non-Space” opens up, rather than closes down, patterns of causal relations.

Indeed, the essay was referenced several times by the cultural studies scholar Alanna Thain in her paper on elevators in cinema, which posits a Bergsonian argument for the elevator as “a kind of machine for making non-habitual space and time”. In particular, Thain developed my point that “the silenced, enclosed cab has the effect of exaggerating every rider noise, move and gesture”, explaining the cinematic trope of “erotic liaisons with friends or strangers in elevator cars, coupled with the possible thrill of sudden exhibitionism” (Hall, 2003a, 71). Thain also reprises my point (after Whitehead and Koolhaas) that “the fear of death serves as a foundational ‘amplifier’ in the elevator’s affective force” (Thain 2009, 58).

2.3.3 Neon

Three essays I wrote on the subject of neon signs illustrate the way in which my journalistic method has been increasingly shaped by theory, in particular, Actor–Network Theory (ANT). “Stars of Light” (Hall 2001c), published in The Guardian newspaper and subsequently anthologised in book form, addresses the topic of the neon “boneyard” of discarded signs at the Young Electric Sign Company’s headquarters in Las Vegas as a symbol of the built-in obsolescence of the medium. The news ‘hook’, however, is provided by the city’s efforts to recognise the nostalgic appeal and craftsmanship in the vintage signs by restoring and erecting selected specimens around the city as part of a ‘neon museum’. The key reference was Learning from Las Vegas, the celebration of Las Vegas’s motor-age architecture of communication by Robert Venturi, Denise Scott-Brown and Steven Izenour (1972).27 My ensuing reportage on the city’s strategic placement of the restored signs, as witnessed during a field trip to Las Vegas, reveals a curious semiotic

27 Rosalind Krauss argues that Venturi et al drew from Baudrillard’s concept of object as sign. (Krauss, 2007)
slippage subtly referenced in the text:

The uninitiated visitor might be somewhat mystified by the appearance of electric advertisements for absent attractions. The Flame Restaurant sign, rescued from the roof of an early ’60s diner long since demolished, features a long, swooping pink arrow pointing to a void where food once was served. (Hall, 2001, 258)

Despite the pleasure of identifying a literal example of the vanishing referent, I began to realise that this mode of design criticism, which ‘read’ designs as texts and revelled in the absurdities of an economy of signs, seemed to neglect the materiality of the subject. Specifically, the sense in which the neon sign, when read as a signifier, quickly loses its material specificity, the sense in which it is an event situated in place and time. The problem is related to what John Stewart calls a “two world” orientation, which insists on “a fundamental distinction between two realms or worlds, the world of the sign and the signifier, symbol and symbolized, name and named, word and thought” (Stewart 1995, 6–7).

My first effort to retrieve neon from its black-boxed status as signifier of a culture of simulation and expose its materiality was in a journalistic piece of reportage, “Unplugged: When Twilight Falls in the City of Neon”, which gives voice to the designers who participated in the construction of the Vegas signscape (Hall 1999f, 56–69). Interviewing four of the designers (who ranged in age from 58 to 84) from the city’s neon heyday for the book Subculture was a strategic rebuff to Venturi’s account of the city’s supposedly anonymous vernacular, as Bierut argued in the book’s introduction with a quote from Tom Wolfe: “it becomes important not to mention the names of these people if you want to treat their work like primitive art, like Easter Island icons” (Bierut 1999, 9).

In several cases, the quotations I selected from the phone interviews pointed to the rituals and practices of the signmakers, which literally underline the materiality of the sign. For example, the appropriately named “Buzz” Leming’s account of the
launch of a completed project describes “guys on radios running back and forth checking the flashing action”. The designers’ dependence on the frenzy of obsolescence in the economic infrastructure is also evident in the quotes, as Leming again indicates:

> When they blew up the Sands (hotel) I watched it on TV. It was pretty impressive, but sad to see it go. The hotels get tired of looking at the signs, but I guess that’s what keeps us in work. (Cited in Hall 1999f, 68)

In “Neon Typography”, an essay published in 2009d, I revisit the theme of obsolescence as part of an investigation of failure in design, a topic that recurs in my research into the mapping process. Failure, as Latour and Michel Serres have argued, transforms a design’s ontological status to that of “quasi-object,” encouraging an investigation and mapping of causes (Latour 1987, 258; Serres and Latour 1995, 161). I will develop this point in Chapter 4. In “Neon Typography”, the journalistic impulse to uncover the know-how of designerly practice through reported interviews is fused with an essayistic account and analysis of neon lights. By this point, my method had matured to the point that the narrative voice is disclosed to be that of a particular point of view, rather than the supposedly objective reporter. I use this to introduce the idea that neon advertising seeks to evoke desire, but, in the cold light of day, only reveals a lack of the thing promised, a paradox I align with the contradiction between the “unearthly glow of a rare gas charged at high voltage in sealed tinted glass” on the display side and the blackened tubes, tangles of wires and transformers on the backside of the sign. I argue that this contradiction, along with the bombastic and “desperate” nature of the messages, makes neon typography a kind of urban poetry; a “yearning for something that is patently not there, which is the essence of advertising” (Hall 2009d, 1).

“Neon Typography” also marks my first effort to establish an account of neon that explores its agency, reflecting my growing interest in ANT. A material-semiotic approach to science and technology studies that emerged in the early 1980s, ANT explores the development of things, such as objects, theories and phenomena, in relational terms whereby alliances (or actor networks) are formed. Thus, designed
things are understood, or mapped, in terms of their constituent relations.

“Whenever you wish to define an entity (an agent, an actor) you have to deploy its attributes, that is, its network” (Latour 2011, 800). Most controversially, ANT grants agency to non-human as well as human actors (Latour 2005, 10).

The neon sign, it turns out, is a very active actor, being the product of rare gases charged at high voltage in sealed, tinted glass tubes. The semiotic and material motion is remarkably similar; the gas molecules are excited in a contraption designed to elicit excitement—or at least attention—in the passing motorist. Indeed, a non-dualist perspective would allow us to combine the semiotic and material in one hybrid thing. The empty promises inherent in advertising—its failure to deliver—are reiterated at every stage of neon’s production and implementation. Bending glass to mimic handwritten or printed letterforms is itself a project of negotiation between human craftsmen (‘benders’), messages (imperatives or suggested desires) and concrete materials (glass must be heated to near-breaking point, while the bender puffs blasts of air into the tube; bubbles and kinks are inevitable). In the essay, the very materiality of the sign is explored at the site of production from a typographer’s point of view:

It is generally more economical and efficient to make an entire word out a single glass tube, in sections up to eight feet long per transformer (which is as much gas as the transformer can charge up). But as most designers and even design critics know, making display type using script fonts is a short cut to illegibility, particularly if in the production your letterforms are going to bleed excessively. So while the glass tubes require continuity, the glow of light, the bleed, requires separation to make it readable. The solution is to paint the tube black in the connecting sections, so that the letters appear discrete. Legibility is achieved by simply painting out parts of the letters, rather like tweaking your newly designed typeface by applying correcting fluid to the stems, serifs and ligatures. (Hall 2009d, 2)

Latour describes a reimagined criticism that looks closely at things and asks how they got there, which he calls a “multifarious inquiry launched with the tools of anthropology, philosophy, metaphysics, history, sociology to detect how many
participants are gathered in a thing to make it exist and to maintain its existence” (Latour 2004, 246). In my case, I attempted a multifarious inquiry through interviewing neon ‘benders’ (signmakers) at their sites of production (Latour 2005, 175) and framing the sign’s alliance of rare gases, electricity, glass-bending, advertising interests and roadside architecture as a mutant typography: “It struck me that the whole neon medium is characterized by a kind of typographical failure, or at least, compromise” (Hall 2009d, 1).

In many ways, “Neon Typography” sits somewhere between the modes of criticism discussed above. The trade journalist, duty-bound to inform and engage the profession they serve, feels obliged to identify a salvation for the craft and material under discussion—despite its obvious entanglement with material waste. The decoding critic looks at the lush photos of neon at night and neon discarded in a boneyard by day, and contrives a narrative of promise and disappointment.

2.4 A Mapping-Based Criticism
This lingering ambivalence between aloof critic and embedded reporter resembles what several critics of ANT have found deficient in its retrospective account of science and technology’s development: its inherent amorality. Nick Couldry argues that ANT ends up being politically conservative because, in its emphasis on ontological parity of human and non-human actors, it fails to account adequately for the ongoing effects of human power differentials and the possibility of resistance to wider power structures (Couldry 2008, 8).

However, using a Foucault-and-Latour-derived approach to mapping the forces at play in a designed artefact suggests that some configurations of actors are so entrenched that patterns of behaviour (in ANT terms, translation) cannot help but recur. In other words, a Foucauldian perspective on ANT, if possible, would reveal the persistent strength of certain alliances over time, providing an explanation for
the recurrence of certain human power plays. In his seminal 1993 book *We Have Never Been Modern*, Latour indicates an ethics and a politics derived from a fundamental critique of modernity, taking issue with the Moderns’ nature-culture dichotomy. The result of this dichotomy is the proliferation of hybrid nature-culture ‘monsters’ (such as the ozone hole) that are persistently viewed as *either* natural or cultural. Latour hypothesises that “we are going to have to slow down, reorient and regulate the proliferation of monsters by representing their existence officially” (Latour 1993, 11). In response to Couldry’s critique of ANT’s amorality, it can be argued that ANT—as Latour (2005) asserted—was never really a theory but a technique or method. This does not preclude an ethics that incorporates elements of the method. In summary, both Latour’s and Foucault’s projects can be seen as critiques of modernity’s scientific rationalism, which both gave humans dominion over the earth and excluded as irrational all knowledge that was not objectively testable.

Writing on Foucault’s critical approach, Deleuze describes how a system of penal law can be understood as a machine that affects visible matter and “every articulable function” (Deleuze 1988, 34). Deleuze’s metaphor of choice for this articulation of power is the diagram: in Foucault’s hands, power is not homogenous and is “less a property than a strategy” that can be defined “only by the points through which it passes”. This account also provides a spatial model of power as it plays out in the emergence of designed artefacts, and an analytical method that allows empirical evidence to inform the critical framework. Hence Deleuze’s affirmation quoted above, “to write is to draw a map”, which is particularly valuable to the mapping-based criticism advocated here. Deleuze’s paradigmatic example of Foucault’s method is Panopticism, the influential account in *Discipline and Punish* of an architecture entangled with a system of penal law: “a system of light and a system of language” (Deleuze 1988, 32). While its physical purpose is to “see without being seen”, Panopticism’s abstract formula is “to impose a particular
conduct on a particular human multiplicity” (Deleuze 1988, 34, original emphasis). In a typically dexterous move, Deleuze converts architecture into an abstract machine and a diagram. A diagram, according to Deleuze, is several superimposed maps, “And from one diagram to the next, new maps are drawn” (44).

My most recently published essay, “Changes in Design Criticism” (Hall 2013), makes a case for a mapping-based design criticism in the academic journal Design and Culture. The journal’s editor invited me to write the essay in response to a debate that followed a 2012 post by Rick Poynor on the influential blog Design Observer. In many ways, the debate exemplifies a growing rift between academic and professional understandings of the purpose and value of design criticism. Plainly put, the professional position is that design criticism is useless unless it engages the profession on its own terms. Poynor’s related argument, that design academics produce material that rarely makes it into “the field’s everyday discourse”, included the implication that academics were afraid of the “rough and tumble” of the comment column of the blog (Poynor 2012).

In response, Meredith Davis wrote in Design and Culture that Poynor failed to observe a distinction between design writing by professional critics (such as Poynor) and scholarly research writing. The role of the former is “to critique the work of designers, discuss the behaviors of the profession at large, and analyze trends shaping design practice”, the writing of which appears in magazines, blogs, journals and books. The role of the latter, argued Davis, is the “transfer of knowledge in the discipline and upon which the future work of other scholars will be based”; it results from investigations that conform to research standards and is “subject to a vetting process that confirms its relevance and rigor”. This kind of writing appears in peer-reviewed journals or conferences (Davis 2013, 7).

Davis’s position is premised on the need for design to achieve maturity as an academic discipline—a position shared by design historian Kjetil Fallan, who goes as far as to argue, in the same issue, that design history needs to be “detooled” to
enable it to stand in its own right as a field of academic scholarship rather than simply serve as “context, background, legitimacy, and inspiration to design education and practice” (Fallan 2013, 13). Problems exist within these arguments, however, that stem from the fact that they draw models from the historical patterns of disciplinary formation. If we follow Fallan’s logic and ‘detool’ design history by detaching it from its duty to inform practitioners then we are in danger of being left with a history incapable of addressing the interdisciplinary, hybrid or relational nature of Latour’s ‘monsters’—also known as contemporary design problems. Davis’s efforts to legitimise the academic field of design come with the danger that a disciplinary boundary is drawn around “legitimate” design research and its “acceptable” subject matter that ultimately stifles its development. Anne-Marie Willis gives voice to these difficulties in the same Design and Culture issue, with her prediction that design writing “will die...or just shuffle along in the shadows if it stays bonded to design as it is now” (Willis 2013, 39).

In the Design & Culture issue, I argued along similar lines, asserting that design criticism needs to be freed from the need to evaluate designers, movements, styles or new technologies against some ahistorical matrix of good/bad, and that it needs to return to assembling evidence. For instance, a graphic design project such as the Clearview typeface, currently being implemented across road signs in the US, is quite poorly misrepresented if we take a traditional formalist or art history approach to its discussion:

The typeface might be summarized in terms of a larger narrative on late Modern revivals, the persistence of a functionalist faith in uniform systems built around sans serif letterforms. It might seek to lionize the typeface’s designer Don Meeker. But this would miss the point that Clearview is not the product of one author, nor is it adequately understood in terms of a history of visual forms. (Hall 2013, 25)

By contrast, a trade magazine journalist would develop a map of the actors assembled around the new highway font, beginning—as I did in I.D. Magazine (Hall 1999d)—by interviewing the design and research team behind it. By “feeding off the
controversy” (Latour 2005, 16), the reporter would begin to build a picture of interdisciplinary research, mapping the following concerns:

The problem of a highway system conceived as a user interface riddled with inconsistencies; the material properties of reflective metal signs under the harsh glare of quartz-halogen headlights; shifting standards of what constitutes legibility amid an ageing population with deteriorating eyesight; conflicting philosophies on the effects of highway signs on psychological perceptions of safety; the impact of weather on legibility and safety; the contested boundaries between state and federal jurisdiction on highway management. (Hall 2013, 25)

To reveal the interdisciplinary complexity of a seemingly simple typeface design project is to begin to establish a mapping of design's relations with laws and customs; as I argue in the Design & Culture essay, we begin to see how the non-human agency of Clearview embodies and perpetuates a way of being; that “something as seemingly neutral as a highway sign embodies an entire history of theories-turned-decisions-turned policies, from how people should drive to who should drive to the very idea that people should drive”. In this sense, a mapping-based, relational criticism is aligned with Tony Fry's defuturing philosophy, which “seeks to disclose the bias and direction of that which is designed and how it is totally implicated in the world we conceptually constitute, materially produce, waste, occupy and use” (Fry 1999, 11).

Mapping-based criticism attempts to reconcile a Foucauldian tradition that tends to look for linear genealogies with characteristic asymmetrical power dynamics and a Latourian tradition that tends to look for local power plays in which human and non-human actors take on more symmetrical roles. In a paper published in 2013, I applied this technique to a test case from my journalistic archive on the anthropometric research of industrial designer Roger Ball (see Hall 2008, and Appendix C). A relational approach combining these critical traditions makes it possible to both map the multitudinous actors lurking behind a typical design artefact (in this case, a body of anthropometric data derived from scans of subjects
in China) and recognise the history of power dynamics and exclusions in anthropometry as a discipline. Both Foucauldian and Latourian traditions are joined by their critical outlook upon modernity and their non-dualist emphasis on the material. By refusing to separate symbol from symbolised, both are able to account for material evidence in the critique of a project. If the Foucauldian tradition reveals unexamined ways of seeing and thinking, the Latourian tradition exposes how those ways of seeing and thinking are embodied in material form such that designed objects take on the force of nature.

2.5 Conclusion

In this chapter, I have attempted to map the development of a method that combines a journalistic skillset with a reflexive practice. As described, journalistic methods derive from empiricism and include the following techniques: reporting from credible primary sources; aiming for impartiality in “seeking out both sides of a story”; cross-checking sources by distinguishing between facts and speculation based on those facts; and using “plain and unadorned prose” (Atton & Hamilton 2008, 16). Based on my own experience, in this chapter, I have problematised the implicit agenda of trade journalism—to support the profession it analyses—and reflected on the crisis of objectivity. I believe a hermeneutic form of response is found in a mode of reflecting on methods as they are being deployed, and an openly situated mode of investigating and writing. I have discussed the failure of the celebrity monograph to achieve a critical distance and evaluated the journalistic mode's capacity to unearth unforeseen details of the negotiatory processes behind the production of designed objects (and design celebrity). As detailed, the beginnings of a discursive approach to design writing emerged in the Kalman and Sagmeister monographs.

With my gradual shift into academia, it became possible to better explore and critical methods with the empirical methods of journalism. I have discussed this
development of a critical method through my academic and journalistic publications, with reference to three formative theoretical influences: Foucault’s use of spatial forms in analysing causal relations; Deleuze’s reading of Foucault’s ‘cartography’; and Latour’s method of assembling evidence and withholding the temptation to find singular explanations. The goal is a relational understanding of causation, which looks for patterns of influence rather than singular origins or causes. I will now explore how this emerging critical method is applied to the subject matter of mapping and visualisation.

29 The resemblance between, in particular, an ANT account of causation and an ancient Chinese cosmology warrants further explanation. Joseph Needham described the Chinese understanding of causation as follows: “Conceptions are not subsumed under one another but placed side by side in a pattern, and things influence one another not by acts of mechanical causation, but by a kind of ‘inductance’” (Needham 1956, 280–1).
Chapter 3 Else/Where: Mapping

The idea of exploring in a published volume how contemporary mapping practices intersect with design discourse emerged in the early 2000s as an initiative of the University of Minnesota Design Institute. Appointed as a research fellow to the Design Institute in 2001, I had been working on *The Knowledge Circuit*, an online journal of conference reviews that took a trans-disciplinary approach to enriching design discourse. The journal published reports from design conferences alongside reports from academic conferences on related fields, from nanotechnology to cinema. This aligned with the Design Institute's mission to improve design in the public realm through research, educational programs and interdisciplinary partnerships, with a particular focus on the design implications of emerging technologies—“in the nexus of communications media and public space”, according to its director Janet Abrams (University of Minnesota 2012), my former colleague in New York.

3.1 Definitions

The historical problem of defining design is of particular significance here. Abrams and I shared an interest in expanding the definition of design as something “beyond styling”, as the Design Institute's mission statement put it. Increasing awareness of the indeterminate nature of design problems in the twenty-first century called for greater emphasis on problem definition than problem-solving. As former co-editors at *I.D. Magazine*, we recognised that professional design associations could not be trusted to patrol the boundaries of professional discourse any more than magazine editors could. On the most basic level, digital media were bringing about a seismic change in design practice, to the extent that once specialist tools and practices, from typography to print production, were now available and accessible to amateurs. Digital media also challenged the divisions between design disciplines, such that a problem initially conceived as the jurisdiction of graphic design might be better defined, for example, in terms of interactive design, service design or urban
'Design' was defined by the Design Institute not in terms dictated by self-identifying professionals, but as “a strategic mode of thinking, a form of conflict resolution whose tangible outcomes express successful negotiation of diverse values and interests” (University of Minnesota 2012). This definition merits some reflection, as it is at once progressive and problematic; it usefully situates the task of defining the limits of design within an inquiry pursued by theorists such as Vilem Flusser, Tony Fry and John Heskett. The latter argued that design history warrants a wider area of investigation, potentially involving “business infrastructures, professional and industrial organization, economic and political policy, social influence and impact, which should enlarge and enhance understanding of the design process and designed artefacts” (Heskett 1987, 112).

The Design Institute’s definition of design outcomes as the successful negotiation of diverse values and interests is in danger of being misread as a narrative of continual progress through design, proven by each design’s usefulness and value. Trevor Pinch and Wiebe Bijker identify the same problem in sociologies of technology that suggest a linear, rational path of development, “as though today’s world was the precise goal toward which all decisions, made since the beginning of history, were consciously directed” (Ferguson cited in Pinch and Bijker 1987, 22).

A relational, mapping-based approach, as formulated in the previous chapter, refutes a design history premised entirely on the study of successful designs along with the implication that in the resolution of a design problem is its explanation. ANT would see design outcomes less as conflict resolution than the temporary and precarious subjugation of conflict through the formation of what Law calls “fractional coherences”, or networks of actors or interests (Law cited in Saldanha 2003, 422). Similarly, the idea that the tangible outcome of design expresses “successful” negotiation of diverse values calls into question how success is defined—by the project’s promoters, by the market, by the critic, or, as Fry would
have it, in terms of Eurocentric or anthropocentric, short-term values (Fry 1999, 25).

Despite the hint of instrumentalism in the Design Institute’s mission statement, *Else/Where: Mapping* did not promote a narrow view of design as an engine of economic improvement. In fact, the very absence of an explicit definition of design in our introduction, and the presence of a hugely diverse array of practices on the subsequent pages (which included geography, urbanism, cartography, architecture, information visualisation, and art), promoted a definition far broader than concurrent professional accounts. A thread that united the work featured in the book was that design was, rather, a “strategic mode of thinking” with “tangible outcomes” that could not be satisfactorily defined by its institutions (University of Minnesota 2012).³⁰

### 3.2 Design Concept

Beginning our collaboration as co-editors of the proposed mapping anthology in 2002, Abrams and I, together with design director Deb Littlejohn, envisioned an ambitious volume of curated and commissioned projects and essays, moving through academic and professional fields. We initially drew on the design template and curatorial approach developed for the book’s predecessor *If/Then: Play* by Abrams and Dutch designers Armand Mevis and Linda van Deursen (Abrams 1999); scholarly essays, journalistic analyses of contemporary projects, fictional works and transcribed panel discussions would be intermingled with images of projects, commissioned and curated photography and artworks. Influenced by the subtleties and rhetorical power of tightly woven image–text relationships in experimental magazine and book layouts, *Else/Where: Mapping* also took many cues from the navigational systems of interactive media. Headers and menu items ran across the

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³⁰ By way of comparison, I would here draw from Peter Bürger’s (2002) critique of art, which states that art in contemporary bourgeois society has a contradictory role; it projects the image of a better order while perpetuating its status “removed from the praxis of life” and thus relieving society of the pressure of forces for change. Design, on the contrary, understood in the broader sense as a force that cannot be defined by its institutions, is intrinsic to the praxis of life.
top of each page and images were ‘linked’ to their reference points in the text by thin, colour-coded lines to evoke the web experience of clicking on a textual hyperlink.\textsuperscript{31} In this sense, the integrated editorial and layout strategy positioned itself in the spirit of Walter Benjamin’s call for a caption to wrench the photograph out of “modish commerce” in order to give it “revolutionary use-value” (Benjamin (1934) 1978, 230). Of course, after several decades of layout innovation serving commerce, the ability of communication design alone to achieve revolutionary use-value in publication design is debatable.\textsuperscript{32} Nevertheless, the designed form of the book can be considered a key component in the overall endeavour to explore the possibilities of mapping as a dialogical form.

With its progenitors and manifestoes, key works and events, \textit{Else/Where: Mapping} did not seek to identify a movement in mapping. Rather, it sought to identify commonalities in a mode of practice across disciplinary boundaries. I will discuss two of my authored contributions to the book—the introduction, and an essay on the Brooklyn Pigeon Project—in the context of two adjacent essays, commissioned from cultural critic Brian Holmes and geographer Denis Cosgrove. I will then discuss the book’s impact, based on a selection of relevant texts in which it was subsequently cited, and consider its contribution to mapping and design discourse.

\section*{3.3 Themes}
“Where/Abouts”, the book’s introduction, co-authored with Janet Abrams, framed its research question, “who are the new cartographers of networks and territories?” after making a series of propositions. These included that mapping is a way of “making sense of things” in a culture of information overload; that mapping is the conceptual glue linking the tangible world of buildings, cities and landscapes with the intangible world of social networks and electronic communications; and that mapping as a design practice merits from exposure to the discourse of critical

\textsuperscript{31} See Lupton, Ellen. \textit{Thinking with Type} for a discussion of print page layout influenced by interactive media, with reference to the work of Mevis and Van Deursen (Lupton 2004, 148-9)

\textsuperscript{32} The limits of visual communication design are discussed by Oliver Vodeb in a number of essays. See, for example, Vodeb 2012.
cartography on the pernicious power of maps. To this end, J.B. Harley, a scholar credited with bringing a cross-disciplinary critical approach to cartography (and introducing the practice of “critical cartography”), is quoted in the opening paragraphs of the book:

Far from holding up a simple mirror of nature that is true or false, maps redescribe the world...in terms of relations of power and of cultural practices, preferences and priorities. (Harley cited in Abrams & Hall 2006, 12)

While to a new generation of interactive mapmakers and map users, this point might seem obvious, the idea that maps constitute a world—in the same sense, after the philosopher Ian Hacking, that statistics ‘make up’ a people—is a fundamental first step to critically understanding the history of maps and mapping (Crampton 2010, 9). The extent to which maps redescribe cities, which is a contention of great significance to architects and urban planners, is subsequently taken up in “Carto-City”, Denis Cosgrove’s essay (2006, 148-157).

Observing the durability of the plan view of cities, from archaeological reconstructions of ancient cities to top-down maps of contemporary cities, Cosgrove writes on the way in which the urban map is “positioned between creating and recording the city” (Cosgrove 2006, 149). The modern urban form reflects a fixation on geometrical order as far back as Vitruvius, whose radial plan for the ideal city was practical and symbolic, orienting the city in respect of wind conditions. Its impact in Renaissance Europe was to map an image of citizenship derived from the Stoics; the anonymous fifteenth-century View of an Ideal City visualises this with a symmetrical grid of buildings, streets and open spaces, the civic virtues of Justice, Prudence, Temperance and Fortitude positioned atop the four columns that define the central square. But, the end of the modernist faith in geometry as “guarantor of urban legibility” has given rise to the complex new challenges of and opportunities to record and create the contemporary city. Postmodern American cities such as Los Angeles, Houston or Phoenix, which are symptomatic of the new conditions, are
“perhaps the most intensively mapped spaces in the history and geography of the planet: every square meter is geo-coded by government and private or commercial agencies...Yet on the ground, such cities are among the least legible places on earth (Cosgrove 2006, 149).

The illegibility of the contemporary urban landscape as it is experienced at street level returns us to the significance of Fredric Jameson’s call, cited at the start of this exegesis, for an “aesthetic of cognitive mapping” to resolve the “incapacity of our minds, at least at present, to map the great global multinational and decentred communicational network in which we find ourselves caught as individual subjects” (Jameson 1991, 44–54). Jameson’s argument usefully extends Cosgrove’s characterisation of the illegible city to the landscapes of late capitalism, themselves the work of design in all its forms. Drawing from the urban planner Kevin Lynch’s influential method (1960) for garnering a sense of a city’s legibility by asking residents to describe its landmarks, nodes, paths and boundaries, Jameson argues that such “precartographic operations” were “extraordinarily suggestive when projected outward onto ... larger national and global spaces” (Jameson 1991, 51).

*Else/Where: Mapping* was accordingly organised with this top-down/bottom-up paradox as a tension underlying the four areas of mapping we identified in the book’s introduction and structure: “Mapping Networks” (the rise of the network as an organising trope); “Mapping Conversations” (the emerging languages of interactive, screen-based mapping and social media); “Mapping Territories” (shifting notions of the cartographer’s domain, *terra firma*); and “Mapping Mapping” (how a new generation of mapmakers is using locative and other media to challenge and stretch the notion of what a map can be). On networks and conversations, for example, an essay by J.J. King titled “The Node Knows” contended that “when looked at from above, the network is illegible” (King 2006, 49); despite its formal clarity, the network map is a top-down view that can ultimately reveal very little about the nature of a network and how its nodes are connected. According to King, with social network maps, “affective personal relations are not well understood by lines and
meshes”. Similarly, the “Mapping Territories” and “Mapping Mapping” sections of the book explore the gaps and “silences” (Harley (1988) 2001, 85) of conventional maps—what their rationalist and geometrically driven ontology neglects to tell about a given territory and its inhabitants.

In an essay pivotal to Else/Where’s organisation, Brian Holmes takes a more radical perspective on the challenge that the condition of illegibility (painted by Jameson and Cosgrove) presents in the network society:

Networks have become the dominant structures of cultural, economic and military power. Yet this power remains largely invisible. How can the network society be represented? And how can it be navigated, appropriated, reshaped in its turn? (Holmes 2006, 20)

Strikingly, both Holmes, a critic positioned on the fringes of academia, and Cosgrove, an eminent geography professor, acknowledge the significance of what Holmes calls “an aesthetics of critical and dissident cartography” in making sense of the geocoded, physical and informational spaces of the twenty-first century. Cosgrove cites the Situationist dérive as a critique of the coherent urban plan, which paved the way for a “range of artistic intervention” (Cosgrove 2006, 156). Holmes draws a compass-like diagram of recent mapping projects dealing with the forms of social organisation, positioning various modes of dissent at four cardinal points.

The Deleuzian notion of the diagram cited above in the discussion of Panopticism is central to Holmes’s argument. An animated diagram of power that is not fixed and determinate, but a productive matrix and dynamic field, “highly unstable or fluid...constituting hundreds of points of emergence or creativity” (Deleuze 1988, 34), the diagram represents the potential of mapping not just to describe territory but to create and re-create it. The point at which individual behaviour is “moulded

33 Cosgrove was Alexander Von Humboldt Professor of Geography at the University of California, Los Angeles, before his untimely death in 2008.
34 At the top of the compass are critical depictions of hierarchical power; at the bottom are “swarms of self-organizing singularities”; in the right-hand quadrant are social network diagrams; in the left-hand quadrant is “the cartography of dissemination, which traces and effaces the footfalls of wanderers in the global labyrinth” (Holmes 2006, 22).
into functional patterns” is also the point where power can “fold in upon itself, producing resistance and alterity” (Holmes 2006, 22).

A number of works curated in Else/Where are cited in Holmes’s essay as he characterises the compass points: examples of “swarm cartography” by the group Hackitectura designed to catalyse a range of interventions, protests and support networks; analytical maps using data analysis to reveal common outgoing links among groups; and the dispersed, subjective cartography of artists, designers and activists mapping in opposition to the geometrical order discussed by Cosgrove and in the spirit of the “spatial practices” described by Michel de Certeau (1984, 91–130). De Certeau’s theorisation of “lived space” is contrasted with administered, surveilled and disciplined space, and describes individual procedures that “elude discipline without being outside the field in which it is exercised” (96). Holmes notes that contemporary work in this quadrant, including Christian Nold’s Biomapping project and Esther Polak’s Amsterdam Real Time often deploys locative technologies, and is thus “fraught with ambiguity”. He writes, “The individual’s wavering life-line appears at once as testimony of human singularity in time, and proof of infallible performance by the satellite mapping system” (Holmes 2006, 25).

3.4 Non-Human Satellites

My essay on the “Brooklyn Pigeon Project” (Hall 2006, 278–84) provided Holmes’s final example; an instance of work on the “unraveling edges” of the energy diagrams, it reminds one that a “poetics of flight” can still be inscribed in twenty-first-century architectonic structures. Read by Holmes in manuscript form, my essay reported and reflected on the experimental architecture partnership Terraswarm’s efforts to map the Brooklyn city skyline from the point(s) of view of a flock of pigeons.

35 The reference to de Certeau usefully highlights what geographer Jeremy Crampton calls the “creative destruction” inherent to the act of mapping: where Harley sees mapping as an act of memory, de Certeau sees in the lines traced on city maps only “the absence of what has passed by” and a substitute for the practice of walking (de Certeau 1984, 97). But both possibilities exist, argues Crampton; maps “desubjectify and totalize; they also memorialize and create” (Crampton 2010, 164).
Terraswarm initially conceived the project as a documentary on the sport of pigeon flying, where coop owners, known as ‘mumblers’, compete to raid pigeons from rival coops by training their flocks to fly in wider circles until they intersect with an errant pigeon from a neighbouring coop. Learning of the premise of our mapping book, however, and influenced by the critical perspectives of engineer-artist Natalie Jeremijenko, Terraswarm founder Ben Aranda began to question the idea of what constitutes a satellite’s claim to omniscience and authority:

Terraswarm’s project also presents an inherent critique of our reverence for conventional sensing networks. “We’re not attaching, for example, a GPS device to a pigeon because we’re interested in placing a pigeon on a grid in a kind of universal order,” says Aranda. “We're interested in finding what the edge of the mapping grid is, and trying not to use it.” (Hall 2006a, 281)

Although I witnessed first-hand the project’s ostensible failure—uncooperative pigeons wearing video cameras disappearing from the rooftop and sightlines, and its eventual lack of funding—*The Brooklyn Pigeon Project* reaffirmed the importance of what Holmes calls “dissident cartography” in a number of significant ways. As a polemic, Terraswarm’s work critiqued the anthropocentric and instrumentalist cultural logic of late capitalism—to use Jameson’s terminology. Aranda and his colleague Chris Lasch both had identified the illusion of continuous real-time coverage in satellite imagery, an illusion achieved through extensive post-production; for example, making several frames, photographed at different times, appear to be synchronous, and smoothing the distortions of the earth’s curvature (Hall 2006, 281).

Further exploring the emergent properties of pigeon flocks—which have no identifiable leader in flight, yet move in unison—suggested that a flock’s eye view would be situated and episodic; another riposte to the timeless authority of the satellite image. In the essay, I applied another Deleuzian concept, that of “becoming-animal” to theorise the human desire to transform oneself in perceiving difference:
It can be argued that film and video offer, uniquely, a means of capturing data that is not dependent on a human subject—a mode of “seeing” not attached to the human eye. The pigeon-camera represents an attempt to distance human control yet further from this “seeing.” To see as an airborne flock of pigeon sees is perhaps (to appropriate a Deleuzian term) “becoming-pigeon.” (Hall 2006, 282)

In this sense, “Flight Paths” mapped an important relational link, connecting the territory of architecture towards an acknowledgement of its anthropocentrism. As Fry argues, although we cannot cease being anthropocentric, recognising it within our belief systems is a step towards recognising human un-sustainability (Fry 2009, 31).

3.5 Impact of E/W

*Else/Where: Mapping* was a broad and ambitious survey that attempted to take in a cultural “locative” shift evidenced in several areas of professional and amateur practice. Further, it aimed to take stock of mapping discourse in several academic disciplines, including cartography, geography, scientific visualisation, architecture and urbanism. Published at the moment when Google maps began to assume a dominant role in the popular understanding of mapped and annotated space, the anthology narrowly missed an opportunity to reflect on the emerging hegemonic representations of territory—subsequently dubbed “McMaps” by geographers Martin Dodge and Chris Perkins (2008, 1274); it did, however, attempt to tackle social networks (under the heading “conversation maps”) just before social media became a defining feature of the information society. As one reviewer noted, the book “ran the risk of being quickly outdated” (Canadian Cartographic Association 2006); a symptom of its topicality and journalistic methods. Nevertheless, as evidenced below, the book continues to be cited, a reflection of the significance of some of the themes explored in the anthology as well as its role in recent discourses.

Here, I will discuss references to *Else/Where: Mapping* in journals of geography and cartography, fields where its impact is most easily discussed due to the presence of an established discourse with citation practices. The lack of substantial coverage of
Else/Where: Mapping in design publications per se is arguably a reflection of the relative lack of interdisciplinary and scholarly journals of design. While the book’s innovative approach to layout and tight integration of text and image earned it critical praise, its text-heavy content—with twenty-five essays, some by leading scholars in the various academic fields engaged—clearly positioned it as a scholarly, rather than a coffee table design, book. In a sense, the book’s adoption by fields other than design served to support the Design Institute’s contention that design was more than “mere styling”, that it was inherently interdisciplinary, and that the stuff of interest lay, as noted above, in the nexus of communications media and public space.

A common theme in geography and cartography journals at the time was the observation that mapping had moved beyond the jurisdiction of specialists, and was being practised, arguably, with more invention and fecundity other fields, including amateur domains. A review of Else/Where: Mapping in the journal Cartographica noted the book’s capacity to engender a rethinking of definitions—“of ‘maps’ and ‘mapping’, ‘cartographer’ and ‘cartographies’”. In closing, the reviewer declared her intention to use Else/Where: Mapping in introductory and advanced cartography classes so as to get students interested in mapping “our ever-changing, complex world” and to “encourage the debate about redefining the map and the mappable” (Hermansen 2007, 277). A 2008 paper in Cartography and Geographic Information Science about an ongoing experiment at Ohio University to map historical place using narrativity reiterated the point about maps and mapping undergoing a redefinition and expansion. Citing Else/Where: Mapping as an example of critical practices resituating Western mapping techniques in the realm of “performative and interventionist practices”, the paper attributed the shift to three factors: the role of digital technologies, a critical theoretical foundation and an accumulated body of knowledge on non-western map traditions (Pearce 2008, 17).

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The geographer Jeremy Crampton undertakes a more substantive development of “performative and interventionist practices” in mapping. He takes a critical approach to mapping contemporary mapping practices, arguing, after Foucault and Bourdieu, that mapping is a “field of knowledge and power relations” being pulled in several different directions (Crampton 2010, 4–6). Deploying a compass-like diagram reminiscent of Holmes’s—in this case, covering the entire field of mapping—Crampton describes a pull on one side toward “securitization” countered by “resistances” on the other. Securitisation emerges from post-war efforts to rid cartography of any association with art and propaganda and render it “post-political”—a position that the resistance side generally finds untenable. It is characterised by an instrumentalist drive toward scientific precision, to discipline geographical knowledges and define ontologies (notably among GIS scientists), as well as to control (by certification) entry into the field. The resistance side is characterised by critical cartography, map art and the open source movement; millions of amateurs and novices who use hitherto inaccessible mapping technologies to construct a vast “geoweb” (Crampton 2010, 6).

The importance of the resistance to the overall discourse of maps and mappings is a key theme of Denis Wood’s Rethinking the Power of Maps (Wood 2010), a substantial revision of Wood’s highly influential Power of Maps, published with the 1992 exhibition of the same name at the Cooper-Hewitt National Museum of Design, which Wood curated. As a former graphic design professor and a central figure in critical cartography, Wood’s perspective on mapping is focused on the representational forms of the map as an expression of larger socio-cultural tensions, and sympathetic to our perspective. Noting the perpetual transformation of mapmaking discourse through successive critiques, Wood highlights that one of the combined effects of the popularisation of mapmaking tools and GIS has been to nullify efforts by the cartographic establishment to differentiate “general-purpose” from “thematic” maps. Else/Where: Mapping, he writes, is one of several recent books that choose not to use the distinction. In Wood’s longstanding campaign to reveal that all maps are selective representations of a particular view, to separate
“general” from “thematic” maps is a fallacy aimed at perpetuating the myth that the scientific, detailed “base map” (aligned with the general map) precedes the interpretive and thematic map. He concludes that the death of this distinction is another death knell to the cartographic establishment: “The Age of Cartography (RIP) would seem to be over” (Wood 2010, 126).

Crampton is critical of Wood’s eulogy to securitised cartography, considering it premature, given the weight and force of the GIS industry. In light of the subsequent rise of Google Maps as a hegemonic presence, it would seem that both writers’ celebration of open-source mapping was overly optimistic. Crampton’s diagrammatic account of mapping tensions proved particularly useful in my own post–Else/Where research, in that it presents an ontology that equates resistance with securitisation, thus foregrounding counter-mapping practices conventionally seen as marginal or irrelevant to cartographic progress. His recognition of Else/Where: Mapping occurs in a paper published in Progress in Human Geography on the “performative, participatory, political” nature of mapping. Here, Else/Where: Mapping is linked with a number of “key texts” on map art, including Lize Mogul and Alexis Bhagat’s (2007) Atlas of Radical Cartography, and philosopher Edward Casey’s Earth-Mapping (Crampton 2009, 842). Maps are “performative”, argues Crampton, in a number of ways. First, psychogeography, along with recent projects, such as Pedro Lasch’s Latino/a America, explores the performative aspects of the map (in the sense that the Situationist dérive was a performative practice of reimagining the city, and Lasch’s work required the participation of border-crossers to be completed). Second, as Cosgrove argues, map art and ephemeral mappings instantiate cartography as cultural practice: the map of Ground Zero distributed by artist Laura Kurgan (and featured in Else/Where: Mapping) after the terrorist attacks of September 11, 2001, was a performative intervention, taking the measure of the event in successive maps. Third, maps are used in everyday life in a performative sense, as discussed in Eric Laurier and Barry Brown’s (2008) ethnomethodological study of tourists finding their way by using an array of ordinary practices.
Laurier and Brown’s study casts a helpfully critical light on cognitive models of spatial knowledge and learning, and is worthy of closer inspection in light of Jameson’s call for cognitive mapping. The authors argue that classic cognitive studies of orientation and alignment with maps rely on “more or less disengaged cognitive models of navigation” that “gloss numerous features of what ordinary navigators are doing with maps”. This is illustrated with detailed observations of tourists and car route navigators orientating themselves en route, where we see not mental reasoning and spatial models but “map readers looking and reading signs, misunderstanding street names, grappling with more or less cumbersome paper documents and the like” (Laurier and Brown 2008, 214).

If Laurier and Brown’s study convincingly problematises a Cartesian model of cognition, in which mental pictures are formed before they are enacted, then might we also problematise Jameson’s call for a cognitive mapping to make sense of postmodern space? The anthropologist Tim Ingold, whose work Laurier and Brown extensively cite, argues that the very notion of the cognitive map presupposes the possibility of a map independent of any point of view, whereas, in fact, we gain knowledge of place by moving through it and experiencing it over time. Ingold traces the cognitive map’s emergence in psychology and identifies in its particular model of cognition, the influence of prevailing post-war technologies. For example, the psychologist Edward Tolman, in his “spatial orientation” experiments with rats, compared the animal’s central nervous system (and by extension, the human’s) to a telephone switchboard such that incoming stimuli simply dialled up the appropriate response from the ‘map control room’. Drawing from the ecological psychology of James Gibson, Ingold argues that knowledge of place is regional, cultivated by moving along paths; “we know as we go, from place to place” (Ingold 2000, 231, original emphasis). In contrast to the common-sense view that people form a picture or map of the environment in their heads, Ingold argues that
people’s knowledge of the environment undergoes continuous formation in the very course of their moving about in it... The traveller or storyteller who knows as he goes is neither making a map nor using one. He is, quite simply, *mapping*. (Ingold 2000, 231, original emphasis)

While I will return to the importance of the distinction between the map and mapping in the conclusion to this exegesis, it is worth returning to Jameson’s for a cognitive mapping for the postmodern condition. It seems that Ingold’s position usefully corrects any misconception that an aesthetic of cognitive mapping yields maps that would somehow represent the “ensemble” of society’s structures (Jameson 1991, 12). Herein lies the problem of seeing maps such as Bureau d’Etudes’ *The World Government* or even Josh On’s *They Rule*—both featured in *Else/Where: Mapping*—as manifestations of the cognitive map of late capitalism that we might hold in our heads. Such maps are too abstract, too complex, too removed from everyday experience to bear comparison to the wayfinding capacity Ingold discusses in his account of how people know where they are.

Ingold’s account of “knowing as you go” illuminates the task of mapping the flows of information, materials, goods and meaning that have been concealed by our conditioned view of the world around us. The exemplar of the Micronesian mariner, cited by Ingold (2000, 225), who can find his way between tiny islands across hundreds of miles of open sea through a combination of learned tradition and practiced skill at identifying the position and movements of stars, ocean currents and winds, would seem to have no postmodern counterpart. Yet, the practice of finding our way through the hidden complexities of modernity in a regional, episodic fashion, according to the Gibsonian account of psychology furthered by Ingold, seems to call for such learning and skill. In the various practices of information visualisation, to which I turned my attention after the publication of *Else/Where: Mapping*, an argument can be made for the kind of improvisatory knowing-as-you-go observed by Ingold and Schön in other fields of knowledge (which I will discuss in Chapter 4). Data visualisation has proliferated across disciplines, but, as I will argue in the next chapter, is dominated by a positivist
approach associated with the scientific and technological fields of practice. In visualisation, the Cartesian model of cognition that Ingold critiques is hegemonic; its shortcomings, however, have opened up a fertile realm of artistic, and what Holmes would call dissident, practice. Thus, the productive tension between the scientific and artistic modes of engagement in visualisation was a logical place to begin research in this area.
Chapter 4: Information Visualisation

4.1 Introduction
The various symposia and lectures for which I prepared material after Else/Where: Mapping was published provided an opportunity to develop some of the research trajectories the book initiated. Significantly, following the book’s release, I received three separate invitations for articles on information visualisation—from the Museum of Modern Art (MoMA), the scholarly Journal of the American Society for Information Science and Technology (JASIST), and the Walker Art Center—which evidences the apparent demand for a critical perspective on this aspect of mapping.

While my research as a whole purposely links visualisation—the framing, mining, scraping and spatial arrangement of data—with mapping and cartography, the popular view tends to draw a distinction between the two. This is partly because of the apparent difference in the visual outcomes: the cartographer makes a map, whereas the producer of a visualisation can end up with any number of forms, from the least map-like, such as a statistical graph or chart, to the most, such as a cartogram, which distorts the shape and colour of familiar land masses to represent a range of data variables. However, once the cartographic map is understood to be a construction rather than a representation of reality, the distinction between map and visualisation begins to dissolve, in the sense that both are ways of spatially ordering a particular view of the world. As Crampton points out (2010, 10), the origins of Geographic Information Systems (GIS), a hybrid of cartography and visualisation, lie in the thematic maps and statistics—the “technologies of management”—that emerged in the nineteenth century. Tufte and cartographic historian Arthur Robinson both demonstrate that the origins of thematic maps are tightly entwined with cartography, extending back at least to Edmund Halley’s map of trade winds (Tufte 2001, 26; Robinson 1982, 46). Further, Wood extensively tracks the post–World War II invention of thematic mapping as an attempt to professionalise and securitise an academic interpretive mode of analysis distinct from the more instrumental “base mapping” (Wood 2010, 121–26). Mindful of
Wood’s critique, it becomes easy to see how Robinson’s study provides evidence to illustrate that thematic maps, like all maps, are projections of particular cultures at particular times and places. This point is made in the opening paragraphs of my essay “Critical Visualization” from the catalogue to MoMA’s 2008 exhibition *Design and the Elastic Mind*:

Medieval *mappae mundi* eschewed geographic knowledge in favor of a Christian view of the Earth divided into three continents, as repopulated by the descendants of Noah, with a greatly enlarged Holy Land at the center (Robinson 1982, 9–11). Even the flurry of scientific disease and morbidity maps of the nineteenth century, which reflected a growing concern with social conditions resulting from the movement of populations into cities, were rife with creative projections, such as E.H. Michaelis’s map investigating a relation between elevation and incidences of cretinism (Robinson 1982, 174–76). (Hall 2008a, 122)

Early maps of the internet from the late-twentieth century seem “equally wishful” (Hall 2008a, 122). Maps purporting to show the structure and activity of a network in order to expose security vulnerabilities or map out the breadth of service are today striking for their use of visual codes that signify detachment from physical space. These *mappae mundi* of the digital age represent a prevailing mythology of an emerging utopia then known as cyberspace:

In the popular imagination, the Internet was a discrete place we entered through portals, a place detached from the “meatspace” of the physical world; hanging in empty space, the early maps, resembling 3-D baubles or elaborate Tinker Toy constructions, reflected that sense of a discrete utopia. (Hall 2008a, 122)

However, I avoided the temptation to drift into a sustained decoding of information visualisation along these lines in favour of a more pressing project: the need to reconcile discrepancies in expectations and understandings of visual representation across disciplines.

**4.2 Validating Visualisation Practices**
My post-Else/Where: Mapping essays on visualisation can be seen as sequential efforts to convey to the sciences the value of a humanities-based approach. This reflects my increasing engagement with the practice of information design, initially through teaching and, since 2011, through a research collaboration with the Information Security Group at Royal Holloway University of London. The dominant definition of ‘visualisation’ in the computer sciences is the use of “computer-supported” visual representations of data to “amplify cognition” (Card, Mackinlay and Shneiderman 1998). Accordingly, each of the three essays discussed in this chapter attempt to characterise the sprawling phenomenon of visualisation for different audiences: the MoMA essay for a general, museum-going audience, the JASIST essay for an information science audience, and the Walker Art Center essay for a professional design audience. As the first attempt to map the field, I shall discuss “Critical Visualization” first. In it, I state:

In an age when information is more prolific and more widely available than ever before, diagrams, maps, and visualization tools offer a means to filter and make sense of it. We live amid a deluge of data—gathered by sensors, arrayed by software, and dispersed via ever-proliferating networks—and to visualize it is to understand it, or so we hope. (Hall 2008a, 122)

The essay revolves around a critique of three evaluative criteria put forward by the computer scientist and mathematician Jarke van Wijke in his essay “The Value of Visualisation” (2005). In his discussion of value, Van Wijke embarks on a “test” of three “points of view”—visualisation as a technology, as a science, or as an art (van Wijke 2005). Ultimately, van Wijke sides with a technological point of view that measures visualisation’s value in terms of “effectiveness and efficiency”. Along the way, however, he usefully tries out various “views”: including a scientific view, which he characterises as aiming at “generic laws with predictive power”, and an “art” view, which, he argues, seeks to develop “new, simple, and elegant solutions, which provide us all with intellectual and aesthetic satisfaction” (van Wijk 2005, 85). The art view, he argues, will not “help us convince our prospective users and sponsors”—by which I assume he means the grant-awarding bodies and commercial
institutions that fund scientific research. Such a diminutive view of art, I argue in the essay, might be expected from the computer sciences, but deserves a counter argument, in that, "the art of visualization can be seen as an important critical counterpoint to the technological and scientific views. As a practice, it might even open up the field" (Hall 2008, 124).

In identifying a tension between cultures of practice, the essay avoided regurgitating a “design as technofix” ideology present in Design and the Elastic Mind’s curatorial approach, which was fiercely critiqued by Christina Cogdell in Design Issues. Cogdell noted a discrepancy between the explicatory tone of the catalogue and the simplistic “machine age modernist mold” of the exhibition’s curatorial captions, and argued that,

> The best explanations available to a broader public—although only to those individuals willing to pay double the twenty-dollar entry fee in order to procure the exhibition catalogue—were offered by outside specialists who contributed essays. These include Hugh Aldersey-Williams’s partial history of crossovers between design and science in the twentieth century, Ted Sargent’s descriptions of the goals and processes of nanotechnology, and Peter Hall’s discussion of some of the critical problems surrounding visualizations of complex data. (Cogdell 2009, 93)

My essay argues that the burgeoning of visualisation across disciplines has brought with it a form of information fetish, an “aestheticizing of information” that functions as a “signifier of our age”. A mapping of contexts of practice, I claim, would help us navigate the morass of visualisation work, and identify what a visualisation with an ostensibly practical function might tell us about the values of the culture from which it emanated.

4.2.1 Van Wijk’s Three Views

Using a number of examples, “Critical Visualization” assesses van Wijk’s characterisation of the three points of view on the value of visualisation (technological, scientific, artistic). According to van Wijk, the technological view
prizes utility: “In this context, research in visualization should lead to new solutions that are useful in practice” (van Wijk 2005, 84). A benchmark of usefulness van Wijk cites is physician John Snow’s now-legendary 1854 map charting the location of eighty-three deaths from an outbreak of cholera in central London—a map canonised by Robinson and Tufte, among others (Robinson 1982, 175–79; Tufte 1997, 27–34). Snow’s map revealed that fatalities occurred in a cluster around the water pump at Broad Street, and argued—against prevailing wisdom that cholera was an airborne disease—that the pump was contaminated and should be shut down. The map’s apparent efficiency and effectiveness, resulting, with a few dots on a simple street plan, in a change in the course of epidemiology, would seem to make it paradigmatic of the technological view. It sits comfortably among Tufte’s exemplars of “graphical excellence”; with its lack of “chartjunk,” its clarity, coherence and revelatory potential, it meets several of Tufte’s criteria points. But, as I argue in the essay, the canonisation of Snow’s map also illustrates that, embedded in the technological view, is the assumption that the best technologies rise to the surface:

Is the graphic important because it is a technical paradigm of visual clarity and integrity, or because it is inextricably linked in our minds to the progress of epidemiology? ... It certainly was not a technical innovation. Medical maps were common in the mid-1800s and plotting deaths with dots was not a Snow invention. The backbone of the case for cholera as waterborne was Snow’s detective work, as revealed in his prize-winning essay on the subject, to which the map was simply an accompaniment. To canonize the map through association is to risk invoking a kind of technological determinism, which suggests that Snow’s map alone changed the way we view disease. If in the future Snow were proven to be wrong about cholera, one suspects his map would be quietly dropped from the infoviz canon. (Hall 2008a, 124)

This paragraph bears an echo of a Social Construction of Technology (SCOT) position, which critiques teleological narratives of progress, and instead traces the multidirectional development of a technology. Pinch and Bijker recast technological development as an alternation of variation and selection, resulting in “stabilization” of particular variants. Only retrospective distortion casts successful technologies as
inevitable, logical or essential (Pinch and Bijker 1987, 28). “Critical Visualization” also adopts the beginnings of a position influenced by ANT, which recognises that artefacts like Snow’s map are socio-technological hybrids that bring together an alliance of actors. In this case, it includes evidence of the shallow depth of the Broad Street well and its contamination with fecal matter, the work of the Epidemiological Society, the Institut de France that funded Snow’s field work, and Snow’s interview subjects, gathered by local minister Henry Whitehead. The point is not to debunk the strength of the map but to provide a richer view than one that prioritises either the map’s clarity, effectiveness and efficiency or Snow’s genius. As Callon succinctly puts it, the ANT principle of generalised symmetry means “not to change registers when we move from the technical to the social aspects of the problem studied” (Callon 1986, 200).

In my essay’s next example, the “hockey stick” diagram of climate change reproduced by the Intergovernmental Panel on Climate Change (IPCC) in its Third Assessment Report (IPCC 2001) critiques the common misconception that social constructionist and ANT accounts of science and technology are a form of subjectivism or “anything goes” relativism. The graph shows a 900-year period of carbon production and temperature, based on proxy evidence from tree rings, ice core, coral, historical records, and instrumental data, with a sharp upturn in the last ninety years, which proposes that human activity is the undeniable cause of global warming. The relativist position conveniently adopted by climate change sceptics maintained that the visualisation was derived by using a particular statistical convention that favoured production of the hockey stick form. Yet, this is to ignore the strength of the evidence:

By focusing on one decontextualized graphic, and side-stepping the overwhelming body of evidence linking human behavior with climate change, right-wing critics were able to muddy the waters of the argument. (Hall 2008a, 125)

As noted in the previous chapter’s discussion of “Cartesian Anxiety”, the polar
opposite to relativism is objectivism, which tends to underlie the positivist scientific view of visualisation as the pursuit of generalised theories of perception to support standardised methods of showing data. Van Wijk’s account of the scientific view implicitly endorses a positivist position, characterising visualisation as a discipline aiming at a “coherent set of theories, laws and models that describe a range of phenomena, have predictive power, are grounded in observations, and that can be falsified” (van Wijk 2005, 85). He cites as a seminal text Colin Ware’s *Information Visualization* (2004), which uses psychological principles of human perception to build a set of rules governing the effective presentation of information.

In “Critical Visualization”, I endeavour to show how universalising human responses to visual stimuli, in effect, denies human difference: Ware draws a distinction between hard-wired and arbitrary conventions in visualisation, arguing that the former derive their power from being well-designed to stimulate “the visual sensory system” (such as pattern recognition) whereas the latter are culturally learned, deriving their power from how well they are absorbed. But this distinction is contentious in its failure to acknowledge that “hard-wired” conventions might in fact be adaptations to technology; for example, Tony Fry provides an extensive case for this in a discussion of memory (Fry 2012, 80–83). In the essay, I argue that radically different cultural perceptions of the colour red suggest that culturally learned conventions may be quite difficult to distinguish from hard-wired ones. Colour theory is often based on the notion of hard-wired responses to colour. For example, red is often assumed universally to signify danger,

But in Ware’s own example, an Asian student working on a system for visualizing a hard disk chose green for deleted entities and red for new entities, reasoning that in Asian culture green symbolizes death and red equals good luck. (Hall, 2008a, 126)

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37 Ben Fry, a visualisation practitioner, makes a case for a designer’s aesthetic sense as a kind of addendum to the scientific approach, to improve a visualisation’s usability. He notes that “cosmetic tweaks” on a simple diagram become important when applied to complex data sets: “Minor problems in the diagram of a smaller data set are vastly magnified in a larger one” (cited in Hall 2008a, 127). His critique of the technological view of visualisation, specifically the guidelines of Tufte on “graphical excellence”, is that it is premised on static (printed) information design and technologically outdated; hence its “failure to address situations in which data is complex and undergoing continuous change” (Hall 2008a, 125). This paves the way for interactive visualisation—such as the work done by Ben Fry for the Broad Institute,
4.2.2 Visualisation as Critique

A radical critique of dominant visualisation views is voiced by my last two examples in “Critical Visualization”: Natalie Jeremijenko’s experimental OneTrees project and Laura Kurgan’s “Architecture and Justice” visualisations of prisoner data. OneTrees proved a persuasive example of a “mapping mapping” project—one that both stretched the definition of a map and critiqued the scientific-objectivist view of visualisation. Working with the non-profit group POND in California, Jeremijenko planted pairs of genetically cloned trees in the differing neighbourhoods of the Bay Area. The idea was for the trees themselves to become sensors, recording, registering and thus mapping over time the different microclimates, cultural attitudes toward the care of trees and socio-economic conditions of the neighbourhoods. In addition, the tree-map disrupted conventions of the timeframe of cartography and what qualifies as data. A printed map produced to locate the trees and introduce the project reinforced the critique. As I note in the essay, the map of the mapping, designed with previously mentioned architecture practice Terraswarm,

juxtaposes a USGS Landsat 7 aerial image of the Bay Area with “lay knowledge,” such as the locations of bike trails, common hawk flight paths, and the habitat of the endemic song sparrow. The implicit critique is of culturally entrenched hierarchies of information, which, for example, prioritize satellite views and expert, institutional knowledge over the knowledge of lay people. (Hall 2008a, 129)

Kurgan’s “Architecture and Justice”, produced at Columbia University’s Spatial Information Design Lab in collaboration with the Justice Mapping Center, challenged the historic and cultural conventions of crime maps traditionally used by police to identify problem areas in cities. Instead of plotting where crimes were committed,
the Justice Mapping Center and Kurgan’s team obtained prisoner data and plotted the street addresses of the people incarcerated in particular exurbs of US cities.

Coining the term “million dollar blocks,” the research collaborative revealed in their maps how a disproportionate number of prisoners come from a very few neighbourhoods in the country’s largest cities, to the extent that some states are spending in excess of a million dollars a year to incarcerate the residents of single city blocks. (Hall 2008a, 129)

Conceptually and literally, the million dollar blocks maps redefined the city, extending its streets to the distant prisons, and challenging lawmakers to consider the economic and civic implications of the criminal justice system. The project thus developed Foucault’s ‘diagram’ of Panopticism and enlisted the evidence to serve a call for refocusing public spending on “community infrastructures that are the real foundation of everyday safety rather than criminal justice institutions of prison migration” (Spatial Information Design Lab 2006, 12). “Critical Visualization” concludes with an argument for the integration of scientific and artistic approaches:

Potentially, Architecture and Justice ... offer(s) a new kind of benchmark for critical visualization. It utilizes many of the principles espoused by Tufte and Ware, efficiently and effectively conveying a clear, succinct story. As a critical mapping, it challenges current thinking by reformulating what already exists. It uses the master’s tools—the aerial view, the crime map, and crime data—to reveal a street-level view of the city: not a crime epidemic but a view of civic infrastructure that necessitates the inclusion of a distant exostructure: prisons and jails. (Hall 2008a, 130)

“Critical Visualization” thus initiated a case in my research for an approach to visualisation that countered the instrumentalist tendencies of the dominant scientific and technological approaches. It was recently cited as an “inclusive view that finally points toward data visualisation as a medium with a wide range of expressive potential” (Schmidt 2011, 96). This position developed as I became involved in teaching critical visualisation to students from a variety of non-design backgrounds, including computer science and engineering undergraduates, as part of a first-year course called the “Art of Mapping”. Even this early in their career,
science and technology students were steeped in the methods and epistemologies of their disciplines, and quite confused by seemingly free-form design thinking approaches. Wary of the prescriptive tendencies of the design methods movement, but sensing the need to make a design thinking approach more methodical, I introduced Horst Rittel’s concepts of “wicked problems” (Buchanan 1995) and “disorderly reasoning” (Rittel 1987) as a means of describing a critical approach to visualisation. This was explored in my essay “Disorderly Reasoning in Information Design” for the *Journal of the American Society for Information Science and Technology (JASIST)* in 2009, which I turn to below.

### 4.3.1 Aesthetics beyond the Cosmetic

The *JASIST* paper opens by positioning design as a “critical act of translating between scientific, technical and aesthetic interests”—a role overlooked by the dominant actors amid a corporate culture reliant on “off-the-shelf” visualisation tools (Hall 2009b, 1877). To place design as an arbiter between “interests” was intended to situate design activity in relational terms rather than solo acts of self-expression, and to acknowledge the breadth of practices of visualisation beyond the work done by professional designers. As noted in the MoMA essay, the canonical cholera map was the creation of a physician; Rittel’s argument that “design is not the monopoly of those who call themselves “designers”” (Rittel 1987, 1) effectively liberates the design critic or trade journalist from any perceived obligation to write about a particular community of practitioners who consider themselves members of a design “profession”.

The *JASIST* paper begins where the MoMA essay left off, by expanding an account of “aesthetic” interests beyond the misconception among the dominant scientific and technological interests that aesthetics represent a cosmetic aspect of a visualisation. Media scholar Warren Sack characterises this impoverished view of aesthetics as “an exercise in beautiful image-making to render data ‘friendly’”. He considers this “tantamount to an understanding that the artistic work is only an attempt to ‘pretty things up,’ i.e., to make computer images easy to understand” (Sack 2011, 2).
Sack also problematises the very concept of ‘user-friendliness’ so entrenched in the discourse of design and human computer interaction. He points out that in a cross-cultural medium such as the internet, there can be no single “common-sense that can be defined a priori”. Sack makes an argument instead for a “network aesthetics”, focused on visualising how social and semantic relations intertwine to form communities with their particular kinds of common sense. My essay identifies in design practice a vernacular understanding of ‘user friendliness’ and argues that Sack’s model of forming and re-forming communities with their contingent forms of common sense describes the extant practice of design:

As mediators between art and science, designers depend on loose concepts like user-friendliness in order to proceed, based on somewhat unscientific hunches about the given audience for a specific visualization. (Hall 2009b, 1877)

Jean-Francois Lyotard characterises the designerly practice of using hunches, seemingly at odds with the more formalised hypothesis of the scientific method, as the “combination, endlessly made and unmade, of temporary sensibilities” about a perceived public (Lyotard 1997, 42). Rittel, whose account of “disorderly reasoning” provides the title and main meme of my essay, makes a more constructive development of the hunch than Lyotard. Rittel’s efforts to transfer knowledge from the sciences to the design professions (Rith and Dubberly 2007, 1) are couched in the language of scientific discourse, reflecting his training in mathematics and physics, and the efforts by him and his contemporaries Christopher Alexander and John Chris Jones to reconcile a science of design with the everyday practices of designers. The result in Rittel’s case, however, is a usefully open-ended method, as I state in the JASIST essay:

Rittel’s account of design allows us to accept both the idea that designers might make data “friendly” (and that they) … would recognize when conventions of data-friendliness may not provide an adequate criterion for identifying a design solution. In Rittel’s account a designer is (or should be)
in a position to ask the critical question, “Am I dealing with the appropriate problem, or is this problem only a symptom of some other, higher level problem which I should attack instead?” (Rittel, 1987) (Hall 2009b, 1877)

The capacity for higher-level reasoning in design thinking is to be understood in concert with Rittel’s familiar concept of the “wicked problem”—the kind of indeterminate design problem typically tackled by designers, which cannot be “solved” as might a high school maths problem, only “tamed”. Wicked problems are “a class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing” (Buchanan 1995, 14).

To tackle or tame wicked problems one cannot use the “classic” problem-solving method of defining the problem in clear terms—i.e., gathering information and searching for a solution in a “well-defined solution space” (Rittel 1987, 2). Instead, the designer’s reasoning is “much more disorderly”, argues Rittel, “not due to intellectual sloppiness” but because of the nature of design problems. Definition, synthesis and evaluation happen “without clear separation” and occur “all the time”:

A design problem keeps changing while it is treated, because the understanding of what ought to be accomplished, and how it might be accomplished is continually shifting. Learning what the problem is IS the problem. Whatever he learns about the problem, becomes a feature of its resolution. (Rittel 1987, 2, original emphasis)

Intersections might be found with Ingold’s “know-as-you-go” wayfinding, discussed above, and Donald Schön’s concept of reflection-in-action. Schön observed and theorised an intuitive process of testing ideas and methods on the fly, seeking feedback from materials, sketches, concepts and stakeholders, and allowing a design structure to stabilise before “technical problem solving” takes place (Schön (1983) 1990, 111). Rittel’s concept of design as a “process of argumentation” develops a comparatively cerebral account of a similar process, with the designer debating with himself and with others, searching for the respective pros and cons of competing
positions, and only concluding the process when the participants “run out of time, money or patience” (Rittel 1969, cited in Dubberly and Evenson 2009). Stopping, in other words, is not premised on the successful completion of process, but due to factors that might have been seen to be “outside” the problem in linear models of design methods. Schön’s account of the design process as a “social process” also foregrounds the role of debate or dialogue in which different ways of framing design situations are pitted against each other: “Design dialogues are dialectical unfoldings of conflicts among the views of design structure held by different parties to the dialogue” (Schön (1983) 1990, 111).

To summarise, the concept of “disorderly reasoning” encapsulates a number of ideas: the premise that there is a logic in design practice (it is not all just subconscious intuition or random guess work); that the logic is worthy of study; that social system problems simply cannot be solved as one would a “classic” problem; that the designer’s method for solving them is a process of argumentation; and that this process is not bound by any epistemological constraints that would prescribe which steps to take next. The last point is a result of the peculiar nature of the subject matter of design that Buchanan argues in a commentary on Rittel is potentially “universal in scope” (Buchanan 1995, 15). The designer must discover or invent a particular subject out of the problems and issues of specific circumstances, which sharply contrasts with science disciplines. Science is typically concerned with understanding the principles, laws, rules or structures that are embodied in subject matters (Buchanan 1995, 15). My interpretation of this is to say that the designer adopts epistemologies pragmatically, often borrowing them from the disciplines to which a project is attached.

4.3.2 Disorderly Reasoning as Critique
Continuing the case for critical visualisation by identifying a field of practices to which it belongs, this second visualisation essay develops a critical interpretation of Rittel’s disorderly reasoning. A discussion of Harry Beck’s iconic 1931 London Underground Diagram, for example, explores two senses of the “higher level
problem” questioning described by Rittel. In the first sense was Beck’s unique approach to the problem of depicting an emerging but then-under-used transport system. Beck recognised that,

The need to provide a clear navigational diagram for the growing system (which was operating under capacity at the time) was thwarted by cartographic traditions, which in prioritizing the actual location and distance between stations produced meandering, disorienting maps. (Hall 2009b, 1878)

Rather than settle with a conventional “designer-genius” account of Beck’s innovation, the essay goes on to develop a second, critical sense of a higher-level problem, unfolding the wicked nature of transportation mapping—to the extent that Beck’s solution itself produced more design problems. Beck not only created a “user-friendly” map and a benchmark for future transit maps. By removing the cartographic convention of showing territory and abstracting the network diagram from the geographic locations of the places served by the Underground trains, Beck’s map (unwittingly) introduced a way of seeing, an ontology:

As a means of representing information, Beck’s diagram was prescient in that it anticipated the decreasing importance of geographical proximity in the circuits of production, foretelling the rise of today’s network society. (Hall 2009b, 1878)

This reference to Manuel Castells’s (1996) term “network society” provides the springboard to examine the meta problem of depicting space and relationships in network diagrams, which are today used to depict everything from social networks to organisational charts to fields of knowledge to the traffic between IP addresses. As I wrote, “The dominance of this kind of visualization comes at a cost, however, since it imposes a metaphor on subjects that behave quite differently from electrical circuits” (Hall 2009b, 1878).

In the case of the network diagram used to portray London, Beck’s diagram is “an unreliable map of the actual city, depicting long distances and complex routes
between stations that, above ground, are within a few hundred feet of each other” (Hall 2009b, 1878). Among others (e.g., Vertesi 2008), designer Paul Elliman has noted that the dominance of Beck’s map as a form reveals the degree to which the language of visual representation can “shape a mental image of a city...giving prominence to certain places simply by virtue of their being selected for the map” (Elliman 2006, 173). Elliman observes the prevalence of city-as-machine metaphors at the time Beck created the diagram, an emerging urban vocabulary of reticular terms, and the subsequent characterisation of passengers as message-bearing systems. He then calls upon Lefebvre to dismiss the people-as-messages metaphor as “absolute ideology”.

I then discuss the manner in which the tool of the network diagram has shaped us in relation to the work of management consultant and network analyst Valdis Krebs, who uses correspondences between social networks and computer networks to analyse inefficiencies in both. In “The Social Life of Routers”, Krebs applies social network algorithms to network topology design to argue for the design of a “well-behaved and stable network” (Krebs 2008, 17). Krebs provides a diagram of a social network of ten people to debunk the common wisdom that “the more connections, the better” by showing that certain, less connected people are sometimes located in key positions between important constituencies—“similar to that of a border router”. Krebs’s argument makes an assumption in the analogy that is perpetuated in the diagram, which is that communication in social networks is akin to the packet-switching technologies that govern the transfer of digital information between servers. This becomes particularly apparent in Krebs’s diagrams that seek to identify the key individuals of an organisation and the flow of knowledge between them. It is not difficult to imagine how communication and relations between humans might be hopelessly reduced by such representations:

38 Tony Fry reinforces the point that the tools we have created have “acted back on the tool users”, illustrating that “we are never just users; we are always equally the used” (Fry 2008, 24).
Implicit in the design of the topological network visualization... are several assumptions about the rate of transfer of knowledge around a network and the working atmosphere. Obviously a work environment in which people share knowledge freely in pursuit of a shared goal will lessen the impact of a key figure (the “border router”) departing the network, compared with an environment in which long-entrenched employees harbor their knowledge as a form of power. The missing information from Krebs' map may ultimately provide the key to the functioning of the network, to the extent that a map of the mood of the network may be more useful. (Hall 2009b, 1878)

This critique is enacted and vivified in the work of Judith Donath, a former researcher at the Sociable Media Group at MIT. In the mid-2000s, Donath was leading a team exploring alternative visualisations to browsers that the MIT team felt were ill-equipped to reveal the “rich social features” of a newsgroup (Donath 2002). One particular visualisation project, Loom, produced sketches aimed at revealing the mood of a social network by representing the activity level and the quantity of “angry” language and punctuation per participant (Abrams and Hall, 2006, 81). In asking questions of today’s social networking websites, Donath simultaneously articulated a critique of the social network diagram:

Their notion of ties is uniform—they make little distinction between the ties connecting close friends and vague acquaintances. Nor is there any recognition of the faceted nature of social life. People associate with different groups, consonant with different facets of their lives: they may not wish to make those connections known to each other. (Donath 2002, quoted in Hall 2009b, 1878)

The pervasive problem of representing uncertainty, speculation and ephemerality in maps also applies to visualisation. In a discussion with Krebs, Sack and other visualisation experts organised for Else/Where: Mapping, Donath noted that by fixing something in a visualisation, “we give it a solidity it does not merit” (Abrams and Hall 2006, 78). Donath shows that social system problems simply cannot be solved as one would a ‘classic’ problem by going through a process of argumentation. Another higher-level problem that remains unaddressed is that of how the online conversation produces (and reproduces) a form of angry
discourse—how the medium dictates the message. The visualisation in question, a tool for conversation, has in fact shaped the nature of the conversation.

“Disorderly Reasoning” next extends the critique to three specific and ubiquitous user interface technologies: Microsoft’s Powerpoint presentation software, Apple’s iTunes and the Windows and Macintosh operating systems. These are all understood to be visualisations in the sense that they are tools that permit a “conversation with data” (Shirkey 2002, 2). One of the most strident arguments for the designing power of computer software and its capability to turn the user into the used comes from Tufte, whose polemical essay “The Cognitive Style of Powerpoint” argues that the tool’s user interface reflects a pushy style of delivery and abbreviation of evidence reflective of its creator-organisation, Microsoft (Tufte 2006, 161).

Tufte’s case is built on a set of Powerpoint reports prepared for NASA by engineers at the Boeing Corporation to address the damage impact of foam debris falling from the space shuttle Columbia during take-off in January 2003. He argues that Powerpoint’s “hyper-rational” hierarchy abbreviated and then de-prioritised or deleted important data that would have indicated to NASA that Boeing’s test data was not optimistic, as NASA management officials assumed from the slides. Because of this Powerpoint-assisted misinterpretation of evidence, no action was taken and damage caused by the foam debris caused the shuttle to burn up on re-entry into the Earth’s atmosphere, killing all seven astronauts on board. Both the 2003 Columbia Accident Investigation Board report and the Final Report of the Return to Flight Task Group (Crippen et al. 2005) concurred that the endemic use of Powerpoint briefing slides instead of technical papers highlighted a problem with technical communication methods at NASA (Tufte 2006, 166).

Tufte’s technical perspective stops his polemic short of a wholesale critique of the system and culture that produced the tool. He speculates a number of causes of the “dreaded Engineering by Powerpoint”, from a bureaucracy infected by the pitch
culture to Powerpoint’s cognitive style and monopoly over other presentation methods. But, rather than unravel the alliance of interests that converge in the software, he laments “to sort all this out is not possible”, and makes a diplomatic call for presenters to use a “smarter” tool, such as Microsoft Word (Tufte 2006, 184). A more persuasive account of the role of a technology in constituting the social is provided by John Shiga’s ANT-informed perspective, and I explore his argument next in the JASIST essay’s discussion of another user interface, Apple’s iTunes. ANT provides a framework to explain a tool’s agency by explicating the alliance of interests that lie behind its surface, tracking its formation using the concept of translation, which can be summarised as the process of hardening a social agenda into a technology through a sequence of problem definitions that “simplify and displace interests and goals” (Shiga 2006, 43). Michel Callon’s work using ANT this way provides an account of how power is transformed into “obligatory passage points” (Callon 1986, 202–203). Powerpoint, iTunes and the Mac and Windows operating systems are all particularly good examples of obligatory passage points. Apple’s iTunes, as I argue in “Disorderly Reasoning”, is far from a neutral, easy-to-use tool for playing music. It is a system of compressing, commodifying and organising audio for easy but rights-restricted sales and distribution.

Shiga tracks the passage of iTunes from the International Standards Organization’s first identification of digital audio compression as a target goal in 1988 to engineers’ adoption of a psychoacoustic model of hearing in 1995, to the development of MP3 and AAC and then proprietary digital rights management (DRM) formats by Apple. As Shiga notes, iTunes became “an online music service and tool for selling and promoting Apple’s other products, rather than an application for playing music acquired elsewhere” (Shiga 2006, 43).

However, Shiga’s use of ANT does not provide a satisfactory picture of resistance to power, since it (like many ANT analyses) tends to look retrospectively at the development of black-boxed technologies. ANT provides a useful counter to reductive explanations of a technology’s success or failure, but avoids attempts to
describe generalised mechanisms of resistance to dominant actors across technologies. For this, I turn to Alex Galloway’s (2004) reading of Deleuze, which situates resistive action within the computer communication technology at the heart of the internet, the TCP/IP protocol. Galloway references Deleuze’s development of Panopticism to account for the control societies of the computer age, arguing that the popular conception of control disappearing amid decentralised communication technologies is fundamentally misconceived. With the distributed network comes a more insidious kind of control that operates in the protocol through which we move information about: “While protocol may be more democratic than the panopticon in that it strives to eliminate hierarchy, it is still very much structured around command and control.” Nevertheless, Galloway allows for a Deleuzian explanation of net art, arguing that protocol, because of its command and control structure, has “spawned counter-protological forces” (Galloway 2004, 13).

If the Internet Protocol shifts control to the language and classification system of digital communication itself, wherein peer-to-peer communication is structured within regulatory, hierarchical mechanisms, then resistance takes place where the same technologies are redirected toward emancipated media created by active social actors (Galloway 2004, 16). Galloway cites a number of examples of ‘net art’, including the Jodi OSS project, which deals creatively with the rules software follows by focusing on the places where computers break down.39

Despite Jodi being an appealing exemplar of resistance, it seems to limit Galloway’s idea of “counter protological” forces to conceptual net art. In the closing arguments of the JASIST essay, I try to locate resistive practices in design. A failed or flawed “resistive” visualisation project can provide insights on the forces at work within a technology and the extent to which it struggles to overthrow a dominant paradigm. One example discussed, the Sugar graphical user interface, developed by Pentagram Design and Red Hat for use by children in developing countries, is instructive in that

39 Encountering the OSS project is to find one’s desktop and pull-down menus suddenly wrenched from their normal behaviour, the graphic user interface transformed into various inoperable forms, fragmented and violently jumping around the screen.
it endeavours to challenge the hegemony of Microsoft and Apple’s user interfaces. It is compromised by its association with the controversial One Laptop pxer Child project, widely (but not conclusively) dubbed a failure for its airdrop approach to education (Waters, 2012): a top-down assumption that placing cheap computers in the hands of children in developing countries would improve their educational opportunities. “Disorderly Reasoning” acknowledges such critiques but focuses on the graphical user interface. Like Donath’s efforts to image alternative modes of visualising social networks, the Sugar OS, which avoids the cultural specificity of the hierarchical file-folder system and office wastebasket, draws from a critique of the computer as an “outgrowth of bureaucracy” (Sack 2011, 130).

Other attempts at rethinking dominant technologies have emerged from a more bottom-up peer-review process, and I discuss some examples in the final section of the JASIST essay. They include tag clouds, the history flow maps developed by Fernanda Viégas and Martin Wattenberg for visualising activity on Wikipedia entries, and the same developers’ “Many Eyes” platform, which provides user-uploaded data sets and various types of visualisation for envisioning them (Viégas and Wattenberg 2008, 51). While tools for visualising site traffic and publicly available datasets can improve the transparency and strength of research, at the same time, a wiki-utopianism has tended to favour numbers over content, or mob rule over thoughtful critique.

The logical outcome of the position adopted in “disorderly reasoning” is a certain amorality in the embrace of Rittel’s meta-level reasoning. If Rittel’s framing of the logic of design is useful for identifying the epistemic freedom of designers, it does not articulate why, how and from what ethical starting point a designer might embark on his or her process of argumentation. The danger of decontextualising methods in this way is that the designer’s logic can be applied to any cause whatsoever.

My final and most recent essay on visualisation sidesteps the Rittel anti-method in
favour of a critical questioning derived from the humanities. As such, it provides the clearest account of a critical visualisation practice and the contexts in which it operates.

4.4 Bubbles, Lines and String: How Visualisation Shapes Society

Commissioned by the Walker Art Center for the catalogue of a major exhibition surveying recent trends in graphic design practice, “Bubbles, Lines and String: How Visualisation Shapes Society” (Hall 2011a) extended on the previous visualisation essays. It was also informed by my work with postgraduate and undergraduate students at the University of Texas at Austin, where I was based at the time of writing the essay. Specifically, “Bubbles, Lines and String” provided a means to test a hypothesis that linked the contexts in which visualisation is practiced with a characteristic mode for each. Drawing from my earlier critique of van Wijk’s “views” of visualisation, the essay posits three categories of practice: scientific, journalistic and artistic, respectively characterised by modes of discovery, explanation and critique:

Whereas the scientific category is characterized by large datasets and various means of discovering new patterns, the journalistic category seeks to simplify and explain those datasets. As the New York Times graphics director Steve Duenes put it: “it is our job to edit, condense and reduce” (Gestalten, 2011).(...) The third category is artistic...Artistic visualization, much like thousands of years of art before it, reflects on cultural conditions. Its specific subject is our current preoccupation with data, a development of what the critic Benjamin Buchloh called the “aesthetics of administration” (Sack 2011, 128) (Hall 2011a, 171–75)

This grouping of categories is tactical, drawing from Crampton’s use of a “field of tension” diagram of mapping practices. By comparing artistic and journalistic to scientific visualisation, the marginalised is legitimised as a comparative object of study. Driving this mapping of categories is a growing awareness of the glaring disconnect between data visualisation practiced in computer science departments and the kinds of visualisation explored in design departments. These two
departments at the University of Texas were barely a stone's throw apart
geographically, but worlds apart culturally and economically. The Texas Advanced
Supercomputing Center, founded in 2001, had attracted millions of dollars of
funding to build the world’s highest-resolution tiled display, and the largest remote
and collaborative interactive visualisation cluster; yet, communications from the
Center suggested it lacked sufficient content to feed the machine, to put the dazzling
technology to work. Design, by contrast, was a division within a funding-starved art
and art history department housed in an ailing 1960s building. The division
nevertheless had visualisation projects underway with local and academic
communities extending from marine science to the revitalisation of small towns.
Similarly Balkanized are the respective theoretical frameworks. Whereas design at
the university draws from critical theory and phenomenological traditions shared
with the humanities, data visualisation has typically inherited the positivist
tradition of engineering approaches.40

In “Bubbles, Lines and String”, I critique the positivist approach to visualisation by
simply placing its discursive practice in time and space:

> data is always gathered at a certain time with a certain purpose; and to be
useful it must be mined, parsed, and presented. Each step of this process
involves decisions about what to omit and what to prioritize. Yet the end
result, the visualization, carries an authority, timelessness, and objectivity
that belies its origins. (Hall, 2011a, 171)

Of particular influence in this argument is the work of Johanna Drucker, who has
argued that the positivist approach to visualisation never brings into question the
self evident character of graphic entities—lines, marks, colors, shapes...however much the parameters on which they are generated or
labelled might be criticized. That images themselves might be dialectical,
produced as artifacts of exchange and emergence, is an idea foreign to the
fields of engineering and information design. (Drucker 2009, 73)

40 Computer scientist Paul Dourish has argued that the phenomenological and positivist positions are “incompatible”.
From the phenomenological point of view, he argues, “analytic constructs of positivist accounts of social action are,
themselves, the outcomes of social action, and so inherently cannot be separated or made independent of sociality as
positivism claims.” (Dourish 2004, 4)
The dominant *modes* used by the three categories identified—to discover, explain and critique—are allowed to critique each other, as might Latour’s non-human actors. For example, the scientific category, while tending to be dominated by the claim that it seeks to *discover* through visualisation, is enriched by a discourse of *critique* that centres around the paradoxical capability of visual representation to explain and misrepresent. The scientific historian Peter Galison tracks a vivid history of this paradox, finding a mutual dependence among the pictorial and abstract, with their respective affiliations to intuition and reason; in the mathematics of Poincarré and the physics of Minkowski can be seen the “haunting oscillation between the concrete and abstract”, which, Galison argues, is common to both art and science (Galison 2002, 323).

The examples discussed in “Bubbles, Lines and String” illustrate how, despite the implication in scientific discourse that facts are ‘out there’ to be discovered and explained by visualisation, critique is necessary to show how facts are strengthened and turned into unassailable ‘truths’. A case I discuss in “Bubbles Lines and String” is the Swedish global health scholar Hans Rosling’s use of interactive visualisation tools to correct popular conceptions that there are “developing countries” in the world that are characterised by low life expectancy and large families (Rosling 2006). Although Rosling’s presentations, notably in a TED talk from 2006, suggest that revealing the data is simply a matter of cleaning the windows so that the scientific facts can be viewed clearly, his persuasive methods establish a particular worldview that constructs and reinforces the concept of data visualisation as a neutral toolset, and obliterates difference through its comparative hierarchies of progress.

The ‘artistic’ mode of critique helpfully situates Rosling’s rhetorical approach to visualisation within a history of data visualisation focused on making an argument, a history that includes seminal works celebrated by Tuft, such as Playfair’s 1896 diagram of export taxation and Minard’s diagram of Napoleon’s ill-fated march on
Moscow (Tufte 2001, 32–42). In my view, artistic visualisation is positioned to explore new modes of visualisation and new frameworks for evaluating those modes. It is also “the only category of the three where form, line and color are not evaluated solely in terms of usability issues” (Hall 2011a, 175). But interrogating visualisation discourse effectively needs to be rooted in Foucault’s definition of critique, cited above, one that consists in unraveling the assumptions and unexamined ways of thinking the accepted practices are based. Without critique, artistic visualisation is too easily reduced to the pursuit of new styles in the service of market imperatives. The essay notes, as in the MoMA essay discussed above, the tendency toward aesthetic fetishisation at the cost of analysis evident in popular information visualisation blogs, such as <informationaesthetics.com> and <visualcomplexity.com>:

Both sites are cheerleaders of the dazzling and richly diverse array of visualizations produced by professionals and amateurs these days, but neither carries the kind of critical discussion called for by Drucker, the “Who made it, for whom, and for what purpose—ideology 101.” It is difficult not to see the reductivism in many of the visualizations rendering human communication as a thousand dots and veins of wispy color on black backgrounds, as if messy life had finally been conquered, sorted and re-arrayed as exquisite form. (Hall 2011a, 175)

I apply Drucker’s “ideology 101” test to examples featured on these blogs and other visualisation forums to unpack their territorial imperatives. For example, a visualisation of Manhattan running routes registered by 1,000 runners using the Nike Plus online synchronization service ends up reinforcing a collusion of corporate (Nike) and military (GPS) ontologies (Hall 2011a, 175). Network analyst Valdis Krebs’s diagram of “subject matter experts” depicting the vulnerabilities in a social network is shown to be abstract, hypothetical and ultimately teleological. By depicting people as coloured boxes connected by arrowed lines, representing the flow of information, the diagram overrides the nominal with the general:

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41 Drucker, 2010.
Conspicuously “silent” in the diagram are assumptions about the rate of transfer of knowledge around a network and the working atmosphere. Obviously a work environment in which people share knowledge freely in pursuit of a shared goal will lessen the impact of a key figure departing the network compared with an environment in which long-entrenched employees harbor their knowledge as a form of power. (Hall 2011a, 175)

Here, critical cartographer J.B. Harley’s technique of looking for the “silences” in a map proves particularly valuable in its emphasis on what is not shown. Maps, Harley argues, “exert a social influence through their omissions as much as by the features they depict and emphasize” (Harley 2001, 67).

Artist Uta Eisenreich’s Teamwork Sociogram— a sequence of photographs of children from a Zurich school who demonstrate the social ties in their network with coloured string—returns the visual language of the sociogram to the situated and specific. It reveals its potency when contrasted with more common knowledge assets maps such as those produced by Krebs. Eisenreich’s photographs reveal the silences in standard social network diagrams, and provide a vivid enactment of J.J. King’s hypothesis noted above, which I develop as follows:

   The effect of the photographic series is to reveal not the breadth or security of a network, but its fragility; to remind us that the nodes on a network diagram are not uniform squares but people; to hint that, in analyzing a network, it is the node that knows how it is connected. (Hall 2011a, 175)

It has been noted (Moody, McFarland and Bender-deMoll 2005, 1207) that most network visualisations do a “poor job” of representing change, which is a given feature of any network. In “Bubbles, Lines and String”, I extend this critique to discuss the problem of depicting time in general. Rosenberg and Grafton’s (2010) archeological account of timelines finds that the motif of the sequential line depicting days, years, decades, centuries or millennia at regularly spaced intervals, is in fact, a product of eighteenth-century Europe—of industrialization. Drucker and Nowviskie’s experiments in visualising timelines as stretchy and experiential are referenced as an “affective” and critical counterpoint to the “Cartesian language of
the genre” (Drucker 2011, 184). Once a visualisation is visibly situated in time and place, it becomes immediately more comprehensible as a matter of concern, or event, and easier to scrutinise in terms of its rhetoric. Examples abound: the animated, hand-illustrated visualisations by Cognitive Media that accompany recorded lectures, and Ben Fry’s visualisation of the changes made to Darwin’s Origin of Species are aligned in this sense: the former as a riposte to the supposedly neutral, authoritative language of Powerpoint as a presentation tool; the latter as a means of unsettling the idea that scientific notions appear as fixed ideas, proven by their inherent logic.

These brief references to the hegemony of measured time as depicted or assumed in visualisations have opened up a potentially fruitful line of inquiry for future exploration. An ongoing topic of research is to explore further how the standardisation and measurement of time has come at the cost of cultural variants and the loss of an ability to depict time as anything other than “unidirectional, homogenous, continuous” (Drucker 2010).42 My ongoing research with the Information Security Group at Royal Holloway University of London seeks to reconcile seemingly opposed positivist and hermeneutical traditions.43

4.5 Conclusion
This chapter’s discussion of my three essays has aimed to track my evolution of a stronger critical approach to the practice of visualisation, increasingly informed by the relational mapping-based method outlined in Chapter 2. Once the situated nature of all visualisations is established, it becomes imperative to reveal the

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42 For example, the prominence of time-measurement technologies in the Scientific Management movement that assisted Henry Ford’s production lines can be linked to the plethora of digital technologies used to discipline leisure and work activities today.

43 As a consultant to the visualisation research work package (WP4) as part of TREsPASS (Technology-Supported Risk Estimation by Predictive Assessment of Socio-Technical Security), my role includes critically responding to models produced by the project’s computer scientists for predicting vulnerability. WP4 has challenged the omniscient perspective presumed in network visualisations, and experimented with tools for developing situated views. The project is funded by the European Commission’s Seventh Framework Programme from 2012–16. Peter Galison’s account of the philosophical conflicts within the sciences provides a useful case for the intuitive function of visualisation; for example, Herman Minkowski’s diagrams of general relativity theory, in which two observers assign the same event to different points in time, suggest that breakthroughs in physics might be better understood in geometric-pictorial terms (Galison 2002, 304).
prejudgments at work in the map-making. This is not to simply reify the artistic visualisation but to acknowledge the importance of its dialogical relationship with the scientific approach. “Bubbles, Lines and String” concludes with a case for scientific, journalistic and artistic approaches to be better integrated into visualisation. This argument, recognising design’s potential as an intermediary, catalyst and interface between specialised disciplines, has long been acknowledged in discourses on design thinking (Buchanan 1995, 19), but seems to become more pressing as the production of data and knowledge becomes more proliferous, specialised and exclusionary. My ongoing collaboration with computer scientists and information designers in the EU-funded “TREsPASS” project (see note 43) has, in turn, been initiated by a recognition in some quarters of science and technology research that rationalist models of human behavior are deficient, and that the arts and humanities, might, after all, hold a valuable perspective. In the more urgent terms of Felix Guattari:

> A systematic rejection of subjectivity in the name of a mythical scientific objectivity continues to reign in the University. ...It is time to re-examine machinic productions of images, signs of artificial intelligence, etc., as new materials of subjectivity. (Guattari (1992) 2006, 81)

The two exhibition catalogue essays “Critical Visualization” and “Bubbles, Lines and String” have had the most measurable impact. The former has been cited in a diverse array of texts, on art education, game design analytics and information mapping and classification (Jiménez et al 2009; Medler 2013; Ihadjadene et al 2013). “Bubbles, Lines and String,” which benefitted from being attached to an exhibition that travelled to several different cities in the US, is to be reprinted in a forthcoming anthology to be published by Bloomsbury, *The Graphic Design Reader*, edited by Leslie Atzmon and Teal Triggs (2015). This latter selection in an academic text book for graphic design students supports my contention that design discourse is enriched by confronting its intersections with non-design disciplines. I develop this point in terms of design history and its extra-disciplinary intersections in the next chapter.
Chapter 5: Design History and Failure

5.1 Introduction
Three essays published since 2009 bring a mapping-based criticism to the subject of design history and its analysis of designers and things, and will provide the points of reference for this chapter. They include “True Cost Button-Pushing”, published in the academic journal Design Philosophy Papers (Hall 2009f); a book chapter on the graphic design of Norman Bel Geddes, published by Abrams in a recent tome Norman Bel Geddes: American Designer (Hall 2012); and “Uses of Failure” published in Abitare magazine (Hall 2010) and subsequently developed in a paper for the academic journal Design and Culture (forthcoming—see appendix A). The inquiry targets a distinct obsession with the fetishised designed form, as displayed in galleries, museums and shops, and reproduced in magazines, books and other visual media—a fetishisation to which much of my magazine journalism has obviously contributed. The display and discussion of the stuff of popular design discourse—vehicles, furniture, appliances, household goods, posters, logos, magazines, interior, exhibition and building designs, real and speculative—all tends to cleave to the same conception of design outcomes as discrete form. As I argued at a symposium at the Menil Center (Hall 2011c), these outcomes might be considered design acheiropoiete—as if untouched by human hands.

This act of decontextualisation so prevalent in popular design media has parallel tendencies in the writing of design history. In design history, however, several scholars have vigorously critiqued decontextualisation as part of a late 1980s discussion on the proper definition and jurisdiction of the field. Clive Dilnot’s two-part essay, “The State of Design History”, published in the then-new journal Design Issues, made a case against the constrictive categorisation of design as either a continuation of decorative arts history or as Pevsnerian Modernism (after its founding father Nikolaus Pevsner). Dilnot noted socioeconomic historians’ intervention into design, and efforts by John Heskett and others to situate design within its social relations (Dilnot 1984). Tony Fry subsequently developed a critique
of the connoisseurship and canonisation models as “modern capitalism’s major way of presenting design history” (Fry 1988, 21), and argued that decontextualisation “reduces design simply to the management of appearances and diminishes the prospect of the rise of a local self aware and critical practice” (Fry 1988, 54). John Walker’s systematic account of varieties of design history, published a year later, similarly critiqued the “deeply entrenched conservatism” among design historians in their self-censored subject matter (Walker 1989, 46).44

In his overview of the debate and the subsequent emergence of “design studies”, Kjetil Fallan (2010) identifies the influence that art history exerts on design history. This can be traced back to Pevsner, whose case for a “universally recognized style” identified a Eurocentric Modern movement through formalist criteria, such as clean lines, crisp forms and a “new sense of space” (Pevsner (1949) 2005, 7). Fallan and Dilnot both observe the impact of Pevsner’s argument evident in the post-1960 emergence of design history—in Reyner Banham’s Theory and Design in the First Machine Age (1960) and Tim Benton’s Open University Course in design history. The formation of the UK’s Design History Society in 1977 as a subgroup of the Association of Art Historians sealed what Fallon calls “the art history of design” approach to design history, with its concomitant problems, three of which are described by Fallon as follows: an “excessive attention to aesthetics (that) overshadows the many other aspects of design”; a “tendency to view designers as artists or authors and products as creations or oeuvres”; and “a very restricted subject matter, largely limited to object categories that have traditionally been

44 An influential tirade against this conservatism in graphic design history came from Tibor Kalman in collaboration with Abbott Miller and the writer Karrie Jacobs, who argued against the rampant appropriation of historical styles by professionals and for a more inclusive design history that acknowledged design’s role as a medium (Kalman, Miller, Jacobs 1991). In particular, Kalman’s celebration of the vernacular influenced the work of the Boym Studio, for whose monograph I wrote an introductory essay “The Discreet Charm of the Ordinary” (Hall 2002d). While limited by the aforementioned constraints of the celebrity monograph, the essay explored the “mnemonic connotations” of the Boyms’ re-appropriations and recontextualisations of humble objects, noting the studio’s aversion to cultivating a celebrity style. A parallel effort to move beyond the self-censorship identified by Walker was my essay “People as Pixels”, which explored the choreography of crowds to form graphical images (Hall 2004a). By connecting contemporary soccer, Olympic Games and Disney spectacles to more explicitly propagandistic crowd graphic manipulations, such as North Korean stadium events, early Soviet rallies and swastika-forming marches Nazi Germany, the essay pushes the definition of graphic design beyond its comfortable jurisdiction into demagoguery. Both the Boym and “People as Pixels” essays laid groundwork for the essays discussed here.
affiliated with art” (Fallan 2010, 8–10). These restrictions and tendencies are reflected in popular conceptions of design history today. However, Fallan observes the increasing prevalence of alternative framings that bring non-design perspectives to the field, notably from sociology, anthropology, history of technology and Science and Technology Studies (STS). Fallan focuses some attention on ANT, which he notes provides a “corrective to single author notions” of design history (76). In Fallan’s account, ANT posits a network to highlight the relational aspects of things, and defines a network in Latour’s words as the “trace left behind by some moving agent” (Latour cited in Fallan 2010, 69).

In thinking about approaches to design history when preparing for my courses at the University of Texas, I drew inspiration from Deleuze and Guattari’s development of this approach, as articulated in A Thousand Plateaus (1987) and Deleuze’s “Letter to a Harsh Critic” (1973) and “Mediators” (1985). Deleuze’s view of the “patently repressive” role of the history of philosophy on philosophers (1973, 6) can be compared to exclusionary efforts to constitute a canonical design history according to a particular historical and geographical perspective. More poignantly, as I endeavoured to inspire and enable design students to see history as a field of discovery and invention rather than a dreary library or chronology of events, Deleuze’s characterisation of his reading of philosophers, such as Hume, Kant and Bergson, as “buggery” or “immaculate conception” suggested iconoclastic liberation for the purpose of invention: “I saw myself as taking an author from behind and giving him a child that would be his own offspring, yet monstrous” (Deleuze 1973, 6). These iconoclastic impulses informed the first essay to be discussed here, which deals with product design history.

5.2 True Cost Button-Pushing
In “True Cost Button-Pushing” (Hall 2009f), I embarked on a critique of dominant histories of industrial design in the US by engaging with key figures to produce different, if not monstrous, offspring. Clearly, this essay was written with the present-day perspective of a design critic, not a historian, invested in the
redefinition of history in order to better inform future practice. This perspective suited the journal’s call for papers, which argued that for design history to have a future, it needed to engage the future; of particular interest to me was a prompt suggesting that history could and needed to be re-read: “What insights could be gained by re-reading design’s past through perspectives of sustainability and unsustainability?” (Willis 2009, 54)

“True Cost Button-Pushing” begins by considering the iconic American industrial designer Henry Dreyfuss, whose credo was revised in 1960 to read “When the point of contact between the product and the people becomes a point of friction, then the industrial designer has failed” (Flinchum 1997, 167). I argue that in this seemingly simple quote are clues to the profession’s future as well as its problematic past. In identifying the “point of friction” as the proper focus of the industrial designer, Dreyfuss anticipated a shift from the “styling” of industrially made goods to increase sales to a concern with the interface between human and machine. This anticipated the “emergence of ergonomics, interaction design and interface design as the concerns that would ultimately displace the ‘form follows function’ credo that characterized the Modernist project” (Hall 2009f, 14). Yet, at the same time, Dreyfuss’s use of the word ‘friction’ situates the credo within the streamlining project with which American industrial designers first gained prominence in the public eye—the practice of adding aerodynamic-looking styling to mechanical goods to increase eye appeal and sales that would lift the country’s stagnant economy out of the Depression.

In effect, the noble design art of making objects easier to use and easier to understand by more people is entangled with the practice of shortening the lifespan of a product by making it fashionable, as Vance Packard noted in his seminal critique of 1950s American cars (Packard 1960). I illustrate the point that in this era consumers were both invented and separated from the consequences of their consumption through industrial design with an example from Dreyfuss’s oeuvre often upheld as a seminal project of interaction design:
Dreyfuss’s most ubiquitous design, the Honeywell thermostat control, designed to provide a smooth interface between people and the heating, ventilation and air-conditioning systems of their homes, obscured the energy cost of cranking up the air conditioner behind a simple, sleek, circular dial. (Hall 2009f, 20)

The Deleuzian influence on my essay is evident in its efforts to locate the means with which to chart an alternative history in the tension inherent in Dreyfuss’s credo. Of particular influence, though not directly referenced, were three concepts with which Deleuze and Guattari’s developed their anti-historical “nomadology” in A Thousand Plateaus. The plateau, defined as a “continuous, self-vibrating region of intensities”, draws from an account by Gregory Bateson of a libidinal economy that is not premised on the necessity of a climax or “culmination point” (Deleuze & Guattari 1987, 158); the rhizome, which is made of plateaus, proceeds from the middle rather than seeking to develop narratives in terms of origins and endings; and the “lines of flight”, which are characterised as leaks in a social system that are immanent, as if awaiting, release (Deleuze & Guattari 1987, 204–207).

Throughout Deleuze and Guattari’s text, the map is used to characterise a spatial, non-linear and non-hierarchical means of picturing these memes in action, and to encompass a wide range of disciplines:

We are trying to make maps of regimes of signs: we can turn them around or retain selected coordinates or dimensions, and depending on the case we will be dealing with a social formation, a pathological delusion (d’elire), a historical event, etc. (Deleuze & Guattari 1987, 119)

The oppressive effect of dominant histories of design can be more easily disrupted by scanning for lines of flight. Implicit in Andrea Branzi’s characterisation of American design as marked by a “total absence of history” (1994, 600) was the invitation to explore a pre-twentieth-century history in the US. Jeffrey Meikle’s thorough and compelling accounts of American industrial design also included the loose threat that unravelled his dominant narrative: that the profession emerged out of the Depression and grew to prominence after the hardships of World War II,
when, with peace reached in 1945, “designers, promoters, and entrepreneurs rushed into schemes for addressing the pent-up material desires of a population” (Meikle 2005, 133). This climactic account of the American economy, as if waiting to explode into consumerism, is assumed throughout Meikle’s book Design in the USA. At the same time, the book provides a number of pre-twentieth-century figures whose work suggests alternative trajectories or lines of flight. Among them are Connecticut chair-maker Lambert Hitchcock’s rationalised system for the production and flat-packed distribution of durable, inexpensive chairs of locally harvested materials, and Horatio Greenhough’s sharply-worded critique of British imports, “excremental corruptions” of “gewgaws and extravagance” (Meikle 2005, 41). Instead of importing ‘excrement’, Greenhough celebrated an ethos of simplicity based on “thought, untiring investigation, ceaseless experiment” (Meikle 2005, 42).

“True Cost Button-Pushing” turns to the discourse rather than stylistic resemblances in photographs of objects to develop Greenhough’s line of flight. Greenhough earned the support of Ralph Waldo Emerson and Henry Thoreau, whose critical stance on American industrialisation began with what Thoreau called the “arts of the self”—a practice of self-interrogation that I align in the essay with Tony Fry’s distinction between the “appropriation and application” of ethics, and the more profound project of “becoming ethically constituted” (Fry 2008, 9).

In its second half, “True Cost Button-Pushing” attempts to pull the strands of critique together using Latour’s definition of designed objects as “complex assemblies of contradictory issues” (Latour 2008, 4). Design history’s problem, as defined by Latour at a gathering of design historians in 2008, is that in the “marvelous” rendering of objects as drawings (in pencil or CAD software), there is no way to represent things as complex assemblies: “We are still utterly unable to draw together, to simulate, to materialize, to approximate, to fully model to scale, what a thing in all of its complexity, is” (Latour 2008, 12). My paper extends Latour’s critique of design’s representation to its presentation in exhibitions, using the example of MoMA’s influential Machine Art exhibition of 1934. Here, MoMA’s
architecture director Philip Johnson (in collaboration with museum director Alfred Barr) placed machine parts, kettles and cake pans on white pedestals in the white-walled museum and argued, citing Plato, for forms that were “not beautiful relatively, but always and absolutely” (Johnson 1934, n.p). This marriage of the fruits of capitalist production and Platonian aesthetics paved the way for the museum’s post-war Good Design exhibits45 and set the standard for industrial design’s presentation in galleries, magazines and books.

“True Cost Button-Pushing” closes with a case for reimagining the design in design history as a cognitive act, citing Jamer Hunt’s tentative account of design as a “a different kind of machine for thinking” (Hunt 2009, 23). Viewed as an act rather than a collection of visual artefacts, design is situated as the making of assemblages within systems, with consequences. Likewise, designers are repositioned as “conflicted” figures, operating within the machinations and negotiations of a society making itself durable (to paraphrase Latour).

My next historical essay, “Graphic Design” (Hall 2012b), provided an opportunity to explicate this view of the designer as a conflicted figure, and considered the work of one designer, Norman Bel Geddes, through his archive.

5.3 Bel Geddes and Editorial Design
I conceived of the focus and scope of “Graphic Design” in conjunction with the editors who had invited the essay for a planned 555-page tome on Geddes, to be titled Norman Bel Geddes Designs America (Albrecht 2012). Geddes was a founder of the US industrial design profession that emerged in that 1920s, and his best-known projects were to be covered in several of the essays commissioned for the publication. Among them were his theatre set designs, streamlining concepts for cars, boats and planes and his Futurama diorama for General Motors at the New York World’s Fair of 1939. The Geddes archive, held at the Harry Ransom Center at

45 See Riley and Eigen 1994.
the University of Texas at Austin, also provided evidence of the extent of Geddes’ megalomaniacal ambitions, including a well-documented foray into the world of New York magazine publication design. My task was to write a project-specific essay, based on this lesser-known editorial design aspect of Geddes’s work for the New York publishers of the influential magazines *Colliers, The American*, and *Women’s Home Companion*, while tracking his editorial and advertising design efforts back to his influential books *Horizons* and *Magic Motorways*, and early work in advertising.

My interest in the commission was driven partly by Meikle’s account in *20th Century Limited* of the brazenly commercial visions of Geddes and his cohort of first-generation American industrial designers, particularly their legacy on contemporary conceptions of futurism, city planning, and industrial design framed as a styling exercise to increase sales (Meikle 2001). As noted in the previously discussed essay “True Cost Button Pushing”, unpacking this dominant history of industrial design required examining the ‘pitfalls’ or loose threads that might unravel the myth. This was to be done, as discussed in conversations with the volume’s editor, Donald Albrecht, through considering Geddes as a negotiator within a network of interests.

As I note in the opening paragraph of the essay, Geddes viewed his role as newly hired consultant to the Crowell-Collier Publishing Company as one of “mass stimulation of people through the medium of the printed and illustrated word” (publicity brochure for The American, Box 22, Folder 399.1, Geddes Papers). This promotional boast was purposely worded with reference to Geddes’s manipulative approach to managing large numbers of visitors to the popular *Futurama* exhibit a year earlier, by moving them on conveyors past exhibits at a speed designed to maximise throughput and visitor “stimulation”. In the essay, I exemplify the contrast in contemporaneous editorial design approaches by comparing Geddes’s work for Crowell-Coller to efforts by the Russian émigrés M.F. Agha and Alexey Brodovitch to introduce a dynamic and integrated approach to content and form in *Vogue, Vanity Fair* and *Harper’s Bazaar*. Assuming positions of some editorial influence on the
magazines they were art directing, Agha and Brodovitch introduced European avant-garde notions to these publications. By using sans serif typefaces, rejecting rigid mechanical grid tenets of page layout and working with experimental photographers to develop fashion art and pictorial features, they aimed to activate the reader/viewer’s engagement with the page. Essential to this was a Constructivist view of the reader or viewer of a work as an active participant in its meaning-making. By contrast, Geddes, who had been a Detroit-based advertising illustrator, adopted a homespun adman’s pitch more appropriate to a publishing house more squarely aimed at middle America, through middlebrow magazines with a combined circulation of eight million. In his terms, ‘stimulating’ a reader meant stimulating advertising revenue and, ultimately the American economy, which was then lurching out of Depression into War.

“Graphic Design” presented several opportunities to explore Geddes’s use of mapping as a method and subject matter, which he inevitably couched in machine age rhetoric as a means to engineer cities, traffic, and ultimately humans and human behaviour. His interest in mapping and city planning was well-evidenced in his particular obsession with dioramas: aside from the Futurama exhibit, in which visitors experienced a futuristic, scaled model of America in twenty years’ time, complete with self-illuminated superhighways. Geddes’s longstanding interest in war games is documented in Norman Bel Geddes Designs America by Christina Cogdell. According to a 1931 report in the New York Sun newspaper, Geddes developed his first war game in 1915 as a “bird’s eye view of modern warfare for players who can see like birds and reason like mathematicians” (Cogdell 2012, 318). Subsequent models of historical battles produced for a 1927 film series, and for the US Navy in 1942, aimed for a level of unprecedented realism: incorporating weather and lighting conditions and the appearance that troops were “moving of their own accord” (Cogdell 2012, 326).

A familiar theme surfaces in Geddes’s obsession with detail, the conceit that a more detailed map was a more truthful or accurate map. Lewis Carroll famously mocks
the logical contradictions of the presumption that the best map is “the size of the earth itself” in *Sylvie and Bruno Concluded* ((1893) 1991). Borges more pointedly mocks this presumption in “On Exactitude in Science” (Borges (1946) 1999). As Cogdell notes, Geddes constantly confused his detailed simulations with reality, creating predictive enactments of World War II battles for *Life* magazine during the war and describing them as “photojournalism”. She characterises Geddes’s “cavalier treatment of what counted as ‘news’” as part of his autodidacticism, Christian Science beliefs and a dogged persistence, even after the optimism of the Roaring Twenties, in “blurring the lines between the imagined and the actual” (Cogdell 2012, 335).

As such, Geddes’s pursuit of “realism”—a scopic way of seeing indebted to aerial perspectives—reflects a Modernist obsession with interpreting utopic machine age views as viable futures. In an essay published before *Norman Bel Geddes Designs America*, Cogdell extends Geddes’s interest in the design of future worlds to a prevailing interest in eugenics. As Cogdell notes, the idea that humans could be designed to breed out ugliness, genetic deficiency and disease, was, before it became permanently associated with Nazi policies, widely followed in polite society (Cogdell 2000, 201). Streamlining, in its popular 1920s and 1930s manifestation, simply extended ideas from Natural History to industrially made objects, replacing the model hygienic and physically fit body with product styling that eliminated superficial ugliness, decoration and dirt-catching surfaces (Cogdell 2000, 194). Geddes’s mantra, “the imagination creates the actual” (Cogdell 2012, 335), was extended to the manufacture of his personal image, as evidenced in the manufacture of his own name (he adapted his first wife’s name Belle in 1915) and the managed nature of his archives. In the Geddes book, Nicolas Maffei notes a keen awareness of the practice of manipulating the constructed self-image in Geddes’s first publication *Inwhich*, “in which I say what I think”. This reflects a broader American phenomenon for shaping public perception through managed personas; according to Maffei, Walter Lippmann wrote of “constructed personalities” and “great men ... known to
the public only through a fictitious personality” emerging after the first decade of the twentieth century (Maffei 2012, 56).

By today’s standards of self-image making, Geddes’s endeavours at managing the constructed image are only unusual in the extent to which he helped pioneer the practice. In “Graphic Design”, I frame this practice as a broader form of rhetoric, noting his indebtedness to the juxtapositions as visual argument used by Le Corbusier in Towards a New Architecture. Geddes acquired a copy of this book shortly after its translation in 1927 and marked it heavily, adapting the argument that designers should learn from the engineer’s aesthetic. Le Corbusier’s “effects-based” visual argument (Benton 2009, 15) to support an aesthetic of modern industrial forms was given a “vaudevillian boost” (Hall 2012, 359) in Geddes’s hands, as evidenced in Horizons and the more self-assured Magic Motorways. In the latter, Geddes used tabloid-style captions and a catholic approach to image use (from expressive photography to information graphics and photojournalism) to support the points in the text. The earlier Horizons revealed a closer adherence to Le Corbusier’s methods of persuasion, albeit adapted to a product of “pure salesmanship” (Maffei 2000, 29). As I argue in my essay,

Both designers (Geddes and Le Corbusier) juxtaposed images of geometric ancient architecture with architecture of mass production, but Bel Geddes upped the ante, using expressive images of dynamos and grain silos by Bourke-White, where Le Corbusier represented objects in a more documentary fashion. (Hall 2012, 359)

Methodologically, “Graphic Design” is an adaptation of my journalistic approach to design research. Whereas the journalist primarily relies on interviewing practitioners, their employees and clients, and experts, almost all of the material for this article was located in the Bel Geddes papers at the Harry Ransom Center, including contracts, office memos, correspondence, presentation books, estimates, drawings, models, and press clippings. There were also retrospective ‘job histories’

46 Heinrich Wolfflin’s use of the comparative technique is discussed by Andrew Leach (2010, 46).
often written by Geddes that were organised with the job numbering system he developed in the 1940s. There was, however, a considerable similarity between Geddes’s archive, seemingly managed by the designer in anticipation of being canonised, and the managed media relations of an active, current design firm. Yet, despite the apparent influence of a perceived future audience, Geddes’s assembled memoranda and contracts provided valuable and sometimes confidential details that one might encounter through comparative interviewing; earlier scholarship, such as that by Meikle, Maffei and Cogdell, provided valuable insights, and materials excised from the archive could be identified through careful reading in much the same way as a reporter listens for clues to projects a designer might prefer not to discuss. For example, the only published issue of *Woman’s Home Companion* designed by Geddes’s firm, with the issue date January 1942, was conspicuously absent from the archive.\(^47\) It featured a number of design ideas discussed in an earlier meeting recorded in the papers, none of which survived subsequent to the end of Geddes’s contract.

Ultimately, Geddes’s most distinctive, though short-lived, contribution to Collier-Crowell’s magazine publishing history was a series of “innovations” designed to give prominence to advertisers on editorial pages: the “zig-zag spread”, “strip spread,” “horizontal spread” and “bookmark third cover”. While clearly losing favour with the publisher’s editorial staff, as evidenced in the memoranda and correspondence, Geddes fastidiously garnered written support for his work from outsiders, providing quotations taken from personal letters from various captains of industry and advertising.

Maffei identifies in Geddes’s cultivated image a model of the industrial designer as “organizational mastermind and creative seer” (Maffei 2012, 55)—an image one sees repeated regularly in TED talks and design magazine profiles. Indeed, my own efforts to present a more balanced account of a designer, one of which was a

\(^{47}\) I acquired a copy while researching the essay, which is now in the Geddes archive.
Metropolis magazine profile in 2009 on Ross Lovegrove, depended on establishing a certain editorial distance from the designer’s claims; in this case, Lovegrove’s claim was to have established a high tech and “godly way of working” (Hall 2009e). Between Geddes and Lovegrove, a period of roughly seventy years, design discourse has come to increasingly rely on constructed personalities and an obfuscation—or mystification—of design processes, culminating always in the image of the designed object, in which the methods of fomentation, production and use are obscured or glossed. The project of countering this obfuscation and glossing by mapping the actors and processes that preceded a designed artefact’s “black-boxing” is directly addressed in my writings on failure.

5.4 Object Failure

“Uses of Failure”, based on a lecture delivered to the School of Visual Arts in April 2010 and published in Abitare magazine, identifies the complicity of design magazine journalism in disseminating the “essential subtext that new equals good” (Hall 2010c, 24). In the essay, I raise a provocation, drawing again from Latour’s neologism “irreduction” (Latour 1988):

So how do we get beyond this trap, and propagate a discourse that acknowledges that there’s a difference between renderings or photographs and the buildings or objects people actually use? The key, I think, is to stop viewing designed things like art objects, and start viewing them as instantiations of larger issues. This is what I would call an “irreductive” criticism. (Hall 2010c, 27)

Here, the case is made for a criticism that refuses teleological explanations and grand narratives, adopting what Harman has called Latour’s “object-oriented philosophy” as expressed in his first philosophical treatise (Harman 2009, 14–16): “nothing can be reduced to anything else, nothing can be deduced from anything else, everything may be allied to everything else” (Latour 1988, 163). After considering the formalist and post-industrial framing device behind the Red Dot Design Museum, home of the German awards scheme, my essay tries to imagine what an irreductive criticism might look like when applied to failures rather than
winners of design awards. Essays like Katherine Bristol’s ((1992) 2004) reconsideration of the failure of Pruitt Igoe, the housing estate in St Louis, US, are instructive because they shift the attention away from the architectural design—famously associated by Charles Jencks with the “failure of Modernism”—toward the multiple actors that contributed to the project’s failure:

there were many social and economic factors at play in its demise (federal housing and relocation policy, chronic cost-cutting, reduced amenities, falling occupancy, lack of maintenance) of which architectural design was probably the least important. (Hall 2010c, 28)

A forthcoming essay, “When Objects Fail” for Design and Culture, develops this investigation of an irreductive, relational approach to criticism by adapting “rules of method” from Latour’s 1987 book Science in Action to a series of designed artefacts from Latour’s writings and from my own journalistic material as discussed in two Metropolis articles (see Appendix A). A Metropolis article on the refurbishment of the Concorde supersonic airliner, for example, provides the historical evidence to support an analysis of its failure to recover from the public relations disaster of the Air France AF2490 crash in 2001. The grounded airliner assumes the status of what Latour (after Serres) calls a “quasi object”—a thing perched between a signifier and an object, that cannot help but make its hybrid, relational nature visible (Serres and Latour 1995, 161); no longer a flawless 1960s symbol of technological progress, Concorde’s semiotic status was punctured when its fuel tanks were punctured by a blown-out tire that caused an explosion during take-off. The patch-up job was both material and semiotic: engineers patched up the fuel tanks with a Kevlar lining, and the PR people and designers tried to patch up the icon, redesigning the interior to “bring the outside in”, giving the cramped 1960s interior the illusion of spaciousness (Hall 2001g; see also Appendix A).

5.5 Conclusion
According to Serres, a quasi-object “traces or makes visible the relations that constitute the group through which it passes, like a token in a children’s game”
(Serres and Latour 1995, 161). This tracing, revelatory movement suggests an appealing method for a critical design history that seeks to push beyond traditional jurisdictions overseen by professional practitioners and arrive at an exploded diagram, or map, of relations that also reveals the effects or implications of a designed object. In a sense, my three essays I have discussed in this chapter can be viewed in light of this tracing or making visible. “True Cost Button-Pushing” pushed the canonised, photographed design icon back and forth through history to reveal its less tidy constituent parts, relations and implications; the Bel Geddes essay attempted to unravel a constructed design persona by tracing the development of printed artefacts through archival materials and comparisons; and the essays on failure make the method explicit by allowing the (failed) artefacts themselves to point directions through the relational networks.

My aim has been to track the development of an approach to design history and design criticism that refuses to cleave to reductive explanations, be they periodisations that search for epochal or regional trends, teleological accounts that seek to understand designed artifacts retrospectively in terms of their apparent success, or essentialist frameworks that seek to identify universal or timeless values that contribute to a canonical account. As an approach to design history, a relational approach promises to animate, enliven and perhaps move the field into a more multidisciplinary, less-specialised domain.
Chapter 6: Conclusion/Future Directions

6.1 Introduction
In this final chapter, I will return to the central theme of mapping the spatial environment and its representational challenges. This will be discussed with reference to two essays published in 2010 and 2012, “Diagrams and Their Future in Urban Design” (Hall, 2010b) and “Afterword: On Mapping and Maps” (Hall, 2012a), respectively. The question driving this ongoing inquiry is appropriately identified in Mark Garcia’s introduction to my “Diagrams and their Future” essay as a call for the “imagination and realisation of diagrams that map and construct a new urban, sustainable and public reality” (Garcia 2009, 163). A third essay to be published in 2014, tentatively titled “Counter-mapping and Globalism” (see Appendix B), further develops the strands explored in the first two, identifying a trajectory for ongoing and future research activities, and providing a perspective that informs this chapter.

A brief clarification of terminology is required at this point. Undoubtedly, the popularity of the term ‘diagram’ in architectural discourse has been partly due to Deleuze and Guattari’s (1987) use of the term to mean an abstract machine or system of thought that, manifest in built or 2D form, designs us. This definition, which subordinates the map to the diagram, is described above in relation to Deleuze’s reading of Panopticism. However, since the key focus of this chapter is on a distinction between the process of framing, mining, selecting and plotting information spatially, and the outcome in the form of a printed or screen-rendered artefact, the terms ‘map’, ‘visualisation’ and ‘diagram’ are intended here to mean the literal artefacts, with only subtle distinctions between the three: a map plots selected information for navigational purposes; a diagram presents selected information in the form of instructional steps; and a visualisation, as discussed above, presents selected information in a form designed to enable exploration, persuasion or critique. A mapping, as I argue in the 2012 paper, clearly denotes the process that precedes, accompanies, and if it is iterative, follows, a map-making.
Any critique of maps and diagrams in professional architecture, planning and design should acknowledge their militaristic, imperialist and rationalist lineage. As abstractions, they tend to aestheticise and fetishise a detached, top-down view. This is the key provocation of “Diagrams and their Future in Urban Design”, which begins with a critique of Buckminster Fuller’s proposed geoscope project, a 61-metre diameter geodesic globe intended for New York City. Fuller argued in 1961 that the globe, which was to be suspended over the East River opposite the United Nations headquarters, would help inspire a “boldly accelerated design evolution” aimed at “making the world’s totally available resources serve 100% of an exploding population” (Pawley 1990, 12). This would be achieved simply by providing on television monitors, which would supposedly line the inside of the globe, an animated surface graphically representing an inventory of the earth’s resources and developmental trends. In Fuller’s mind, the diagram itself would inspire people, notably architects, to take action for change, but this presumption, I argue, is an adaptation of a militaristic way of seeing (one which presumes existence of an operations infrastructure). As Mark Wigley noted, Fuller’s emphasis was on the power of the earth’s image and its flows and its imagined revolutionary effect: “Constant observation of these patterns will supposedly enable a more equitable distribution of resources” (Wigley 1997, 16).

Wigley adds that Fuller’s embrace of globe-as-diagram was informed directly by his personal experience of developing an illuminated globe-data-display system for joint chiefs of staff during World War II. The aerial view, however, may be better suited to routing, spying and bombing than to urban planning. As the “Diagrams” essay goes on to argue, one particular problem with an aerial view of information about global flows of resources is that they can simply overwhelm the viewer.

During the time of writing of this essay, a key shift was underway as excitement about Web 2.0 brought a wave of rhetoric on technology-enabled crowdsourcing and wiki-based participation. The essay traces a path from the Geoscope and early network diagrams to the GPS map art of Esther Polak and MIT’s wikiCity, which
flirted with the idea of participatory planning by enabling citizens of a city to upload local information, such as “jogging paths, cultural events, environmental conditions and parking spots” to a wiki-based platform that showed live patterns of cell phone use (Hall 2010b, 166). The second half of my argument surveys a number of key developments toward a truly self-organised city/system, drawing from Claude Lévi-Strauss's observation that “to understand a real thing in its totality we always tend to work from its parts. The resistance it offers us is overcome by dividing it” (Hall 2010b, 166).

“Diagrams and their Future” strives to identify clear patterns of emergent, self-organising forces in city planning, alighting on a number of experiments in “seeding” initiatives. The term is drawn from a paper by Pietro Pagliardini, Sergio Porta and Nikos Salingaros, who, after castigating top-down planning as constituting the failure of an entire discipline, advocate a strategy of “urban seeding” (Pagliardini et al. 2010, 335). A practice based on “cheaper interventions on the existing urban fabric”, urban seeding would include the use of GIS to help enhance (and visualise) an understanding of what Pagliardini et al. call the “structural dynamics of change that characterise the evolution of self-organised urban settlements” (332). Somewhat disappointingly, the authors suggest that such dynamics would then inform the implementation of “proper policies” (335). Top-down planning, it seems, has been replaced in this instance with top-down policy making.

A characteristic of the recent visualisation discourse of architecture, art, design and planning is that—in contrast to those involved in genuine on-the-ground urban interventions—the focus frequently turns around the rhetoric of the image. Form makers, it seems, cannot help but revert to visual form as argument, even when their subject is lived experience. While I have found Deleuze and Guattari’s rejuvenation of the diagram-as-a-concept valuable to my understanding of mapping’s potential, for many architects and designers, it has led to a fad for diagrammatic fetishisation that easily translates to the spectacular. As I argue in the final paragraph of “Diagrams and Their Future”, architecture has tended to
“subordinate the study of relational forces to the generation of intriguing form”, leading to its ossification into “iconic, expensive, private buildings” (Hall 2010b, 169).

The “Diagrams” essay closes without settling on a convincing example of urban seeding beyond the conceptual provocations of Natalie Jeremijenko, whose OneTrees and OOZ project sought to demonstrate how we might incorporate non-humans in the so-called participatory planning of the environment. Jeremijenko’s strength is in drawing attention to interventions that cannot be understood with images alone. For example, OOZ establishes a network of polycarbonate buoys in New York City’s Hudson River (a neat reversal of Fuller’s Geoscope) that light up when fish are near, encouraging human spectators to feed them food treated with chelating agents that encourage the digestive systems of the fish to cleanse PCBs from their blood (Hall 2010b, 168). As a provocation, this particular urban intervention is quite radical. As an implementable example of an “energy diagram”, however, it begs further development.

The “Diagrams” essay proved a useful means of corralling resources with which to tackle some of the emerging rhetoric of community participation in planning and architecture that had begun to surface at the end of the first decade of the twenty-first century. One particular target of the essay, for example, is a piece of planning software called CommunityViz, a GIS software platform ostensibly set up to help people “visualize, analyse and communicate about the future of their communities”. A closer interrogation of the defaults built into the software and the relatively exclusive nature of the medium itself suggests that it functions to preclude rather than encourage real dialogue, suggesting a software solution to a complex problem of the representation of stakeholder interests. At a subsequent lecture I gave at a Harvard Graduate School of Design symposium on visioning and community-based planning, my critique helped frame the event and prompted a lively discussion with one of CommunityViz’s co-founders (Hall 2009c).
Coupled with some experience of field research using participatory mapping exercises in Texas, the “Diagrams” essay helped reiterate the importance of a distinction between the artefact and the event—which became the chief subject of the Design Philosophy Papers essay “Afterword: On Maps and Mapping”. The essay begins by defining the ‘map’—the representation of territory once surveyed, coded, authorised and fixed in a medium (be it print or digital)—and the ‘mapping’, the process of “selecting and plotting information spatially” (Hall 2012a). Two examples are used to illustrate the distinction: cartographer Heinrich Kiepert’s map of Africa, which hung on the wall of the Berlin conference of 1884, at which European diplomats negotiated for portions of the African continent; and the open source Ushahidi crisis mapping platform for geo-locating ground reports sent via phone to a website, which was deployed in the wake of the Haitian earthquake of 2010 to coordinate the relief effort. The Kiepert map is striking for depicting a void at the centre of the continent, reflecting an absence of knowledge and the thrill of potential wealth and power to be mined therein. The map was a key instrument of power, defining a field of operations and lending credibility and authority to the notorious land grab in which Britain, France, Germany, Italy, Portugal and Belgium acquired 30 new colonies and 110 million subjects (Stonor Saunders 2004). By contrast, the Ushahidi mapping, which reportedly helped save many lives, is open source, participatory and continually in flux: “to print or screen-grab the map at any particular point would be to render it quickly impotent” (Hall 2012a).

The map/mapping distinction should not be mistaken as a simplistic bad/good binary. It is more a distinction aimed at drawing attention to the process that accompanies the making of every map. James Corner’s essay “The Agency of Mapping” (1999) both illustrates the potency of a participatory process and the ease with which it can be turned into a rhetorical flourish to veil the re-enactment of familiar power plays. The involvement of Corner’s landscape-architecture firm Field Operations in the development of the celebrated High Line project, a park atop a retrofitted elevated disused rail line in Manhattan, might suggest a “collective enabling activity” was at work, as Corner describes the agency of mapping in his
essay. However, any hint that the High Line granted agency to non-human elements by mapping and then replanting the “self-seeding plantings” and industrial infrastructure that existed on the derelict site should be reconciled with the extensive work enacted on the site, and its agenda of gentrification:

the High Line project is not quite the kind of participatory design that the essay promotes. In process, it resembles the more conventional methods of a signature architecture team working on a boutique, high profile project in Manhattan. (Hall 2012a, 2)

In fact, the rhetoric of participatory mapping can conceal conventional power structures, as evidenced in the CommunityViz example. By contrast, Nabeel Hamdi’s participatory action planning in city slums suggests an emergent, grass roots model for galvanising networks of practice to instigate “small change” (Hamdi 2004). Indeed, Hamdi’s work informed my own efforts to explore ‘bottom-up’ mapping possibilities for urban and rural rejuvenation. In my essay, I discuss two projects conducted with students and researchers at the University of Texas at Austin, both of which were described as efforts to “redress silences and put back ‘on the map’ those interests commonly excluded from architecture, planning and mapping procedures” (Hall 2012a, 4).

6.2 Of Maps and Mapping

One project, in the city of Austin, joined a series of initiatives to map an abandoned creek, as a prelude to a city-initiated large-scale engineering project to remove the creek’s prime real estate from the flood plain by building a floodwater tunnel underground. The mapping aimed at “revealing the network of actors with prior connections to the creek, such as the music venues which had sprung up due to the low rents on a flood plain, the homeless populations and the wildlife” (Hall 2012a, 4). In this case, an ethnographic method and typographic execution served to encourage students to map the otherwise-unmapped, culminating in the development of proposals aimed at reinvigorating the site. The strategic goal was to
galvanise interest in order to influence the city’s decisions about who and what to invite to re-develop the creek.

A second project provided assistance to an initiative begun by doctoral students in the deteriorating town of Mart in north Texas. A rural settlement beleaguered by the de-prioritisation of rail in the US, the subsequent decline of the town’s cotton industry income and a history of racial segregation, Mart had seen its prospects reduced to the hope of providing a bedroom community to the neighbouring city of Waco. I dedicated a class of undergraduate design students to the task of “mapping Mart” in concert with the doctoral students who had secured a small National Endowment for the Arts (NEA) grant to investigate revitalising the town, under the banner “The Mart Community Project”. The class mappings were purposely structured to highlight distinctions between approaches and outcomes: a fast-paced ‘tourist’ map, a ‘bird’s eye’ information visualisation exercise using census data and a collaborative psychogeographic mapping with local high school students. The last set of collaborative maps was exhibited at an NEA-funded workshop, where they functioned to stimulate discussion about the town’s past, present and future. This included a map of historic social hubs in the town’s African-American community, which focused on a former barbershop, and provided feedback sheets inviting residents to annotate the map—in other words, to reinstate its status as a mapping. Feedback gathered on the social and multipurpose role of the barbershop not only recalled the catalysing function of a haircut/bicycle repair business described in Hamdi’s book Small Change, it highlighted the potential of mapping as an actor in the Mart Community Project,

to stimulate the re-establishment of discursive space in the town, by identifying needs, sites for intervention and local teams to lead the change, which in turn can be networked with concurrent initiatives. (Hall, 2012a, 5)\(^48\)

\(^48\) My more recent research has pursued mapping’s potential in a project with schoolchildren in Queensland, Australia: one particular workshop sought to stimulate an understanding of the idea of ‘eventalizing’ a given housing development site on former Aboriginal hunting grounds. Bringing to light its past destabilises the idea that its present is ‘natural’ or to be taken for granted and encourages a broader dialogue about the given boundaries of the site.
Along the same trajectory, an essay to be published in 2014, “Counter Mapping and Globalism” explores the potential of mapping in mobilising interests, gathering support and preserving its claim to truth as it mobilises. I argue that formal graphical innovation must always be the product of a groundswell of change to change anything; otherwise, it is doomed to remain gestural and faddish. The argument rests on the suggestion of Arturo Escobar that the capital-centric myth of an “impossibly large monster that cannot be changed” is a hindrance to the establishment of new myths, myths of alternative models, of meshworks of localised practices (Escobar 2001, 161–69).

6.3 Limits of Mapping

Given that one larger goal of this inquiry is to consider the potential of design criticism and practice to establish new models, it seems appropriate to conclude by considering the limits of the mapping-based practice and criticism being advocated here. To the extent that it emerges from a journalistic practice closely tied to the design profession, the scope of a mapping-based practice and criticism is determined by its own habitus, Pierre Bourdieu’s term for the “internalized dispositions that incline people to act and react in certain ways” (Stevens 1998, 57–58).

A critical point of reference is in Niklas Luhmann’s general systems theory, which suggests that it is possible for a system to observe another system, and in so doing, identify its constraints; that is, what it is excluding to maintain its reproductive function (Luhmann 1989, 13–23). But, in Luhmann’s theory, this observation can only ever be autopoietic—the product of the same system being observed—and is thus subject to its structural limitations. The map-maker, as a second-order observer, might be able to identify the self-referential nature of the design system, the arbitrary nature of design definitions and ultimately tautologous nature of evaluative concepts of design (“this is design/not design because it meets/does not meet the criteria we have established to define design”); the map-maker might also
perceive that the primary goal of the design system, like any autopoietic system, is to continue its own reproductive (autopoietic) process, absorbing external influences only in terms of its own operations. (Hence, ‘sustainable design’ achieves the goal of perpetuating a system of production and consumption that is inherently unsustainable.) But, as Luhmann notes, such observations produce a paradox of their own for the observer of a self-referential system, after which it becomes clear that this system “cannot see what it cannot see” (Luhmann 1989, 24). The ‘embarrassment’ of this observation can be resolved by distinguishing between natural and artificial constraints applied to the system observed in the name of providing learning possibilities. For example, the artificial constraints that restrict the subject matter of design history to goods mass-produced in the West after the nineteenth century might be challenged and displaced. But this suggests a piecemeal reform.

All this might indicate that to move forward with an effective mapping-based design critique requires a position outside of the institutional system of design practice and criticism. However, a non-systems-based analysis might suggest another means with which design discourse might evolve. Latour’s object-oriented philosophy accounts for internal and external factors in the construction of a successful network; the absence of systems theory in Latour’s irreductive philosophy is an important feature, and evident in his account of a “seamless web” of human and non-human actors (Taschner 1996, 216). Likewise, Sloterdijk’s spherology evokes a permeable system in its notion of the individual, the living being “nurtured on air” and also, more recently, poisoned by it. Systemic space is supplemented by existential space (Sloterdijk 2004, 223–30). Both philosophies propose more permeable, mutable and responsive organisms than are allowed by the structural(ist) system with its tightly defined operational mechanisms. Mapping actor networks, or a spherology, suggests a practice based on practices rather than abstract schemas or imposed diagrams. In short, I am interested in continuing an empirical approach that connects behaviour patterns and, in doing so, moves design discourse forward by example.
Tim Ingold’s (2008) objection to ANT is that the network it proposes presents an impoverished account of the interplay of forces, such as the role of air currents and vortices between two butterflies or the role of the spider’s web. ANT’s network suggests an assemblage of “heterogenous bits and pieces” and, in granting agency to inert matter, fails to allow for the complexity of living organisms (Ingold 2008, 214).

The key to resolving the limitations of the network metaphor may be by allowing for its infinite mutability over time. Indeed, the geographer Doreen Massey identifies a problem in the long-standing space/time binary opposition that posits space as static, female and the increasingly chaotic and unrepresentable “outcome” of time; and time as dynamic, male, tidy and monolithic. Massey calls for an alternative view of space, in line with contemporary physics, as part of space-time:

For precisely that element of the chaotic, or dislocated, which is intrinsic to the spatial has effects on the social phenomena that constitute it. Spatial form as ‘outcome’ (the happenstance juxtapositions and so forth) has emergent powers which can have effects on subsequent events. Spatial form can alter the future course of the very histories that have produced it. (Massey 1992, 84)

The suggestion would seem to considerably complicate Jameson’s call for a cognitive mapping of postmodernity. Mapping cannot, it seems, produce spatial order without sacrificing evidence. It can, however, help make sense of processes and depict patterns in time. In so doing, as Massey’s conclusion suggests, the spatial can influence the temporal, much as I have endeavoured to argue that a mapping can activate interests and events. My aim is to continue this research trajectory to explore how local, historical and sustainable practices and understandings of land use might be strengthened through mapping processes and their visual representation in mutable form.
6.4 Conclusion
This exegesis has aimed to show how mapping, in the three senses defined in Chapter 1, has remained the focus of a broad but empirically based approach to design research. In the first, practical sense of mapping, my published works have furthered the case for the map and visualisation to be understood critically as the product of a particular place and time; in the second, relational sense of mapping, I have furthered an approach to criticism and practice that promotes a discursive, relational and explicative account of designed artefacts and designers, which looks to explode black boxes and find patterns of influence rather than singular origins; and in the third, reflexive sense, this exegesis draws from a hermeneutical model of understanding, allowing that practical knowledge presents a viable opposition to positivist definitions, and is achieved by individuals, in time, through the calibration of pre-judgment against that which is new or alien to us. As such, this exegesis maps the development of a critical method.
APPENDIX A:


Abstract: This essay argues, drawing terms from the philosophers Bruno Latour, Michel Serres and Martin Heidegger, that one way to put thing theory to use in design criticism is by analysing objects that failed. Instead of starting the critical journey with pictures of successful objects on pedestals, to begin with recognised failures, or look for the failures that the object supposedly fixes. When something fails, we want to know why, a question that immediately moves design criticism past its obsession with style, form, movements and biographies and into a mode of explication

Keywords: Failure, thing theory, journalism, Actor-Network Theory, Bruno Latour, Michel Serres, Martin Heidegger, Museum of Modern Art.

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While most of us understand what is meant by an object—a teaspoon, hammer, cup, chair or lamp—no one is quite sure what is meant by a thing. The word holds within it an “audacious ambiguity”, (Brown, 2001: 4), referring to not just a loss of words (Q: “where did you put the thing? A: “It’s behind the thing in the thing”), but all the things (ideas, interests, materials, decisions) that come together to form the object—including the ones about which we do not know. Despite a longstanding philosophical discussion on the discrepancy between the object and the thing(1), popular design discourse—in magazines, books and exhibitions—is still in a state of denial. The currency of design discourse remains, for the most part, the photograph of the object frozen in time or exhibited in a gallery in eye-popping color on a white pedestal against a white background. This essay argues, drawing terms from Brown and the philosophers
Bruno Latour, Michel Serres and Martin Heidegger, that one way to put thing theory to use in design criticism is by analyzing objects that have failed. Whereas we tend to look through objects, a thing that has clearly failed us “can hardly function as a window.” (Brown 2001: 4) Instead of starting the critical journey with pictures of successful objects on pedestals, why not begin with recognized failures, or look for the failures that the object supposedly fixes? When something fails, we want to know why, a question that immediately moves design criticism past its obsession with style, form, movements and biographies and into a mode of explication—literally unfolding or “unpleating” as Michel Serres has pointed out (Serres and Latour, 1995: 65).

Since my own background is as a trade journalist and design magazine editor whose job was to perpetuate the idea that the latest designed object was interesting because it was new, my perspective for this essay comes from a back catalog of journalistic reporting. As every design writer secretly knows, as soon as an object ceases to be new, it resumes its dance with the spectre of failure. But while noble efforts have been made by design writers and editors to follow-up on a story and investigate what happened to the “next big thing,” one year later (notably under Julie Lasky’s editorship of I.D. Magazine) this is not common practice in popular design journalism. The mechanisms of design news-making today are, in fact, little different from those of the mid-20th century when consumerism was still untainted by a guilty conscience about environmental impact. The back-stories of objects -- how they came to be, their translation from idea to form -- are commonly boiled down to a success narrative (for example, a designer’s genius idea, a client’s foresight in picking that designer, or the value of design to society in general). The new forms are photographed, and publicists are hired to dispatch photographs and press releases to time-pressed magazine editors and bloggers; writers attach texts to the images based on the press releases or interviews with the designers and their clients (who both inevitably recapitulate the standard success narratives); the story is published and the search resumes for new, fresh images. In the parade of objects and fanfare that stands in for design discourse, the thing is all but forgotten.

**Explicating the Image of the Object**
Explicating things first requires a little unpacking of the way we see objects. Seeing, as John Berger has argued repeatedly, is a culturally constructed activity, itself a product of distinctive lineages. In that eye-popping photograph of a decontextualized designed object (or faux-contextualized amid spotless architecture and lithe, disinterested-looking models) is a hybrid of three big ideas: the Classical notion of the ideal form, the Cartesian subject separated from the object, and the adulation of the present.

The first idea, the Classical notion of the ideal form, lurks behind the entire representational apparatus of contemporary design. To expose the Classical underpinnings of the mode of representing designed objects we need look no further than the pivotal industrial design exhibition, Machine Art, curated by Philip Johnson at the Museum of Modern Art in 1934, in collaboration with the museum’s director Alfred H Barr. In an audacious stroke, Johnson and Barr brought into the white-walled galleries of the young museum a collection of industrial parts, household and office equipment, furnishings, kitchenware, scientific instruments and laboratory glass and porcelain wares. These were extracted from their indigenous habitats within manufacturing facilities, laboratories, machines, homes, retail outlets, and workplaces, and exhibited on shelves and pedestals, carefully juxtaposed to elicit their formal correspondences and contrasts. Johnson and Barr then framed the collection with a heavy dose of Platonic metaphysics. “The beauty of machine art is in part the abstract beauty of ‘straight lines and circles’ made into actual tangible ‘surfaces and solids’ by means of tools, ‘lathes and rulers and squares,’” Barr wrote in the foreword to the Machine Art catalog, citing Plato’s Philebus (Marshall, 2012: nd). The implication was clear: industrially made objects could be raised to the level of art objects, paving the way for design as an important new field of study in the arts. By recruiting Plato to the Modernist cause, Johnson established that the discourse of design would be primarily formal, the pursuit of “perfection of shape and rhythm, beauty of surface,” and one premised on a firm distinction between objects and subjects. What Johnson perhaps did not anticipate was the extent to which his bold elevation of machine-made objects would provide the de facto visual mode for both exhibiting design -- and selling it. One could thank Machine Art’s formal framing of design for providing the central method for almost every contemporary design show since: including the survey shows at the Cooper-Hewitt National Museum of Design, the Red Dot Museum in Germany and the
London Design Museum; not to mention those more openly provocative shows like the Art of the Motorcycle exhibition at the Guggenheim museum. MoMA’s own efforts to further the discussion around design by exploring new materials, methods of manufacture and modes of design exploration might all be viewed in terms of the shadow cast by Machine Art’s celebratory Machine Age zeal.

The second big idea, the Cartesian subject, the “I” that, in thinking supposedly proves its own existence (cogito ergo sum), remains stubbornly behind the scenes of the photograph of the designed object and its exhibition, separating the object from its viewer and its creator and allowing us to construct a discourse of desire: we desire the thing that is not us and we admire the creator of that thing. Against this position is the relational one of Latour and others, which can be summarised as “the view that a thing is defined solely by its effects and alliances rather than by a lonely inner kernel of essence.” (Harman, 2009: 75). This view does not privilege a human subject who relates and assembles the external world: all things, or “actors” have the power to relate and assemble. Against the Cartesian dualism implicit in the photographed artifact, then, is the realism of things that are made up of human and non-human assemblages: the hard metal elevator door that closes before you can dash inside, the tax forms that force one’s previous year of existence into categories and boxes, the mobile phone that won’t stop interrupting you. Latour’s relational position is shared by many contemporary thinkers seeking to dissolve the subject-object divide: psychologists and philosophers seeking to establish situated and embodied accounts of cognition (2). Byzantine art historians struggling to make sense of a pre-modern world view of objects that refused to separate subject from object (3), and hopeful design writers seeking to implicate us in our inventions and the effects of our inventions upon us.

The third big idea, the adulation of the present, lurks behind the implication that the objects photographed on pedestals are worthy of attention because they are the latest, the newest. This assumption drives the entire project of Modernity, with its notions of a rational break with the past and progress through science and technology. Michel Serres characterizes the naïve view in science that we have arrived at the truth simply because we are in the present as the equivalent of ancient diagrams which place the
Earth at the center of everything—diagrams we laugh at today. Yet, Serres notes with a sardonic characterization of the modern view,

Just as in space we situate ourselves at the center, or at the navel of the things in the universe, so for time, through progress, we never cease to be at the summit, on the cutting edge, at the state-of-the-art of development. It follows that we are always right, for the simple, banal and naïve reason that we are living in the present moment. (Serres and Latour, 48).

The view that the latest is the greatest is the invisible guiding hand that puts objects on pedestals in museum galleries in an almost identical setting to that of the museum stores. Philip Johnson’s counterpart at MoMA was Edgar Kaufmann, heir to the Kaufmann department store empire. By the time he had been appointed the museum’s director of industrial design in 1946, the lines between commerce and culture were growing decidedly thin. (4) Kaufmann had no qualms about moving Johnson’s approach to objects into a commercial setting. For his Good Design shows, introduced to MoMA and the Merchandise Mart of Chicago in 1950, Plato was jettisoned in favor of “eye appeal” to guide in the jurors’ selection of objects. Goods were arranged with a department store taxonomy—furniture, tableware, accessories, and so on. In a sense, Kaufmann’s was the more honest contextualization, revealing the indigenous habitats of the objects rather than appealing to timelessness.

But this established, as Terence Riley and Edward Eigen put it in an essay about the program, “an equivalence between the good and the new.” (Riley and Eigen, 1994: 160) It also cemented the importance of the image as the means by which product design is judged, prefacing Guy Debord’s sardonic prophesy, “that which appears is good, that which is good appears.” (Debord, 1967: 3)

**The Legacy of Modernity**

How then, might we move design discourse beyond the slavish reification of the new, the fresh, and the present? How might we re-establish the relational nature of objects to their thingness? The reason that we need to do this should be perhaps first spelled out by taking a position drawn from Bruno Latour’s arguments in We Have Never Been
Modern (Latour, 1994). Modernity, and our predominant way of thinking about the world for the last few hundred years (at least in the West since the Enlightenment) has done a great job of separating the human sphere from the non-human sphere. The soft sciences took care of the human sphere while the hard sciences got on with the serious business of explaining how the physical world works. But as Latour and others in the study of science and technology have shown, hard matters of fact are assembled, not discovered, and achieve their objectivity through the process of assembling alliances of human and non-human actors and translating their interests to strengthen the alliance. Latour’s extensive work in this area follows the development of “black boxes” or “matters of fact” in science and industry such as vaccines, the diesel engine, and DNA. The DNA example (detailed in Latour’s book Science in Action) provides a useful example of how the early hypotheses of two researchers—James Watson and Francis Crick—in 1951 gained traction by bringing elements and evidence into alliance, from laws to metal pieces to rival theories, until their guesses became less contentious hypotheses and finally matters of fact. At this point the human role was purged or “purified” from the science: In Latour’s terms translation was accompanied by purification: the general consensus moving from “Crick and Watson claim that DNA is a double helix” to “DNA is a double helix”. (Latour, 1987: 14)

This process seems commonsensical until we consider the consequences of the purification. Black boxes, from scientific truths to technological truths like automobiles, once purified of their human content, become uncontested and astonishingly powerful. This, in essence, is the ontological power of design—its ability to shape behaviour and thought. As Tony Fry has put it, “the ontological designing character of contemporary design(ing) and designed ‘things’ works to obscure those agendas that, beyond the most immediate concerns, would make designers fully accountable for what design brings into being.” (Fry 2008: 26) A simple example is the automobile. As Fry has written,

One does not have to exercise too much brain power to decide how many of the creators of motor cars remotely considered its impact upon the world’s climate, trauma medicine, wildlife, house design, urban form, cultural values, road construction, waste generation and so on. (Fry, 1999: 90)
By purging the human sphere from the non-human sphere, we have ended up in a situation where we can somehow separate human behavior from the behavior of the world, and of things. This project has been underway at least since John Locke invoked the idea of nature as an infinite storehouse awaiting human exploitation (Markley, 2012: 55). To illustrate the fallacy of this bifurcation, Latour adopts Serres’s term “quasi-objects” to draw out the social nature of the (technological) object. A quasi-object, Serres explains, “traces or makes visible the relations that constitute the group through which it passes, like a token in a children’s game.” (Serres and Latour, 161)

Serres’s potent example of a quasi-object is the space shuttle Challenger, whose explosion in 1986 that killed all seven crew members, he controversially aligns with the sacrifices of children to Baal in Carthage. Although we prefer to think of Challenger as an object of the world (a product of pure science and technology), it is simultaneously an object of society, one which transforms our rapport with things and our relations among ourselves. In ancient Carthage, children were reportedly lifted onto the arms of a giant statue of Baal, where they were roasted to death. The Challenger, argues Serres, allowed us to “assuage our unslakeable thirst for human sacrifice to the gods, whom we think we have forgotten.” He explains:

> We could construct a kind of dictionary that would allow us to translate, word by word, gesture by gesture, event by event, the scene at Cape Canaveral into the Carthaginian rite, and vice versa...the respective cost of the operation, comparable for the two communities, the immense crowd of spectators, the specialists who prepare it and who are apart from the rest, the ignition, the state-of-the-art machinery in both cases, given the technology of the two eras, the organized or fascinated rehearsal of the event, the death of those enclosed in the two statues, whose size dominates the surrounding space, the denial.... “No,” we say, “it wasn’t on purpose, it wasn’t a sacrifice, but an accident,” inevitable, even calculable, through probabilities.” (Serres and Latour: 160)

Whether we like it or not, Serres’s argument provokes us to rethink the supposedly objective, scientific agenda of the Space Shuttle project, which even betrays its social
objectives in its name, Challenger. His point is not to critique science but to draw comparisons in history through anachronistic leaps that reveal the cultural nature of science. He asks Latour,

Don’t you think that the Western nations explore space in order to demonstrate their power to the rest of the world, rather than for any useful reason? (Serres and Latour: 140)

To put Serres’s quasi-object to work at making relations visible, we must turn to Latour’s discussion of another space shuttle disaster, the Columbia, which exploded on re-entry in February 1993 due to damage incurred during the launch, again killing all crew members. Latour focuses on a particular image of the debris after the explosion, laid out on a grid on the floor of a hangar at Kennedy Space Center, where NASA crash investigators tried to learn what caused the shuttle to break up. In this “exploded view” argues Latour, is the image of the thing, or in German, Ding, which originally designated a certain type of archaic assembly. (Latour, 2005: 22) Heidegger’s translation of Ding as “gathering” is appropriated by Latour and company in the Making Things Public project to refer to technological objects when revealed in all their thingness: “What has exploded is our capacity to understand what objects are when they have become Ding.” (Latour 2005; 24)

In Heideggerian terms, the thingness of the object is brought to our attention when it breaks: the broken hammer brings our labor to a halt and makes us see it as a hammer for the first time. (Harman, 2005). It took the catastrophic failure of the shuttle, then, to remind us that a shiny object, or black box like the Columbia pictured on its launch pad, is a “lie” in its concealment of all the actors or interests that gathered together to form the space shuttle. The crash investigation drew the hundreds of “hitherto unknown” actors into the discussion, and as Latour argues in Making Things Public, revealed how the shuttle’s complex technology “should have been drawn with the NASA bureaucracy inside of it.” (Latour, 2005: 24) The information design guru Edward Tufte has argued that the Microsoft presentation software was in part to blame for the accident. (Tufte, 2006: 157-185) Powerpoint’s “hyper-rational” hierarchy, according to Tufte, abbreviated and then de-prioritized or deleted important data that would have indicated to NASA
that Boeing’s test data was not optimistic, as NASA management officials assumed from the slides. Because of this Powerpoint-assisted misinterpretation of evidence, no action was taken and damage caused by the foam debris caused the shuttle to burn up on re-entry. Both the 2003 Columbia Accident Investigation Board report and the Final Report of the Return to Flight Task Group (2005) concurred that the endemic use of Powerpoint briefing slides instead of technical papers highlighted a problem with technical communication methods at NASA. (Tufte 2006: 166). Powerpoint did not single-handedly cause the accident, but was one of many hundreds of actors that were gathered together in the quasi-object. As we trace the path back through the exploded parts, visible and invisible (eg. NASA’s organizational culture), light is shed on the agendas, alliances, and translations that took place in the making of the thing.

Method
How then might the concept of quasi-object introduced into conventional design discourse? Latour’s rules of method in the appendix of his 1987 book Science in Action provide some guidance. They begin,

We study science in action and not ready made science or technology...we either arrive before the facts and machines are blackboxed or we follow the controversies that reopen them. (Latour, 1987: 258)

Latour provides an intriguing model of such a reopening with his analysis of Aramis, the “personal rapid transit system” developed and prototyped in France between 1964 and 1987, when it was scrapped. Its failure is an essential part of its appeal; the case is not closed. Pictured in a Parisian workshop the year of its demise, Aramis bears Latour’s caption of the light rail car as a “quasi object, suspended between text and thing.” Aramis cannot be narrativized as a black box because it was a known failure. It thus points toward the stories of its development.

The Aramis system aimed to blend the benefits of mass transit with those of point-to-point private car transportation: a commuter living out in an outer arrondissement, for example, could simply book an automated car in advance, climb aboard when it arrived at his or her house, from which point it would connect with a train of cars that were
traveling down the Champs Elysées, perhaps, before peeling off toward the Left Bank. The point of the investigation is not to blame a single individual or even to identify a single reason why the project failed; and less still to come up with a grand narrative (eg. the post-modern condition) to explain things away. Instead, the study is a close analysis of how the precarious network of alliances between actors—the engineers, the politicians, the coupling system, the pilot vehicle—fell apart. Latour’s fifth and seventh rules of method warn against prioritizing particular actors or human interests to settle a controversy; the third and fourth rules of method similarly warn against explaining the settling of a controversy in terms of society or nature. In other words, technical hitches, the French Government, cultural expectations, or political power-mongering can’t be singled out to explain the failure of the project. Unpacking a thing calls for a more precise account of the actors gathering under the failure’s umbrella.

Patching up Concorde
To test Latour’s relational method on typical design magazine fare, we can now turn to material unearthed for two journalistic articles written for Metropolis magazine. The first is my article on the Concorde supersonic airliner, which in 2001 shortly before its retirement, was given a rather lavish $24 million makeover by British Airways, involving the design consultancies Factory and Conran and Partners. While the “hook” of my article was ostensibly the news of the redesign and relaunch, the controversy was Concorde’s air-worthiness, its hitherto impeccable safety record now scarred by the crash six months earlier of Air France’s Concorde flight AF4590, which led to the deaths of all 109 passengers and crew on board.

Post-crash, Concorde’s quasi-object status was suddenly visible for the world to see: no longer a black box or shining image of mid-century supermodernity, Concorde was grounded pending safety checks. An old question resurfaced: was cutting transatlantic flight time by three hours for 100 wealthy passengers worth the environmental impact? Concorde’s utopian image of post-war pan-European collaboration and technological prowess (to rival that of the USA) had been punctured, just as the fuel tanks under its wings had been punctured by a blown-out tire that caused the catastrophic implosion during take-off. Engineers patched up Concorde’s fuel tanks with a Kevlar lining, adding unwanted weight to the delta-shaped wings, and British Airways’ designers and
PR people tried to patch up the image. But Concorde’s semiotics could never be detached from its materiality. It emerged from a Modernist faith in the inexorable march of technological progress, progress that would allow us to conquer time and distance. But when it finally rolled into service in 1976 Concorde had cost $4 billion – four times more than promised – and attracted howls of protest about its noise and environmental impact. The 2001 patch up job was explained by BA and its designers in simultaneously material and semiotic terms, as an attempt to “bring the outside in” – recreate the iconic modernity of Concorde’s shape on the inside. The entire renovation was couched in terms of illusion: giving the cramped 1960s interior the illusion of space, building a lightweight carbon fiber bucket seat that compensated passengers’ claustrophobia with references to Formula One racing cars, and signifying the airline’s achievement of Mach 1 with a lighting trick: a stream of blue light would wash down the cabin interior. But less than two years later, the patched up plane was retired for good, with BA citing rising maintenance costs, the crash, and low passenger numbers following the terrorist attacks of 2001. The thing never quite regained its object status.

A Shiny Chair in the Ruins

To suggest that the object becomes a thing when it has failed is the main purpose of this article. But this does not quite equip us with the tools with which to critique the new (aka that-which-has-yet-to-fail), the stuff of popular design discourse. The second of my journalistic articles discussed here, however, arguably illustrates how Latour’s rule of method, to “arrive before the facts and machines are blackboxed or …follow the controversies that reopen them” can lead us beyond the object in question to the design failures that caused an organization to decide that a new object was needed in the first place. Published in Metropolis magazine, the article’s “hook” was a new chair designed by IDEO for school classrooms. Launched by the furniture manufacturer Steelcase in 2010, the swiveling chair was designed to replace the aged “one-armed bandit” seen in lecture theatres around the world since the 1950s – a four-legged seat with an articulating writing surface that pivots up and across the student’s lap. The new chair, named Node, was designed for a student in an active rather passive learning situation, and in which any number of activities could be happening: the student, let’s call her Petra, might be listening to a teacher at the front of the room as he clicks through a series of slides; the teacher then asks each student to respond in writing to a
question and then discuss the written response with a neighbor; this calls for Petra to turn to a neighboring student and discuss the question; Petra is called upon to stand up and present the outcome of the discussion to the class, then join a break-out group of 10 students in the corner of the room. This series of activities is facilitated by Node in its design: the chair swivels, it has a double hinge mechanism that allows the work surface to pivot separately from the seat, allowing for easier egress. Petra’s movement around the room is made easier by the chairs being on wheels and the fact that the large backpacks that students typically bring to class can be tucked away on a large shelf underneath the chair. Other design characteristics speak to the hard knocks anticipated in the life of classroom furniture, and 21st Century body types: a flexible nylon seat accommodates a variety of sitting positions (always preferable to ergonomists and back specialists than a fixed position) and eliminates upholstery (expensive). The chair is also large, to accommodate the physiologies of the fast food generations. Node is, in fact, tested to support 2500 pounds of static load, the equivalent of a 300-pound student flopping into the seat.

But rather than simply reinforce the manufacturer’s sales pitch, Latour’s rule of method invites us to follow the controversies. In the current article, outside of the constraints of a trade magazine beholden to advertiser budgets, it becomes possible to deviate from the party line. In this case, the unavoidable controversy is around the fate of the modern university in a market economy. We might even call to the witness stand Bill Readings to explain why the university is “in ruins” (Readings, 1996). We might include Tony Fry, who bluntly argues that the “user pays” model of higher education that has accompanied savage cuts in public funding, comes hand-in-hand with the instrumentalization of the university and the commodification of education:

Essentially, the university continues to extend the modern world but does not have the ability, beyond scientific and technological instrumentalism, to deal with the problems this project generated/generates. (Fry, 2011)

Broadly speaking, the education controversy surrounds the process of purification that I alluded to earlier. In place of a cross-disciplinary pursuit of understanding has come the blinkered pursuit of disciplinary expertise through purifying science and technology of their social content. As humanities and arts programs are excised from universities,
entire research-funding and sponsorship mechanisms routinely fund the pursuit of instrumentalist projects in science and technology departments. It is little wonder that some of the most interesting philosophy of recent years has come out of science studies, since philosophy in its traditional context is all but starved of funding.

A purist of the Actor-Network Theory approach, which Latour and colleagues pioneered in the 1980s, might object to imposing a “University in Ruins” framework on an investigation of the Node chair. ANT is a “sociology that prefers a local history whose framework is defined by the actors and not the investigators” (Latour 1996:19) Yet in the belly of Steelcase University, a corporate research unit with connections to academia, are researchers whose focus is the impact of built learning environments on learning, the social nature of learning, the impact of technology on learning, and the impact of market economics on colleges and universities. As Node moved from prototype to production, it drew more support from associated prototypes of learning environments developed at Steelcase in response to the argument that students of the 21st century learn in a different way from their industrial era forefathers, that they are no longer to be understood as empty vessels to be filled with knowledge. In its swiveling maneuverability, Node adapted the argument that students learn not by sitting and absorbing information but by finding things out for themselves, by constructing knowledge in social contexts. In its embrace of collaboration in the classroom, Node also acknowledged that problems of the 21st century are inherently inter-disciplinary. Climate change, population growth, globalization, and unequal distribution of resources are not problems that can be solved in the engineering school or the statistics department alone. Heroically then, Node has built a campaign platform based on dynamic, critical, cross-disciplinary, and meta-level reasoning, the learning outcomes of active learning. Node is there to support class research projects, studio-based assignments, small group discussions and an emphasis on play; on doing rather than being lectured to.

Our investigation cannot ignore the fact that Node has taken on this Herculean task amid a “stack ‘em deep and teach ‘em cheap” model of higher education. No matter how grand its ambitions, a chair cannot change the economics and culture of education in the university’s ruins. The failure of well-furnished, technologically equipped
classrooms to deliver a better education is apparent in every university that has enjoyed the sponsorship of a wealthy alumnus to support the construction of a new wing. Passive learning is cost-effective. Classrooms may be virtual, but coupled with models of quantifiable, testable knowledge, they are still designed as they were during the industrial revolution, with rows of seats facing the figure of authority. Regardless of a teacher’s intentions, the space itself—be it 1960s lecture theater or a dispersed body of isolated students in their pajamas facing the recorded lecture on the screen—establishes expectations of passive learning. Put more bluntly, the thing prescribes and proscribes student behavior.

By prompting us to follow the controversy around the thing rather than remaining fixated on the shiny object, Latour’s method leads us from the object to a failure that the object seeks to address. This approach could be taken from any point of the object. An analysis of the material used for the chair’s body, the struggles of the designers and engineers to achieve rigidity, durability, flexibility, and low shipping costs converge in a molded form made of fossil fuels. After following the “university-in-ruins” controversy, we might follow the tangled nest of short-term and long-term ethics around environmental impact, again a framework of great importance among the actors of the contract furniture industry. When, for example, is no chair better than manufacturing thousands of new “green” chairs?

Latour’s method also suggests that we might take a closer look at designers’ work before it is black-boxed into shiny objects and facts. Conventionally, the analysis of process is entangled again with success narratives. Process, when it is discussed, is always process toward a desirable end: the successful outcome, the glossy object. Indeed, such is the desire among designers to perpetuate an image of untarnished success that one recent ambitious design magazine attempt to report on a project in development was vetoed by a celebrity designer on the grounds that the failures to date were too embarrassing. But a blunt and independent-minded account of the negotiations underway during the development of a design would surely yield a greater understanding of how all design is a compromise of interests. The analysis of Node based upon Latour’s idea of the quasi-object is very intriguing. However, the author suggests how the analysis might be done, without doing it in
detail. It would be really beneficial and educational to see the analysis.

Conclusion

I have argued here that the predominant tools of design criticism are too reductive and fixated on the present. In essence, this essay has sought to explicate Brown’s observation that, “We begin to confront the thingness of objects when they stop working for us: when the drill breaks, when the car stalls, when the windows get filthy, when their flow within the circuits of production and distribution, consumption and exhibition, has been arrested, however momentarily.” (Brown 2001:4.) When things stop working or before they start working, intentions, motives and negotiations reveal themselves bare faced behind the objects and facts.

Elsewhere, I have made a case for replacing the usual fare of design museums with an exhibition of design failures (Hall, 2011). This could be a crowd pleaser in the nostalgic sense, lining up the failures of the past (Sony’s Betamax, Ford’s Edsel, Microsoft’s Bing?), and paving the way for positivist accounts of how failure analysis leads to greater understanding in the spirit of Henry Petroski. But at the heart of this argument is a more fundamental project to recognise the end of modernity, and with it the end of the idea that social matters and science and technology matters are separate. The argument seeks to expose and undermine the conceit that the present manifestation of any object or technology is the best one.

NOTES

(2) See, for example, Tim Ingold’s account of wayfinding (2000) or Alva Nöe’s account of cognition (2012)
(3) See, for example, Peers, G. (2013).
(4) The tensions between high and low art that accompanied Kaufmann’s tenure at MoMA are discussed in Riley, T and Eigen. E (1994)


APPENDIX B:


To begin, two images of Enlightenment optimism might be summoned to a convenient Web browser: Thomas Hobbes’s (1651) Leviathan, illustrating the Body Politik in the giant torso of a sovereign straddling the landscape; and Gerardus Mercator’s (1609) engraving of Atlas as a “quiet and seated scientist holding the globe in his hand” (as opposed to a God shouldering the burden.) 49 Modernity’s crisis of confidence -- in progress, political representation and a shared sense of the global -- might be attributed to the failure of both conceits: Hobbes’s vision of a society made civil and Mercator’s globe made manageable in the age of discovery. We are now perhaps more acutely aware that the Body Politik and the hand-held globe were only ever conceived from a particular perspective and by eliminating contradictory interests through a process of exclusion. So if the project has failed, what is the role of mapping as a means of representation today?

As the spatial arrangement of represented entities, a map or visualisation can strive to reveal complex networks of conflicting interests, flows and environmental change in the era of globalism. Maps and visualisations of weather patterns, oil spills, temperature and C02 levels, refugee paths of flight and so on can be accessed in an instant. But to what extent can mappings and visualisations be mobilized against the dominant forces that have brought us to the current crisis of confidence, confidence in a viable future? To explore this question I will first address the curious deficit of critique in data visualisation and mapping discourse, seemingly exacerbated by an epistemological gap between the related disciplines of computer sciences and geography; then I will explore the challenges of turning these tools of representation against the powerful interests that have traditionally wielded them; finally I will discuss how efforts to theorize and mobilize a resistance in mapping are manifest in repeated efforts to redefine and rewrite space, the emphasis being on a lexical as well as visual representation. Ultimately this leads to a conclusion that a map or visualisation by itself is doomed to remain gestural.

unless it is part of what Bruno Latour calls a “cascade of inscriptions” that bring to the table the accumulated power of an assembly of allies and interests (Latour, 1986 p.17).

**Critique and Visualisation**

The contemporary “state of the art” in mapping is Geographic Information Systems, which brings together cartography and data visualisation in a powerful technological package, enabling its developers and users to bring any number of informational layers to the surface of a base map. This convergence of disciplines -- cartography, computer science, statistics among them -- has happened with such rapidity and technological fanfare that critical reflexivity has been largely left behind. That the burgeoning language of data visualisation has a history indebted to cartography is usually neglected in the dominant discourse of the computer sciences. Key texts in the field (eg. Ware, 2000; Card, 1983; Shneiderman, 1998) typically draw from a positivist conception of cognitive psychology based on testing and codifying principles of perception that can be, supposedly, universalised. This approach is critiqued as an “engineering sensibility” by Johanna Drucker, who counters from a perspective of theories of subjectivity in feminist and cultural studies. (Drucker, 2009 pp.72-3). We need only trace a pre-20th Century history of visualisation to scrutinize the engineering sensibility, and locate its connection to what geographer Jeremy Crampton calls “technologies of management” such as statistics and the emergence of a theory of probability that emerged with data visualisation in the 19th Century (Crampton, 2010 p.9). The specific practice of plotting scientific data against a representation of territory, in turn, finds earlier examples in the Age of Discovery: Edmond Halley’s seminal thematic 1686 map of trade winds, for example, introduces the graphic device of directional strokes and arrows to approximate the complex system of winds in the Atlantic around the tropics (Tufté, 1983; Robinson, 1982). Halley establishes several conventions to position the map-maker at the centre of the world: his use of the Mercator projection, of graticule and of London as the prime meridian. By the 19th

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51 Drucker posits an alternative approach to visualisation which acknowledges the situated nature of knowledge. To Drucker, the representation of human thought is characterized as “a continual attempt to open up space for subjectivity, individual expression, and specificity as challenges to the cultural authority of alignment, totalization and systematic approaches to knowledge.” (p.129)
Century, these conventions had become undisputed “facts”. The discovery of the globe as a measurable whole, as several commentators have shown, emerged alongside with the problem of how to order it.

Since the scope of this essay is the visual representation of geopolitical space, we shall endeavour to limit ourselves to discussion of the processes by which territorial interests are translated into, and reinforced by, visual form. Latour’s concept of the “immutable mobile” (1986, p.7) is particularly robust account of how a map achieves this translation of power. Once a territory is framed, surveyed, coded, represented, authorized and fixed in a medium—be it in print or more seemingly fluid interactive forms such as GIS—it becomes both resistant to alteration (“immutable”) and mobile, an instrument for preserving the meaning and truth of a scientific observation as it circulates.

Latour compares a map drawn in the sand by an indigenous islander on Sakhalin with a copy of the sand map transcribed in the notebook of the explorer Jean-Francois de La Pérouse, in an expedition funded by Louis XVI. The former is allowed to disintegrate with the tide, whereas the latter, rendered in portable form, is the single object of the explorer’s mission, “to determine who will own this and that part of the world and along which routes the next ships should sail.” (Latour, 1986 p.5) Both the sand map and the notebook map carry the same valuable information, but the latter bears the characteristics of being the first in a “cascade of inscriptions”: it is mobile (unlike the sand map, or the island itself), immutable and flat, it can be reproduced, scaled, and recombined at will, merged with geometry and made part of a written text. All of these acts of reproduction and mobilization form the cascade of subsequent inscriptions. In the hands of the French empire, then, this “incredibly weak and fragile” piece of paper becomes a means with which to “dominate all things and all people”. (pp.20-29)

But if its track record is entangled with imperialist histories, a map or inscription can surely also be deployed to serve the interests of the disempowered and marginalised. The act of plotting and representing marginalised interests--and here we might add

52 Halley’s thematic map, titled cautiously “An Historical Account of the Trade Winds, and Monsoons, observable in the Seas between and near the Tropicks [sic]; with an attempt to assign the Phisical [sic] cause of the said Winds,” is discussed in detail in Thrower, 1969.
- See, for example, Elden, 2010 p.21; Latour, 2004 p.461.
non-human interests to the list—was usefully described as “counter-mapping” by geographer Nancy Peluso (1995). In her paper on the counter mapping of Indonesian forests undertaken in the 1990s by local activists and villagers in resistance to decades of intensive industrial timber exploitation and the Indonesian government’s use of mapping to override customary forest rights, Peluso characterises counter-mapping as efforts to “appropriate the state’s “techniques and manner of representation”. The aim is to “reinvent” customary claims to forest resources, which have been traditionally and sustainably managed by villages. (Peluso, 1995 pp.384-5)

**Counter-mapping and the Postmodern condition**

The rich history of counter-mapping and critical cartography is not documented in lavish atlases and the giant drawers in map rooms of the world’s libraries. This is not simply a reflection of where the power lies but also that counter-mapping always begins with a critique of the map: its first target is the map as an authoritative artefact frozen in time. Mapping, which describes the process of selecting and plotting information spatially, draws our attention to the means, method and circumstances under which the final representation was assembled. As such, it opens up for inspection the interests the map serves and suggests a way of looking beyond the finished artefact. This is why counter-mapping is always a practice and a process in flux\(^54\): it suggests an activity that is generative, revealing, enabling, performative and participatory.

After a decade of rhetoric on the generative, participatory nature of the architectural diagram\(^55\), it is not the goal of this essay to perpetuate the idea that the exquisite gestural representations of flows of traffic, history, geology etc by architects and planners constitute a new “movement” in design. The aim instead is to explore the limits and potential of mapping as a means of representing interests now that its political history has been exposed. That maps embody a rhetoric of neutrality that fosters an illusion of democracy is by now, thoroughly explored.\(^56\) But the concern with

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\(^1\) Practice here is meant in the sense that Stan Allen (2009) positions it as discovery.

\(^55\) See, for example Mark Garcia, ed. The Diagrams of Architecture (2010).

\(^56\) With his insightful focus on the “silences” in maps that reveal their territorial imperatives, J.B. Harley has left a critical legacy that invites us to unravel the neutrality of maps through deconstruction – the close reading of signs, graticule, decoration, legends, and so on. Following Foucault’s discursive analysis, Harley has shown how maps came to prominence with the rise of the nation state, and how their principal
“how we represent the world to ourselves” (Harvey 1990 p.240) is arguably what has prompted the proliferation of maps and visualisations in the last few decades. The postmodern condition was in effect transformed into a provocation by Frederic Jameson when he suggested in 1991 that the “incapacity of our minds, at least at present, to map the great global multinational and decentred communicational network in which we find ourselves caught as individual subjects” might be resolved with via an “aesthetics of cognitive mapping” (Jameson, 1991 p.44) While Jameson’s hypothesis has been tested in countless subsequent mapping projects, its emphatic case for an aesthetics of “cognitive mapping” calls for a closer inspection of the term.

Cognitive mapping emerged in the 1950s as a field research method for evaluating the “legibility” of urban space, a concept furthered by urban planner Kevin Lynch (1960). By asking residents of a city to sketch map and respond to questions about the built environment, Lynch argued that a shared sense could be derived of urban legibility, ie, “the ease with which [a city’s] parts can be recognized and organized in a coherent pattern” (pp.2-3). Appealingly low-tech and accessible (particularly in the present age of more its high tech successors), Lynch’s method nevertheless makes several assumptions. Inherent in the phrase “urban legibility” is the assumption that space can be “read,” suggesting a a pre-existing text that presents itself for contemplation. As we shall see, this assumption has drawn criticism, notably from the anthropologist Tim Ingold57. But even at the most literal level, the lexical bias encourages a focus in Lynch’s methods on fixed or written and therefore received representations.

As a result, cognitive maps when sketched have a tendency to represent the world not as it is experienced, but an image of the world as it has been represented to us in print or on screen. Janet Vertesi’s paper on cognitive maps of London revealed a tendency among locals to view the city in terms of the city’s influential underground map (Vertesi, 2008). Similarly, the sketch map study made by the geographer Thomas Saarinen in the early 1970s to examine how children pictured maps of the world, elicited received patrons were nation states who saw in them a means of plotting and controlling knowledge of estates, waterways, and political boundaries. Rather than see maps as means of navigation, we can thus investigate the development of maps and visual codes as the institutionalisation of power/knowledge. (Harley, 1984 pp.53-63)

mental images of the world: After 3,800 children from various continents were asked to produce freehand sketch maps, Saarinen found there was a tendency, stronger in certain countries, to distort the maps to favour Europe, enlarging the continent and putting it at the centre (Saarinen, 1987). This tendency even overshadowed an impulse to favour proximity and centre the countries the children were drawing from. For example the orientation of a map composed of childrens’ world views puts Soviet Union at top right, USA top left and Europe in the centre, mimicking the classic Mercator projection. A particularly Eurocentric map drawn by Thai children in the 1970s reminds us that a map, as J B Harley wrote, replicates not just the territory but the “territorial imperatives of a particular political system” (1984 p.54). It would seem that, despite being the only country in South-East Asia not to have been colonised by a European power, Thailand has not been immune from the imperial activities around it. Here were the territorial imperatives of Carl Schmitt’s Großraum, in which a dominant power seeks not annexation but to draw lands into its sphere of influence, vividly visualized in a child’s map.  

To move to the present day Jameson’s call for cognitive mapping of the global order requires, in fact, a series of images. One challenge is that, like maps of the world, the notion of a single geopolitics, has been thoroughly destabilized. The much cited phrase of Donna Haraway, the “God-trick of seeing everything from nowhere” is used to characterise the view of classical geopolitics. (Haraway, 1991 p.189 in Kwan 2002 p.647). Colin Flint’s account of contemporary geopolitics as “situated knowledges” (2006, p.16) mirrors the emergence of multiple, conflicting, representations of the world. We might begin with Ulrich Beck’s opening to his book What is Globalization? in which the nation states are undermined by the transnational corporations that dominate the global operation of the economy (Beck, 2000 p.2) Following a report in The Economist, we might draw a map depicting the largest transnational corporations instead of the dominant continents in Mercator’s projection: General Electric, Royal Dutch Shell, BP, Exxon Mobil and Toyota (Economist, 2013). But where do we place them? GE and Exxon are American, BP is British, Shell is Dutch and Toyota Japanese, but of the 100 companies with the most foreign assets, the Economist tells us, 17 hold over 90% of

58 For a discussion of Schmitt’s influence on contemporary international relations, see Elden, 2010.
their assets abroad. If we sought to represent where the transnationals’ workforce is dispersed, it would become clear, as Beck notes, that the transnationals are located where labour costs and workplace obligations are the lowest. Over half the GE workforce is outside of the USA. We might draw the lines representing the flow of goods and services for these corporations, again connecting the places where infrastructure is favourable and labor is cheap. And finally, add some dollar signs, color coded again, to show where these corporations pay taxes, and briefcases to show where their top executives choose to live. Clearly we arrive at something quite different from the Mercator projection.

Beck’s geopolitical map is in turn supplanted by the dazzling map of mega-regions, captured in satellite imagery of contiguously lighted areas at night, and redrawn by economist Richard Florida. Countering both the traditional nation state map and the now popularised notion of the flattened world economy in which geographic place is less and less important, Florida argues that geographic clustering and “pushing together” of economic activity have reasserted the importance of place, in terms of economically and politically powerful mega-regions. Profiting from available labour, skilled talent, economic capacity and infrastructure, mega-regions define a two tiered world order. Two mega regions with common economic output are more likely to develop similarities in terms of culture, politics and built environments. But lagging behind are the “mega cities” like Calcutta or Delhi, which share little in common with the mega regions, nor can they look to the global economy for solutions or resources. (Florida et al, 2008 pp.461)

**Lack of Fit**

Ultimately, none of the geopolitical perspectives discussed above suggest a means of resistance to globalism. They depict the flows of power and capital, but ultimately reflect a dominant view of the world back to us, which serves to disempower rather than inspire the political action Jameson hoped for. At a global scale, the mapping of globalism sees only abstractions and generalisations. The same might be said of all the “big picture” counter-mappings and counter-projections that sought to redress the Eurocentric imbalance of the Mercator projection: from Joaquin Torres-Garcia’s *America Invertida* (1944) to ODT’s “What’s Up? South!” both of which inverted the
Mercator projection by showing the continents “upside down”. Since their target is the dominant signifier, they end up reinforcing it by protesting it. This is a complex design problem because the very tools that the under-represented need to make maps are shaped by those whose interests were served by the tools.

A parallel can be drawn with post-colonial literature. The inadequacy of language for the post-colonial writer has been raised by several authors, including Salman Rushdie, who reflected on his ambiguity towards using English, the language of the colonizer, in terms of a struggle: “To conquer English may be to complete the process of making ourselves free” (1992 p.17) One group of editors of a volume of Post-Colonial scholarship neatly describe the “lack of fit” between language and place for those who inherit the language of the colonizer as a second language. (Ashcroft, Griffiths and Tiffin, 2006 p.345) The Canadian writer Dennis Lee has described the mismatch between English and the Canadian landscape: “The language was drenched with our non-belonging” and “The colonial writer does not have words of his own.” writes Lee, (Lee, 1974 in Ashcroft et al. p.349) Is not the same true of the counter-mapper, crafting lines and shapes to give form that in turn struggles with its own loaded textures, weights and connotations?

One of old cartography’s favourite textbooks, How to Lie with Maps, reveals a glib awareness that the mapmaker’s tools are intensively coded abstractions and techniques designed to simplify, select, displace, aggregate, abbreviate, make territory look “natural” – and most portentously, draw hard boundaries where there are none. (Monmonier, 1991). “Not only is it easy to lie with maps, it’s essential,” writes Monmonier (p.2), betraying the blithe embrace of positivism among the post-war cartographic establishment. After their wartime use for propaganda, the cartographic arts were strenuously repositioned as a technoscience, enabled in no small amount by the emergence of computers, databases and ultimately, geographic information systems (GIS) which brings its own rhetoric of neutrality and precision. The result is a perpetuation of the black box status of the map, whose codes are deeply embedded with the structures, values, techniques and hierarchy of practices of their colonial history. As Denis Wood has argued, “Maps mask the interests that bring them into being.” (Wood, 1992 p.95)
That the very syntax of the map conceals its imperialistic Western cartographic development can be vividly illustrated by looking at the function and symbology of the legend. Since the majority of social practices and symbols at work in a cartographic map are silent conventions presented without explanation, the legend becomes a tell-tale index revealing what the mapmakers consider to be worth underlining. This despite the widely held view that legends are neutral tools, “naturally indispensable to most maps since they provide the explanations of the various symbols used” (Wood, 1992 p.97) Drawing from the work of Harley, Denis Wood has famously identified the territorial imperatives at work in a seemingly innocent road map of North Carolina by unraveling the signs. Wood notes that the legend neglects to interpret 18 of the signs used in the map but provides signs for seven different kinds of road surfaces, along with the revealing factoid, “North Carolina’s highway system is the Nation’s largest State maintained Network. Hard-surfaced roads lead to virtually every scenic and vacation spot.” As Wood puts it the message of this map is one of “automotive sophistication” (pp.95-107).

Lack of fit becomes apparent when the dominant structures of cartography are put to the service of a counter-mapping project. Conventions around colour, for example, are clearly the product of specific cultural traditions for depicting landscapes: blue for water and green for vegetation make more sense in Northern Europe than in the Western Sahara. Seemingly impartial descriptive attributes such as “primary forest” can have completely different meaning for a scientist, government official and an indigenous farmer. (Rambaldi, 2004)

It becomes clear that there is a key conceptual difference between the cognitive sketch map and the everyday practice of experiencing space. In its rush to pragmatism, Kevin Lynch’s method of interviewing city dwellers and asking them to sketch their mental “image of the city” rested on a centuries-old model of thought, one that assumed that the world “out there” is processed “in here” – in the mind. This model, rooted in
Cartesian dualism, is often described as a “transcendental” account of cognition. An embodied account of thought, however, shifts this model to an experiential, situated and, recently, transactional understanding of how we encounter the world.

Ingold tackles the limitations of the cognitive model in his extended case for wayfinding in the environment, which suggests to him not a “great God-given maze” but “an immensely variegated terrain of comings and goings, which is continually taking shape around the traveller even as the latter’s movements contribute to its formation” (Ingold, 2000 p.223). This position is developed in a case study of tourists’ wayfinding practices by Eric Laurier and Barry Brown (2008). Laurier and Brown argue that classic cognitive studies of orientation and alignment with maps rely on “more or less disengaged cognitive models of navigation” that “gloss numerous features of what ordinary navigators are doing with maps.” This is illustrated with detailed observations of tourists and car route navigators orientating themselves en route, where we see not mental reasoning and spatial models but: “map readers looking and reading signs, misunderstanding street names, grappling with more or less cumbersome paper documents and the like.” (Laurier-Brown 2008: 214)

This key difference between transcendental and embodied accounts of thought also reflects back at us a contrast between Western and non-Western conceptions of territory, a distinction considered by a number of geographers in recent field work with beleaguered indigenous groups.

Indigenous Cartographies
In his account of a participatory mapping project in Mosquitia region of Honduras, Joel Bryan (2011) notes the incompatibility of boundary lines with local understandings and practices of land use. Miskito villagers secured access to land and resources through networks organized in terms of kinship, residency and ancestry, notes Bryan. These were conceived as overlapping and dynamic zones:

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* See Alva Noë’s discussion of transcendental accounts of cognition in Noë, 2012, pp1-11. Noë writes, “the world does not show up as presented on a viewing screen; it shows up as the situation in which we find ourselves... We are always in the midst of making adjustments to the world around us.” (pp.3-4)
Insofar as legal recognition required the resolution of these overlaps into boundary lines that could be titled and demarcated, they ran at cross purposes with the very forms of customary use and occupancy that they were intended to protect. This was, in many respects, an impossible task. (Bryan, 2011 p.41)

Bryan adds that it was “tactically necessary” to deploy the representation techniques of Western cartography since indigenous communities in the region had seen the land they occupied increasingly encroached by third party land speculators and agriculturalists. Legal recognition of indigenous land rights had become crucial to stop the encroachment, but at the same time, writes Bryan, producing those boundaries “carried the risk of disrupting villagers access to land and resources and becoming a source of conflict” (Bryan, 2011 p.42).

The ambivalence at the heart of the project is acutely felt by Bryan, who was tasked with helping researchers from FINZMOS (the Federation of Indigenous and Native Peoples of the Rio Segovia Zone) design and develop methodology for mapping indigenous claims to land. For all its rhetoric of empowerment, participatory mapping has been criticized for its capacity to extend neoliberal modes of governance by translating claims to territory and autonomy “in terms of the contractual freedoms associated with property ownership”. (Bryan 2011 p.42) Efforts to chart boundaries and simultaneously reproduce the pre-existing forms of collective life that the boundaries precluded are recorded in vivid detail: Bryan and his team of GPS-enabled researchers follow a local guide seemingly able to navigate indeterminate boundaries in the savannah by marking blazes on pine trees with a machete. At boundary markers, FINZMOS representatives signed agreements, written in Miskito, affirming villagers’ “rights to cross” boundary lines in accordance with customary practices of use and occupancy.

In walking the boundaries and validating the maps, Miskito organisations found new ways of creating new forms of relationships between communities, notes Bryan, providing a means of critically assessing the potential of legal recognition and creating an awareness of other configurations of territory. The inscribed boundaries and “rights to cross” agreements, in other words, both set up potential for protection and conflict.
In conclusion, notes Bryan, the mapping simply opened up the need for more maps, an aspect of state mapping practices that indigenous mapping had sought to challenge. (Bryan 2011 p.49) The ambivalence of this conclusion points to the impossibility of returning to a virginal, pre-mapped state. Once mapped, a territory is consigned to be continuously mapped.

In her account of the negotiations between indigenous Karen communities and the Thai Royal Forestry Department in Thailand, Robin Roth identifies two opposing conceptions of space resembling Gilles Deleuze and Felix Guattari’s (1987) notions of smooth and striated space. The Thai Royal Forestry Department, which was seeking to establish a national park in the region, had Western style maps to support its efforts to impose boundaries. The Karen, which had inhabited the area for over 1,000 years, did not see themselves as owners of the land—it was owned by spirits of land, water and forest. Their notion of the delineations between forest and agricultural land were ambiguous as a result of shifting cultivation practices: temporary private land is embedded within a communal framework. For example, a household in need, can borrow land from a household within the village or a neighbouring village. After two rotation cycles the land becomes the ‘property’ of the borrower. At the same time, opportunistic gathering of chillis and vegetables (but not rice) from another’s field is practiced. Citing Ingold and Henri Lefebvre’s conceptions of space as something that is both rooted in social and ecological relations and dynamic, “in a constant state of becoming” Roth endeavoured to map Karen communities using the concept of “dwelling space” instead of the abstract space of the Western cartographic map (Roth 2009 p.211). Again, the project ended in ambivalence. Given the needs of the villagers to negotiate in the terms of the Western cartographic map, an uneasy compromise was achieved by Roth training the Karen people to create “dynamic” maps of land use.

Nevertheless Roth’s case for mapping "dwelling space" usefully draws from a Heideggerian account of space that Ingold advocates in Perception of the Environment. In place of the map that represents the earth as a "surface to be occupied rather than a world to be inhabited" , Ingold argues for a conception of the world that "continually comes into being around the inhabitant" (Ingold, 2008 p.143) Livelihood, with its practical, material and technical interactions with the environment cannot be
understood as separate from myth, religion and ceremony. A hunter-gatherer pygmy group in Zaire, for example, builds dwellings that are relatively insubstantial and are regularly adapted to reflect the rifts, goings on between community members; a contrast to the often-unadressed presumption in architecture, characterized as “first plan and build the houses, then import the people to occupy them” (p.180).

To build a case for the validity of such alternative and counter knowledges, it is useful to refer to Jeremy Crampton’s diagram of contemporary mapping as a field of “knowledge and power relations” being pulled in two different directions. (Crampton, 2010 p.5) On one side of a compass-like circle are the experts pushing the securitization of mapping, focusing on technical issues in isolation from their socio-political context. On the other side is the resistance: mapping as art, as amateur practice and as a force that has allowed the resurfacing of what Foucault called “subjugated knowledges”. The resistance is further subdivided between those practitioners who critique mainstream GIS and cartography while supporting the geoweb and those who practice map art, performativity and counter-mapping. An example of the former group is the UK-based OpenStreetMap, which set out in 2004 to map the world using a crowdsourced, wiki-based system, whereby volunteers with handheld GPS uploaded data and imagery to the OSM server. To date the platform has registered 1 million users, 30% of whom have contributed at least one point to the map; the project has effectively forced the UK’s Ordnance Survey to relinquish its tight licensing and copyright controls on its maps making geodata freely available. (Gerlach, 2010 p.165)

While few would fail to be impressed with the power and promise of this wiki-based endeavour, OpenStreetMap nevertheless reinforces the same visual syntax as its dominant rivals, one I would argue is ill-equipped to deal with the space of the modern city. The dominant form of the cartographic map can abstract slow-moving physical features like hills, trees, parks, buildings, rivers, infrastructure, and administrative and political boundaries like state and county lines and census blocks, but has never been very good at showing fast-moving, local things like vehicles or people, and even worse at showing the connections between those things; including the administrative, political and corporate jurisdictions and legislations that define modern city space. With the
With the advent of GIS, we have a layered means of making cartographic tools more adept to revealing the mutability of space, but its machinery remains one aimed at scaling the local to the global. It tends to serve the forces that seek to profit from standardization of space. This deficiency would explain while Crampton is at pains to separate the resistance forces supporting the geoweb from those practicing map art and counter-mapping.

To help theorize the latter, Crampton draws together threads that connect Bachelard’s “poetics of space” with Heidegger’s concept of *dwelling* and George Perec’s invitation to describe urban space in its banal ordinariness. Also cited is Michel De Certeau’s well-known contention that maps, or surveys of routes, end up negating or forgetting our *being in the world*, the “act itself of passing by” (Crampton 2010, p.161-3). The recent work of many practitioners pulling in the map art and counter-mapping direction of Crampton’s diagram is directly concerned with the visualisation of this ground-level experience. In the spirit of Perec’s “species of spaces,” (1974) I will now venture a tentative taxonomy of alternative conceptions of represented space: Air Space, Automated Space, and Ruptured Space.

**Air Space**

At the most fundamental level, the space of the air we inhabit has been utterly transformed in a matter of decades: one simple conclusion from the work of philosopher Peter Sloterdijk is that the biophysical crisis has brought about a realization that we humans exist in spheres of influence, in atmospheres that are shared. To define humans is to define the envelopes, the life support systems, that make it possible for them to breathe. Sloterdijk’s call for a new Rights of Man, “reformulated in topological terms” points to the shift required for us to re-visualise contemporary space:

all men are not only born free and equal but they’re all condemned to look after the space in which they live and ensure the breathability and livability of their environment. This definition concerns so-called private space as much as it does public space. Henceforth, the relationships between citizens are those of mutual poisoning. (Sloterdijk, 2004 p.230)
This calls for a new metrics, to measure the extent of poisoning caused by our actions, which can be tied to the emergence in the 1980s of the concept of “environmental injustice” –designating the social impacts of environmental degradation. Efforts to correlate and visualise economic deprivation and environmental hazards are a significant counter-mapping endeavour, inevitably challenged, as Denis Wood has pointed out, by the extreme costs of compiling databases on the environment, which leads research groups to rely on often-problematic data sources provided by government and institutions. (Thompson and Caquard, 2011 p.26) In a recent survey of contemporary mapping practices, Sebastien Cacquard concludes, depressingly, that the hyper-real perspective that Google has been producing through its pervasive mapping applications has come to seem brighter than the deteriorated environment to which it refers. Paraphrasing the novelist Michel Houellebecq, Caquard offers the “disturbing” provocation, “Google Maps are more interesting than the territory.” (Caquard 2013, p.141)

That the hyper-real perspective of a hegemonic mapping platform neglects to depict the deterioration, or poisoning, of air-space is almost identical to the critique leveled by the BBC writers analyzing a celebratory 1686 map of London produced under Charles I: both neglected to depict actual living conditions.(BBC4, 2010) But a significant distinction can be made between the slum and plague-ridden city of the early Enlightenment and today’s megalopolis, one alluded to earlier in Jameson’s characterization of the “great global multinational and decentred communicational network”. At stake is our inability to visualize the colonisation of space by this network of interests. Curiously, one of the commercial organisations most associated with the democratization of mapping tools is also implicated in this colonisation: Google.

**Automated Space**

Google is entangled in the redefinition of space in several ways. On the surface level, it has become so prevalent a mapping platform that several critics have noted a homogenizing effect in popular cartography: colour schemes have become less saturated, roads have been widened, fonts made uniform, to the effect that it has disseminated, perhaps unwittingly, a decidedly homogeneous version of the world devoid of geographical, political and cultural diversity, despite the variety of user
groups adding information to its applications. (Wallace, 2009)

But on another level, Google’s acquisition of a mapping platform in the early 2000s from the CIA-funded software company Keyhole was a strategic addition to its armory. To add locative technology, to which we can now add the smart phone, to the world’s most powerful search engine enacts a disciplinary space quite unprecedented, one far beyond the panopticon first theorized by Foucault.60

To tease out the threads of this entanglement requires a more dimensional and historical account of space, developed by geographers, Nigel Thrift and Shaun French (2002). In the last 50 years or so, argue Thrift and French, the “technical substrate” of Euro-American societies has been completely redefined as software has come to intervene in everyday life and at the same time assume an unchallenged, “taken-for-granted” position in the background. Drawing from the “machine space” identified by Ron Horvath in 1974, which described a desolate and threatening territory devoted primarily to the use of machines, Thrift and French extend the definition to describe space that is automatically produced:

Wherever we go, then, in modern urbanized spaces, we are directed by software: driving in the car, stopping at the red light, crossing the road, getting into an elevator, using the washing machine or the dishwasher or the microwave, making a phone call, writing a letter, playing a CD or a computer game, the list goes on and on. (Thrift and French, 2002 p.323).

The effectivity of this mechanically-written space, they argue, stems from three different but intersecting geographies: a geography of software production, a geography of power and a geography of play. All three are situated by Thrift and French within critical discourse: software production is concentrated in the US, and characterized by hierarchies of places and people; its geography of power is interpreted in Foucauldian terms to describe how software is an expression of “rules of conduct” which “operate at a distance” so that “too often the code seems to have little to do with the situations in which it is applied”; and its geography of play is defined—optimistically, it seems—

terms of its indeterminacy and lack of closure, which as properties that resist being captured by dominant orders, provide a means of creating “new kinds of order.” (Thrift and French, 2002 p.328)

A decade after Thrift and French’s prescient provocation, automatically produced space is running rampant, and notably so in terms of wayfinding. Space increasingly inscribed by software to the extent that where we go, why we go and what we do when we go is dictated through and by the smart phones, social media apps and satellite navigation systems we carry around with us. The Apple and Google maps on our smart phones also provide a cartographic view of the world that increasingly resembles a video game, one small horizonless screen at a time, in which obstacles are a nuisance and overall orientation is sacrificed for the expediency needs of getting to a single destination in the minimum amount of time.

**Ruptured Space**

Space is increasingly ruptured, by its automatic production, development, colonization and, quite often, by disaster. The use of locative technologies to serve communities in re-connecting ruptured space, seems to illustrate Thrift and French’s case for “new kinds of order” emerging from the exploitation of software’s indeterminate nature. A case in point is the use of Open Street map as the basis for Ushahidi, an open source platform started in Kenya as a way of tracking post-election violence in 2007. Essentially a way to geo-locate reports sent to a website, the platform, together with its visualisation tool Crowdmap, translates, classifies and geo-references (using Google maps/Open Street Map) reports sent by email, SMS, social media, traditional media and voice messages (for the illiterate). (Sheller, 2012, n.56)

In the wake of the Haitian earthquake of 2010, Ushahidi set up a Haitian crisis mapping operation through which people and organisations posted their needs, and volunteers translated and picked up geolocated requests, and reportedly helped save many lives. The cautionary addendum to this much-celebrated project is that very few Haitians had smart phones and broad band access after the disaster. As Mimi Sheller notes, this meant that the vantage points and centres of calculation for the relief effort were outside the country (2012, p.197). Nevertheless, the mapping of post-disaster space
usefully identifies a temporary space that rarely makes it onto a map, but has increasing relevance as we enter the worsening stages of biophysical crisis.

To return to Crampton’s diagram, the uneasy tension between securitization and resistance suggests intriguing problems for the art of mapping resistant practices. Mapping post-disaster space brings up complex issues around data access and ownership. A mapping of least surveilled routes provides material for the next wave of cameras. A mapping that seeks to galvanize networks of hackers, grass roots activists and hacktivists also risks providing valuable information for criminal investigators and prosecutors. A security map of network vulnerabilities by the same token potentially provides a valuable tool for cyber-criminals.

The sense of an impasse remains, however, only if we remain at the level of the map, the visualized outcome of acts of resistance. If instead we consider the acts themselves as part of specific, situated social movements, then the effectiveness or ineffectiveness of a map becomes a secondary concern. This first requires a rather different interpretation of Crampton’s diagram using Gilles Deleuze and Felix Guattari’s concept of deterritorialization. This broad-ranging concept, describing the freeing of a possibility from its former state (Deleuze 1986, p.96), is often used to describe the transnational movement of cultures no longer anchored to place: the migration of peoples, the displacement of refugees, border-crossings and so on. Following anthropologist Arturo Escobar, we might attribute to the securitization side the forces that seek to *globalize* through systematization of mapping, and to the resistance side the forces that seek to *localize*. Both sides deploy technology to network their activities, the key distinction being that the strategies of securitization practiced by the technoscientific establishment produce a delocalizing effect due to their politics of scale. (To map the globe requires the imposition of an abstract system upon it). But at the same time, the forces that seek to globalize are not, as a Marxist reading of Crampton’s diagram might suggest, a single, unified bloc moving en masse. They too are engaged in processes of deterritorialisation and reterritorialisation. Escobar proposes that we learn a feminist “radical critique of power” that fractures this capitalocentric model of a unified bloc and replaces it with a set of scattered practices across the globe: “pluralizing the identity of capitalism – capitalisms – demands…
discursive liberation of places (and the economy) from a total determination by capital, or modernity for that matter." (Escobar, 2001 p.158)

This move, characterized as giving capitalism an “identity crisis” (Gibson-Graham, 1996 p.260-1) grants potency and autonomy to alternative models of development, or rather, post-development. It echoes the writings of many anthropologists on globalization and establishes a framework for Escobar’s discussion of ecological and ethnic movements such as the alternative strategies for sustainable uses of biodiverse resources practiced by activists in the Colombian Pacific rainforest. Confronted with the rapid expansion of palm plantations and industrial shrimp cultivation in the south of this region, activists have initiated research of traditional production systems and redefined the entire Pacific rainforest region in terms of “life corridors” that link people with the natural environment. For example, there are life corridors linked to mangrove ecosystems, foothills, traditional gold mining or women’s shell collecting in the mangrove areas. The point is not to reify or preserve indigenous practices as “untouched” but to challenge the conceptual model that always characterizes the local as succumbing to the global. (Jacobs, 1996: 15, in Escobar 2001: 164)

We might also complicate Crampton’s diagram with Deleuze & Guattari’s less polarised model of resistance and control, in which “Resistances are no longer marginal but active in the center of a society that opens up in networks” (Hardt and Negri, 2000 pp.24-5). In a disciplinary society, control was exercised in the form of public executions and punishments; today control is internalised in the social body, as Michael Hardt and Antonio Negri argued. In short, it would seem that mapping against globalism first requires identifying where globalism has colonized us, our habitus, or the structuring structures that shape how we navigate the world.

A prime reflection of this internalized battle is our ambivalent relationship with technology, which seems to cleave space itself, rupturing us from our immediate environment and suturing us to remote spaces. In his last book, Felix Guattari used

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- Post-development theory challenges the assumption that a “developed” world can impose a standard of progress on the rest of the world, identifying the origins of this assumption as President Truman’s 1949 speech. See Ranema and Bawtree, 1997.
- See, for example, Clifford, J. 1989 and 2012
exactly these terms, rupture and suture, for acts of deterritorialisation. A particularly resonant phrase suggests that counter-mapping is a resistant and fertile impulse in the bid to make sense of the conflicting interests that confront us in our daily lives. “Artistic cartographies have…never stopped being a vital element in the crystallization of individual and collective subjectivities” (Guattari, 1992 p.79).

**Conclusion**

The thrust of this essay has been to explore how visualisation and mapping against globalism has taken shape in the past and how it might take shape in the future. The idea that visualisation’s language—visual and textual— is indeterminate provides reason enough to see reinvention as both possible and inevitable amid the forces of globalism. But a Latourian analysis would remind us that to focus on the visualisation alone is to miss the point that the map is the synthesis or accumulation of interests into immutable form. The reason why an experimental map of indigenous dwelling space would likely not have been successful is because the community needed to mount a convincing counterargument, as opposed to formal innovation.

In other words, a map or visualisation must always be understood as the mobilization of interests, without which it is destined for failure: it is successful inasmuch as it can become immutable and mobile, by gathering support and preserving its claim to truth as it mobilizes. This is why formal graphical innovation must always be the product of a groundswell of change to change anything; otherwise it is doomed to remain gestural and faddish. We are left to consider how the myths of human progress that are written into the language of cartography and visualisation might yet be countered with new myths. To paraphrase Claude Levi-Strauss, myth is countered not by argument but by other myths.63 Escobar’s suggestion is that the capitalocentric myth of an “impossibly large monster that cannot be changed” is a hindrance to the establishment of new myths, myths of alternative models, of meshworks of localised practices. (Escobar, 2001 p.161, 169)

The challenge is simply put, as Audre Lorde would have it, that “The Master’s Tools Will

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63 For a discussion of Lévi-Strauss and myth, see BBC Radio 4, 2013. *Lévi-Strauss*. 

P.A. Hall/exegesis 

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Never Dismantle the Master’s House."\(^{64}\) That the very syntax of visualisation and mapping is inscribed with the interests of the dominant forces that mobilized them, is a reminder that space must be re-imagined to be re-mapped.

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\(^{64}\) See Lorde, 1984


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APPENDIX C:

The critic is not the one who debunks, but the one who assembles.¹

In this paper I will propose a response to the crisis of criticism in general and as it has been articulated in recent debates in the academic and popular design media. The response draws from the techniques of Bruno Latour to imagine a non-dualist, mapping-based approach to criticism that anticipates ongoing and future shifts in the understanding of design. My aim at this point is to achieve a framework for a productive and generative criticism that accounts for design practice in all its forms, rather than the entrenchment of an academic discipline.
The People vs Academe

The crisis of criticism, which has been discussed for a while now (see Eagleton2), seems to be now oscillating between tragedy and farce. On the farcical end, the “like”, “recommend” and “comment” functions of contemporary online discourse have become so ubiquitous that they appear to have infiltrated all discourse, from undergraduate essays to student evaluations to reality TV shows. On the tragic end of the crisis, the rarefaction of critical discourse in its respective academic silos continues apace, seemingly in spite of its own efforts to address seismic societal and environmental change in an urgent, interdisciplinary way (see Cohen et al,3) The University is once again in ruins, to paraphrase Bill Readings, while the social mediasphere is buzzing with opinions and expertise that are increasingly difficult to tell apart.

This paper will endeavour to draw from constructive strands of criticism that have emerged in the field of science and technology studies, specifically Bruno Latour’s position that a critic should be one who assembles rather than debunks. This position, I will argue, is particularly useful for design criticism as it moves beyond its original birthplace as a spin-off of art history and theory. The bid for freedom from art history’s clutches, as we shall see, has not come without much soul-searching about design’s proper jurisdiction and direction.

A post on the influential blog Design Observer by a leading graphic design writer and critic, Rick Poynor, in many ways exemplifies a growing rift between academic and professional understandings of the purpose and value of criticism. Rudely characterised, the professional position is that design criticism is useless unless it engages the profession on its own terms. Poynor’s related argument, that design academics produce material that rarely makes it into “the field’s everyday discourse” included the implication that academics were afraid of the comment column:

It’s hard not to suspect that some design academics nurture an ingrained reluctance to expose themselves to the rough and tumble of more public forms of scrutiny and comment.4

The recent issue of the academic journal Design and Culture provided a forum for six scholars to respond to the debate sparked by Poynor’s post. Here, in a blog post and 39 fiery comments, followed by 40 pages in a small-circulation journal, was the opinion-versus-rarification problem dramatically played out. Leading the charge from the academics was Meredith Davis, who writes that Poynor failed to observe a distinction between design writing by professional critics (like Poynor) and scholarly research writing. The role of the former is “to critique the work of designers, discuss the behaviors of the profession at large, and analyze trends shaping design practice” — this kind of criticism appears in magazines, blogs, journals and books. The role of the latter, argues Davis, is the “transfer of knowledge in the discipline and upon which the future work of other scholars will be based” and results from investigations that conform to research standards and is “subject to a vetting process that confirms its relevance and rigor.” This kind of writing appears in peer-reviewed journals or conferences.5

Davis’s position is premised on the need for design to achieve maturity as an academic discipline — a position shared by design historian Kjetil Fallan, who goes as far as to

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argue, in the same issue, that design history needs to be "detooled" to enable it to stand in its own right rather than simply serve as "context, background, legitimacy, and inspiration to design education and practice." Davis and Fallan's position is understandable. As the former director of the North Carolina State University PhD in Design, one of only a handful of such degrees in the United States, Davis has become a key advocate for rigor in design research, which she argues is hampered by confusion about (1) what constitutes research, (2) little history of research writing in the field and in design education, and (3) the absence of a disciplinary database. Both Fallan and Davis note that other fields offer more clear cut divides between vocational and research paths: No one expects artists to also be professional critics and art historians, argues Davis, nor do we assume the same people working on a cure for cancer and writing for the New England Journal of Medicine are also dispensing flu shots to patients in a clinic.6

There are two difficulties with these arguments, however, both stemming from the fact that they draw models from the historical patterns of disciplinary formation. The first is that if we follow Fallan's logic and "detool" design history by detaching it from its duty to inform practitioners then we are in danger of being left with a history without relevance. It is true that history and criticism cannot be confined by current conceptions and limitations of professional design practice—its habitus—but at the same time, the larger geopolitical, cultural; societal shifts that affect the profession cannot be ignored. Now we are moving beyond what Latour calls the “modern parenthesis,”7 design history and criticism is beginning to realise that the legacy of design practice is deeply entangled with the legacy of modernity, with its two-faced god of human creation and massive environmental destruction. If history is "constantly being rewritten,"8 then surely it is currently being rewritten (or needs to be) to reflect on that legacy. The second, related, difficulty is that Davis's efforts to legitimize the academic field of design comes with the danger that a disciplinary boundary is drawn around "legitimate" design research and its "acceptable" subject matter that ultimately stifles its development. Anne-Marie Willis gives voice to both these difficulties in the last essay in the Design and Culture issue, with her prediction that design writing "will die...or just shuffle in the shadows if it stays bonded to design as it is now."9

Willis describes both journalism and academic writing in design as “circumscribed”, in the academic case by performance criteria and the contradictory desire to claim distinctiveness for design process and then turn that distinctiveness, once nailed, into a "piece of software" or repeatable step-by-step process. She calls for an antidote to what she calls design writing “from the inside” in the form of a more open-ended inquiry:

The obverse of self-enclosed writing on design process, designers and the like is the kind of thinking and writing that engages design outside of professional enclaves, and considers it as encountered in the world... It requires an understanding of the contexts of design: culture, economy, sociality, power, and the political...Writing on design that has such an ambition draws on thinking from, for example, philosophy, sociology, anthropology, and cultural theory.10

6 Ibid., 10.
8 Christopher Crouch, Modernism in art, design and architecture (Palgrave Macmillan, 1999). 1.
10 Ibid., 41.
The case for a broader definition of design, most vociferously made by Tony Fry, warrants further discussion. Design historians and historiographers have frequently noted the arbitrary parameters and Eurocentric bias of the accepted material of design history. (As John Walker put it, “why are design historians so unimaginative?”) At the same time, stretching the boundaries of the design “discipline” is a radical project that ultimately questions the need for a discipline at all. Can we achieve rigour in a nascent field if the field is both ill-defined and more rigorously interrogated by non-design disciplines?

Rather than embark on a historiographic discussion, it is the aim of this paper to turn back to the core material of design discourse — the work done by people who call themselves designers — and ask if it might be redirected as Willis suggests, away from its circumscribed and self enclosed tendencies. I have previously attempted to stake out a position along these lines by advocating an approach to design criticism fueled by journalistic reporting and informed by a “sociological turn” in science and technology and material culture studies that calls for methods that look closer at the contexts of production and consumption in which designed artifacts emerge and circulate. I will attempt to develop this position further here in light of Latour’s call for a critic who assembles.

**The Case for Evidence**

The motivation for my argument comes from recognising in related academic fields an attention to evidence that seems to be in short supply in design criticism, but which is produced routinely by a journalist. In my 20-odd years as a reporter and writer for design magazines and newspapers, the material unearthed has the flavour of an archive: interviews with designers, their clients and experts in the various disciplines recorded in notebooks, on cassette tapes, as digital audio and video; correspondence, company archives and press releases in paper and digital form; field trips to building sites, skunk works, museums, airports, hospitals, and designers’ offices recorded in photographs (film and digital) and again in piles of notebooks. Archive is an appropriate word in the sense that the reporter, and particularly the trade magazine reporter, always investigates within a heavily circumscribed culture of practice. As previously noted, journalistic design writing is rightly viewed with suspicion because it is perceived to operate under the constraint of needing to “support the industry it serves.” At the same time, journalistic writing is commonly informed by critical theory—sometimes without the journalist knowing it.

A concrete example might help at this point. In 1998, living in New York City, I became quite interested in neon signs, an interest that extended through several essays over the period of a decade. The tools of the journalist are always empirical; to write a story you must report, but at the same time, design criticism during this period tended to work at the level of decoding the image, looking for loose threads that might unravel the tightly knit mythologies at work in a given subject, imposing a singular re-reading that revealed “true” ideological motives.

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12 Ibid.
My first neon article was for The Guardian newspaper’s Weekend section, whose editors, seeing an opportunity for a colour pictorial feature, responded to a proposed news hook on the restoration of neon signs in Las Vegas under a city-funded initiative called the Neon Museum. After interviewing the museum’s director and representatives of two sign-making companies, including the Young Electric Sign Co, owners of the famous “neon boneyard” of discarded signs, I constructed a descriptive account of the museum’s context and development, propped up by references to Robert Venturi, Steven Izenour and Denise Scott Brown’s seminal study Learning from Las Vegas. Since Learning from Las Vegas drew its critical approach from Jean Baudrillard’s concept of the signifier without referent, it was relatively easy to allow my critique to dwell at the level of ironic appreciation of American hyperreality—as Venturi et al put it, “If you take the signs away, there is no place”. The restored neon signs were placed strategically around the sleazier downtown end of the city, where their original referents had long been removed:

The uninitiated visitor might be somewhat mystified by the appearance of electric advertisements for absent attractions. The Flame Restaurant sign, rescued from the roof of an early ’60s diner long since demolished, features a long, swooping pink arrow pointing to a void where food once was served.¹³

Despite the pleasure of identifying a literal example of the vanishing referent, this mode of design criticism, which “reads” designs as texts and revels in the absurdities of an economy of signs, is perpetually in danger of irrelevance. The problem is related to what John Stewart has called a “two world” orientation, which insists on “a fundamental distinction between two realms or worlds, the world of the sign and the signifier, symbol and symbolized, name and named, word and thought”.¹⁴

To quote from Baudrillard’s book America is to identify, immediately, this problematic two-world orientation: “The Americans, for their part, have no sense of simulation. They are themselves simulation in its most developed state,” he writes, clearly more inspired by hotel staff in Southern California than, say, construction workers in Brooklyn or lobstermen in Maine. It is also to see the perennial European condescension of American culture, which undoubtedly informed the tone of my Guardian report. Baudrillard writes of America:

things seem to be made of a more unreal substance; they seem to turn and move in a void as if by a special lighting effect, a fine membrane you pass through without noticing it. This is obviously true of the desert. It is also the case with Las Vegas and advertising, and even the activities of the people, public relations, and everyday electronics all stand out with the plasticity and simplicity of a beam of light.¹⁵

This approach to criticism had to come to an end because the two-world separation couldn’t hold—at least not for design criticism. For art theorists accustomed to a primary subject matter of images, Baudrillard’s precession of signifiers was an easy fit. But design has always been insistently material, which is why, for example, the whole area of ergonomics was never successfully incorporated in a critical account of design.

Dualism and Pluralism: Critique’s Unwanted Offspring

More broadly, the practice of deflating bubbles of meaning came increasingly to seem detached from the very material catastrophes pressing for urgent responses. In his 2004 essay, “Why has Critique Run out of Steam?” Bruno Latour cites a quote from a strategist for the right wing Republican party who laments that the scientific debate on global warming is “closing against us”, but advises that it is tantamount to continue to make the “lack of scientific certainty a primary issue.” The tools of critique, notes Latour, which exposed ideological argument posing as matters of fact, have now been used to nudge a public into distrusting good matters of fact. Could the fault be partly with critique itself? asks Latour:

entire Ph.D. programs are still running to make sure that good American kids are learning the hard way that facts are made up, that there is no such thing as natural, unmediated, unbiased access to truth, that we are always prisoners of language, that we always speak from a particular standpoint, and so on, while dangerous extremists are using the very same argument of social construction to destroy hard-won evidence that could save our lives.

In addition to the appropriation of critique by extremists, argues Latour, there is something “troublingly similar” in the structure of conspiracy theories and a teachable version of social critique inspired by a hasty reading of Pierre Bourdieu.

What has critique become when a French general, no, a marshal of critique, namely, Jean Baudrillard, claims in a published book that the Twin Towers destroyed themselves under their own weight, so to speak, undermined by the utter nihilism inherent in capitalism itself—as if the terrorist planes were pulled to suicide by the powerful attraction of this black hole of nothingness?

The problem seems to be that critique led us, unintentionally, from dualism to pluralism. Baudrillard and company leaned on a fundamental distinction between the world of the symbol (the continuously replayed footage of the Twin Towers’s collapse) and the world of the symbolized (the bricks and mortar, dust-choked air, smell of fire and death). At the same time, critique has been disempowered by pluralism, a pluralism that was spawned by critique itself.

The philosophy and techniques practiced by Latour and colleagues, on the other hand, set out not to show that anyone’s facts are as good or bad as anyone else’s but to analyse what makes certain scientific claims strong and others weak. From the outset, Latour embraced a monist or non-dualist ontology, a world of socio-material hybrids in which humans and non-humans had agency. His method, loosely characterised, was to examine the human and non-human actors gathered behind a fact or a claim, which he did with analyses of the discoveries of Louis Pasteur, Francis Crick and Jim Watson and the demise of the French public transport experiment Aramis.

As Latour has argued in his most influential work We Have Never Been Modern, critics have developed three distinct approaches to talking about our world: naturalization, socialization and deconstruction, loosely aligned with three fields and scholars: biology (E.O. Wilson), sociology (Pierre Bourdieu) and deconstruction (Jacques Derrida). If
the biologist speaks of naturalized phenomena, the discourse of societies and subjects vanishes; if the sociologist speaks of fields of power, then “science, technology, texts and the contents of activities disappear.” If the deconstructionist speaks of truth effects, then “to believe in the real existence of brain neurons or power plays would betray enormous naïveté”. In short, each of the three forms or criticism is powerful but “impossible to combine with the other two.”

By way of example, Latour would have us practice the three critiques simultaneously on the hole in the ozone layer; the result of which would be “grotesque”: the ozone hole is too social and too narrated to be truly natural; the strategy of industry and politics is “too full of chemical reactions to be reduced to power and interest; the discourse of the ecosphere is too real and too social to boil down to meaning effects.”

The problem, as Latour explains in We have Never Been Modern, is that of Modernity’s dual tendency to create hybrid nature-culture networks and then purify them by separating humans from non-humans. So while the ozone hole investigation would link chemistry, industrial strategy, political preoccupations, and ecological anxiety in a hybrid nature-culture network, the “modern critical stance” would separate the natural world from society and discourse. To reinvent criticism requires a fundamental philosophical shift, to acknowledge that we have never been modern.

Here, Latour shows the influence of Michel Serres, who in published conversations with Latour argues against the conceit that the present day always represents the culmination of scientific and technological progress. He aligns this adulation of the present with a linear view of time that imposes a constant distance between moving objects. Citing the contemporary relevance of the work of Lucretius and Pythagoras in modern-day science, Serres makes the case that we reconceive linear time intuitively as a “crumpling, a multiple, foldable diversity.” The modern-day scientific paper can thus be aligned with the modern-day car, which Serres calls a “disparate aggregate of scientific and technical solutions dating from different periods”:

One can date it component by component: this part was invented at the turn of the century, another, ten years ago, and Carnot’s cycle is almost two hundred years old. Not to mention that the wheel dates back to Neolithic times. The ensemble is only contemporary by assemblage, by its design, its finish, sometimes only by the slickness of the advertising surrounding it.

It is liberating to imagine how these philosophical shifts might shake up design criticism. First, the conventional positioning of design as a subject of study whose jurisdiction extends only to the dawn of the industrial revolution in Britain begins to look increasingly arbitrary. If the wheel is Neolithic, isn’t it, too, design? Second, the notion that the ozone hole is simultaneously natural, man-made and political suggest that it, too, is a designed artefact and that to understand it, we must look closer at the actors that are gathered around it, or in it.

Latour has suggested that we reimage criticism not as something that looks for sweeping explanations but one that looks closely at things, and asks how they got there. He calls this a “multifarious inquiry launched with the tools of anthropology, philosophy, metaphysics, history, sociology to detect how many participants are gathered in a thing to make it exist and to maintain its existence.”


21 Ibid.


23 Ibid.

Applied to the more conventional subjects of design discourse, these shifts suggest a refreshingly object-oriented approach, one that replaces epochs and movements with hybrid nature-culture networks. Graham Harman’s characterization of Latour’s philosophy is “object-oriented”:

The world is a series of negotiations between a motley armada of forces, humans among them, and such a world cannot be divided cleanly between two pre-existent poles called “nature” and “society”.25

Instead of a reading of a designed object that looks for the solution or motive that explains away the entire project as the product of a childhood trauma, sibling rivalry, economic forces or state oppression, we would look closer at what is gathered in a designed thing. No more looking for formal resemblances with which to construct a lineage from William Morris to the Bauhaus—Nikolaus Pevsner’s famously reductive and exclusionary account of the pioneers of modern movement. Even the notion of a movement is suspect for its simultaneous reduction of things to their visual representations and of the past to the “look that defines the epoch”. In short, our role as design critics of the 21st century is irreductive: to adopt the terminology of Actor-Network Theory (the technique with which Latour is most closely associated), to critique is to dismantle the black boxes of design history, not to sweep the contents aside and point to a singular cause outside the box, but to shed light on who and what is in there, to gather evidence.

Getting Physical with Neon

Back to concrete examples. Revisiting the topic of neon in subsequent years, it became apparent to me that there was room in a critical writing for a kind of reporting that sought to redress the obsession with simulacra in criticism, and “assemble” very material accounts of the “special lighting effect” that Baudrillard used to describe the entirety of American culture. In the first instance, this took the form of straightforward research, unearthing the oral histories of the designers who participated in the construction of the Las Vegas signscape. Interviewing four of the designers (age range 58-84) from the city’s neon heyday was conceived as a strategic rebuff to Venturi’s account of the city’s supposedly anonymous vernacular. To quote Tom Wolfe,

it becomes important not to mention the names of these people if you want to treat their work like primitive art, like Easter Island icons. (quoted in Bierut26)

In several cases, the quotations I selected from phone interviews pointed to the rituals and practices of the sign-makers, which were strikingly visceral. For example the appropriately named “Buzz” Leming’s account of the launch of a completed sign:

Once in a while there would be a switching on ceremony. The Stardust had thousands of feet of neon. When we lit that thing up, we had guys on radios—“—‹‰”ƒ…ƒ†ˆ’—Š…Ї…‹‰–ЇϐŽƒ•Š‹‰ƒ…–‹’Ǥ	’ƒ†‡•‹‰•–ƒ†’‹–ǡ

the switching-on is an excellent moment.27

The designers’ dependence on the frenzy of obsolescence in the economic infrastructure is also evident in the quotes, as Leming again indicates:


When they blew up the Sands (hotel) I watched it on TV. It was pretty impressive, but sad to see it go. The hotels get tired of looking at the signs, but I guess that’s what keeps us in work.  

If the reporting uncovered networks of actors, material, economic, semiotic, and human, lurking behind each sign, it required a further exploration to comprehend the agency of the sign. In “Neon Typography,” an essay I published in 2008, interviews with sign designers were in-person and in-depth, thus avoiding the more canned, nostalgic responses typical of the Vegas designers interviewed on the phone. The interviews focused on materials and processes, rather than the finished, glowing artefact, as perpetually photographed at night.

The neon sign, it turns out, is a very active actor, being the product of rare gases charged at high voltage in sealed tinted glass tubes. The semiotic and material motion is remarkably similar, the gas molecules are excited in a contraption designed to elicit excitement—or at least notice—in the passing motorist. Indeed a non-dualist perspective would allow us to combine the semiotic and material in one hybrid thing. The empty promises inherent to advertising—its failure to deliver—are reiterated at every stage of neon’s production and implementation. Bending glass to mimic handwritten or printed letterforms is itself a project of negotiation between human craftsmen (“benders”) and immaterial desires (glass must be heated to near-breaking point, while the bender puffs blasts of air into the tube; bubbles and kinks are inevitable.) It is generally more economical and efficient to make an entire word out a single glass tube, in sections up to eight feet long per transformer (which is as much gas as the transformer can charge up). But as most designers and even design critics know, making display type using script fonts is a short cut to illegibility, particularly if in the production your letterforms are going to bleed excessively. So while the glass tubes require continuity, the glow of light, the bleed, requires separation to make it readable. The solution is to paint the tube black in the connecting sections, so that the letters appear discrete. Legibility is achieved by simply painting out parts of the letters, rather like tweaking your newly designed typeface by applying correcting fluid to the stems, serifs and ligatures.  

"Neon Typography" in many ways sits somewhere between modes of criticism discussed above. The decoding critic looks at the lush photos of neon at night and neon discarded in a boneyard by day, and contrives a narrative of promise and disappointment, a “a pathos in this contradiction, between the backside of neon, with its blackened tubes, tangles of wires, transformers and then the unearthly glow of a rare gas charged at high voltage at night.” The trade journalist, duty-bound to inform and engage the profession he serves, feels obliged to identify a salvation for the craft and material under discussion—despite its obvious entanglement with material waste. The first salvation is attempted through appeal to invention, by discussing the recent technique among neon innovators of painting the entire frontside of tube black, so that coloured light on spills from the back of the letters, to interesting effect. The second salvation is through appeal to archetype—as Northrop Frye might have written of neon—in the idea that spelling out letterforms in light has a richer deeper cultural history connected to fire and Eastern Mysticism. Neither salvation is satisfactory because the critic has already debunked the entire enterprise as hyperreality.

28 Hall, “Unplugged: When Twilight Falls on the City of Neon,” 68.
30 Ibid.
This lingering ambivalence, between aloof critic and embedded reporter, resembles what several critics of Actor-Network Theory have found deficient in its retrospective account of science and technology’s development: its inherent amorality. Nick Couldry has argued that Actor-Network Theory (ANT) ends up being politically conservative because in its emphasis on ontological parity of human and non-human actors, it fails to account adequately for the effects over time of human power differentials and the possibility of resistance to wider power structures. Latour’s distancing from ANT in recent years has accompanied projects directly aimed at providing an account of human agency in politics and the problem of representation. The challenge can be put more crudely for design criticism, which, as noted above, is entangled with professional practice in a dialogue that requires mutual exchange and advancement. Unless we are to follow Fallon and relieve design critics and historians of an obligation to address design practice, we are faced with the same old question. In short, how does critique present a way forward for design practice?

**Giving Critique a Direction**

The future direction for design criticism is in fact closely related to the problem of political representation. Having deconstructed the humanist subject, how do we reconstuct the world to allow for change? It is interesting to note that the same question has been levelled at the work of Michel Foucault, on whose intellectual legacy modern day critique—including ANT—was built.

In a 1981 interview on French politics, Foucault presented a definition of critique that reminds of the building work required in a critical project:

> A critique does not consist in saying things aren’t good the way they are. It consists in seeing on what type of assumptions, of familiar notions, of established, unexamined ways of thinking the accepted practices are based.

In directly rebuffing the interviewer’s suggestion that political and social reform is unrelated to critique, Foucault reminds that “reforms do not come about in empty space” and that criticism consists in uncovering that thought and trying to change it: showing that things are not as obvious as people believe, making it so that what is taken for granted is no longer taken for granted. To do criticism is to make harder those acts which are now too easy.

The notion that critique functions in partnership with practice to instigate social change is often forgotten in current critical discourse, where the goal might be described as the seeking of reputation – be it in the ivory halls of academe or on the blogosphere. James Faubion’s edited volume of Foucault’s later work on power and the political characterises a “coherent body of political ideas” and notes that the French government’s 1981 abolition of the death penalty, liberalization of political asylum and penal reforms point “by general consent” to Foucault’s voice as an effective influence. “Foucault was interested in the possibility of gaining, helped by historical analysis, new and more effective political ways of seeing,” argues Faubion.

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32 Latour, “Why Has Critique Run out of Steam?”


34 Ibid.
Gilles Deleuze’s account of Foucault’s method, in a chapter he titled “A New Cartographer” focuses also on power conceived “less a property than a strategy” that can be defined “only by the points through which it passes.” Deleuze’s paradigmatic example is panopticism, the seminal account in Discipline and Punish of an architecture entangled with a system of penal law: “a system of light and a system of language.” While its physical purpose is to “see without being seen” Panopticism’s abstract formula is “to impose a particular conduct on a particular human multiplicity.” In a typically dexterous move, Deleuze then converts architecture into an abstract machine and a diagram. A diagram, according to Deleuze, is made up of several superimposed maps, “And from one diagram to the next, new maps are drawn.” He closes the chapter on Panopticism with a definition of writing that aligns it with a mapping practice, not of calmly tracing but of striving to identify what is being excluded or placed outside by each diagram:


to write is to struggle and resist; to write is to become; to write is to draw a map: “I am a cartographer.”

A Mapping-Based Criticism

Herein lies a succinct account of a critical practice that simultaneously maps and agitates; a diagrammatic account that sheds light on the human and non-human agency inherent in a subject, in this case a system of building and law. Might this mapping-based writing be then applied to the kind of journalistic design criticism being advocated here?

A second test case from my own archives is an article researched for Metropolis magazine on the research work of industrial designer Roger Ball. The news hook was simple: Ball, recently relocating to Hong Kong Polytechnic University from a professional design studio in Toronto, had decided to focus on a problem from his own practice as a designer of snowboarder helmets: that the anthropometric data available for headgear was not as universal as its authoritative, scientific aura suggested. In 1998, the Vermont-based snowboard manufacturer Burton had held a meeting to find out why one of its award-winning products, a helmet, had sold well in the US and Europe but miserably in Japan, the world’s third largest snowboarding market. In attendance was a group of Japanese snowboarders, and Ball, whose Toronto firm Paradox Design had designed the helmet. The answer from the snowboarders had nothing to do with colors or styling, recalled Ball.

“They said, “we can’t wear it — it gives us a splitting headache.” I asked why and they said, “We have a different shaped head than you.””

Ball ascertained that while there is plenty of existing research into measuring and codifying body shapes and sizes to help improve fit in the West, with benchmarks like Henry Dreyfuss Associates’ 1960 Measure of Man charts and the more recent US Airforce-initiated Civilian American and European Surface Anthropometry Resource (CAESAR), there is no equivalent in Asia. He secured a Government grant, three industry sponsors, six partner universities and a research team, and began a field study, taking a mobile lab of 3D scanning equipment around mainland China, to scan 2,000 civilians.
The fieldwork produced a commercially available database of anthropometric data, Size China, and a body of evidence to support a case for ejecting a long-standing presumption that human sizing can be proportionally scaled.

A Foucauldian critique of anthropometry would seek to expose the solidification of its discourse, tracing the power dynamic that characterises the historical process and manifests itself in the DNA (to extend the genealogical metaphor) of present day anthropometric standards. Anthropometry’s origins are famously in criminology: French police officer and researcher Alphonse Bertillon’s measurement and classification of physical cranial features preceded fingerprinting as a means to identify convicted criminals in 19th Century Europe. Shortly after Bertillon invented anthropometry the Italian criminologist Cesare Lombroso began theorizing that criminality was inherited and could be identified by physical “defects”. This jump from measuring heads in order to keep criminal records to measuring heads in order to predict criminal behaviour is what Actor-Network Theorists would call an act of translation—one that ultimately is revealed to be lacking evidence, to the extent that the practice was discredited.38

A design critic under the heavy influence of Foucault and Deleuze, however, might be tempted to keep digging. Power runs through this project like the veins in blue cheese. In the 19th century what Adas calls the “civilizing mission” was well underway, with European nations voraciously colonizing lands in African, South America, Asia and Australia, hiding brutal exploitation under the guise of humanitarian motives. Many 19th century writers at the time equated the imperialist projects of Europe with the “triumph of science and reason over the forces of superstition and ignorance which they perceived to be rampant in the non-industrialised world.”39 Particularly prone to adaptation was the theory of evolution, which suggested to many writers that there was a rating system for the gradations between savage and civilized cultures, visible in the degree to which they had managed to harness nature. The most pernicious and dominant of these adaptations was recapitulation; the idea that the most highly evolved species went through the stages of development of the rest of the animal kingdom. Lombroso thought he had discovered anatomical similarities in criminals recalling an apish past rather than a human present.

Although recapitulation was discredited as a theory, its hierarchical and colonial flavour persisted into the early 20th century in the form of eugenics, the idea that humans could and should be designed to breed out ugliness, genetic deficiency and disease. We tend to associate eugenics with the compulsory policies of immigration, sterilization and euthanasia in 1930s Nazi Germany, but model laws for the Nazis were provided in the United States: the supreme court upheld a law in 1927 on the compulsory sterilization of imbeciles. President Calvin Coolidge in 1921 argued against miscegenation that “divergent people will not mix or blend,” and large philanthropic organisations actively supported eugenics research.40

By the time we get to 1960, when Henry Dreyfuss Associates published its first universal guide to human measurements, it is easy to see why it was felt appropriate to base The Measure of Man on anthropometric charts produced for the US military, and assume those already selected body types were “typical Americans”.

39 M. Adas, Machines as the measure of men: Science, technology, and ideologies of Western dominance (Cornell University Press, 1990). 204.
The power dynamics running through the history of anthropometry, then, would suggest, following Foucault, that the practice of measuring heads and developing standards is one that seeks to exclude, and through exclusion, control who gets counted as a universal human. Shortly before Alvin Tilley drew the first charts in 1946, Japanese civilians living in America were still being rounded up into internment camps. At the same time it would be absolutely counter to the Latourian method to allow this characterization of power to explain away the entire project of anthropometry. The Size China project needs to be understood as a corrective to the sweeping standardizations of history. The golden optimized head forms created by Ball with the data gleaned from 2,000 Chinese civilians do not claim to be the measure of man. At the same time they should be considered in light of the limitations, exclusions and pernicious history of head measuring.

It might seem a stretch to open up the golden, optimized head forms created by Ball with the data among the 3D scanners, analog measuring devices, and participating universities a gathering of Nazis and US presidents, 19th century policemen, criminologists, and explorers — but that is what is being proposed here for a mapping-based criticism. To explain anthropometry only in terms of colonial legacies and racist science is to sweep aside the details, the objects and evidence. To focus only on the functional aspects of the project, the how of the research and technology, is to miss the tensions and hazards present in the project. Indeed, Ball presented the project to a stony-faced audience in Austria, where consciousness of anthropometry’s dark history was a little more painfully present. “It’s a little bit of a Pandora’s Box,” Ball admitted to me in an interview.41

A mapping based criticism attempts a tricky reconciliation, between a Foucauldian tradition that tends to look for linear genealogies with characteristic asymmetrical power dynamics, and a Latourian tradition that tends to look for local power plays in which human and non-human actors take on more symmetrical roles. Both traditions are joined, however, by their critical outlook upon modernity and their non-dualist emphasis on the material. By refusing to separate symbol from symbolized, both are able to account for material evidence in the critique of a project. If the Foucauldian tradition reveals unexamined ways of seeing and thinking, the Latourian tradition exposes how those ways of seeing and thinking get embodied in material form such that designed objects take on the force of nature.

Conclusion

I have endeavoured to argue here that criticism can be reconceived as a constructive and relevant activity, involving field research that seeks to uncover the actors involved in a given project, rather than debunking it through a reading that finds a singular explanation: hyperreality, colonialism, society, etc. I have also attempted to show, through examples from my own journalistic reporting on design, that it is possible to achieve an understanding of designed artefact’s power by tracing its genealogy, without losing sight of the local evidence. These are tentative steps toward a mapping-based criticism, but it is hoped that they begin to provide a direction for the enrichment of

41 Hall, “Sizing China: The world’s first digital database of Asian head and face shapes could help change the way all industrial designers think about ergonomics and fit.”
design practice, rather than aiming for the establishment of a discipline with rigid boundaries. Criticism is an art that requires paying close attention to the artifact under discussion, while not losing sight of the larger shifts that are influencing the nature and behaviour of that artifact. Fundamentally, designed artefacts never belong to design alone, and therefore warrant an interdisciplinary interrogation. At the very least, it is hoped that criticism will be recognized as a vital and generative activity quite far removed from the taste-making and opining that dominates mainstream discourse.
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