SCOURING THE THIN CITY
An investigation into Perth through the medium of mapping

A project submitted in fulfilment of the degree of
Doctor of Philosophy

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Beth George

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Perth, Western Australia – a city become region one hundred kilometres in length and expanding yet – is a place variously adored and scorned; one noted widely for its landscape and its horizon, and relatively rarely for its architecture. Young, low lying, and sparsely lined with built form, Perth might be described as a thin city.

The intent of this research is to entreat an optimistic and inquisitive reading of the city of Perth through the conceptualisation of a set of narrative threads. Six fictive interpretations of Perth, each denoting qualities of thinness, are cast toward the factual city, inviting both confirmation and opposition to their themes. They are: private city, wide city, even city, city of the immediate future, reserve city and city of form fixation. The process of elucidating and questioning the presence of these narratives allows for thicknesses to emerge from the city region; latencies with which the city can be redressed.

The mechanism for directing this interpretive view of the city is the process of mapping. Each narrative thread has been explored through the formulation of a set of maps as a visual text. Through the paired workings of the narratives and the mappings, opportune conditions and operations are uncovered within the thin city, complexities that belie the ubiquity of the city’s surface.

Mappings shift in scope from the scale of the region to a site of richness at its core, sampling out entities, structures and performative processes at work in the city’s plan, distilling opportune sites that are then explored via the architectural project. At once analytical and synthetic, mappings identify existing points of intrigue in the city’s plan and simultaneously invite their extrapolation. With the thin city narratives driving the content of the maps and forming the basis for their projectual exploration, this research seeks to engage with the nascent city and offer to it an armature for its amplification that operates within the city’s delirium, its peculiarity, its distinctiveness.

ABSTRACT
Inquiry
This body of research is concerned with a fictional reading of a real city. Its aim is to entreat an inquisitive gaze at a city that holds little architectural estimation and immense architectural potential: the city of Perth, Western Australia. The research uses a set of narrative threads — imagined cities — to generate a framework through which the factual city can be interpreted. These narratives, called the thin cities, derive from various qualities of thinness attached to the city, but through their exploration and mapping, begin to expose sites of thickness, inviting architectural speculation that operates within the peculiarity, the distinctiveness, and the delirium of the city of Perth.

Context
The Perth metropolitan region, one hundred kilometres in length and as many years deep, might be described as a thin city. A slowness to formulate an endemic strategy for urban design, affected by limited local precedent and coupled with a quickness to build, has seen Perth establish a tradition of “making do”. A young city, and meagrely spread over low lying terrain, Perth in its outward suburban march has rarely been credited as a significant urban metropolis, but is not devoid of meritorious works or urban potentiality.

Method
Variously valid and assumptive notions paint the city of Perth as anything from boring to ideal. The intent of the thin city narratives is to evaluate and disseminate these suppositions through the formulation of an objective view. Six in number, they are private city, wide city, even city, city of the immediate future, reserve city, and city of form fixation. These narratives constitute the research questions for a series of mappings to address. Behaving as a set of codes, they imply for architecture the possibility of amplification or, inherently, invite opposition to their themes.

Medium
As a city alternately praised and reviled, and one noted more for its landscape and its climate than for its architectural merit, research into Perth

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1 The term ‘gaze’ is used here with reference to Manuel de Solá-Morales’ A Matter of Things, in which the gaze can be understood simply as a means of interpreting the city; “an attentive and cautious approach to the richness of urban sites – both their existing richness and, above all, potential richness. This assiduous gaze becomes the start point for resolutions, which though distinct in every case are always bound up with the city that lies beyond.” Manuel de Solá-Morales, A Matter of Things (Rotterdam: NAI, 2008), 18.


requires a mode of examination founded in the analytical. The mechanism for directing a gaze at the city, and for articulating the presence of the thin city narratives, is the practice of mapping as a quantitative mode of reading the city. Perth’s shallow and for the most part unrevised development has lent the region a quality of legibility that makes its story explicit in the plan.

A map is an ideal text for understanding the city, tying architecture back into the drawing from which it inevitably began. The formulation of mappings as a discursive text has been utilised by Mario Gandelsonas in the analysis of various North American cites, in which the drawing begins to reveal fundamental characteristics of the city as artefact.5 This process has a twofold ramification; on the one hand to describe and the other to project. Mapping the city is a simultaneously analytical and synthetic act: in Manuel de Solà-Morales’ words, “to draw is to select, to select is to interpret and to interpret is to propose”.6 The term ‘scouring’ in the title of the research is reflective of this activity: it refers to the excavation and layering inherent in the mapping process; of sifting through vast quantities of space and data to expose particular physical and perceptual qualities that inhabit the city. It is at this point of exposure that the map becomes descriptive and, simultaneously, suggestive.

Beginning at the regional scale and refining to a site of friction and richness within the city’s core, mappings enable sites of intrigue to emerge out of the city’s plan, allowing the research to unfold as a visual text. By posing the questions of the thin city narratives and investigating their significance through analytical mapping, the readings become a means by which the city region can be studied, layered, and delayered to reveal varying conditions, gaps, and latencies which can then be explored via the architectural project.

The objective of the thin city narratives as the method of the research, and mapping as the medium of its investigation, is shared: both are designed to articulate the existing and invite the speculative. By identifying points of thickness in a city presumed to be thin, the research aims to lend to the city the freedom “to elaborate the terms of its own distinctiveness.” So the research is concerned with offering to Perth a right to self direction; although the mapping process is selective, its aim is to extract nascent or emergent qualities from the city itself and to offer to those articulation in the form of imagined architectural projects that derive from the city’s own peculiarity.

Narrative threads: six thin cites

Private city
The private city concerns an idea that public space is not a quintessential aspect of habitation in Perth. The vast majority of Perth’s development has taken place since the introduction of private transportation. As in many modern cities, the car has been held responsible for dispersing the city’s development pattern and dissolving with it notions of propinquity and collective space. Occupying an expansive plain, the footprint of the city is large and sparse; made for the most part from private houses on comparatively large blocks of land, its expansiveness permitted by the private vehicle. Strung out along the edges of the ocean and the river, the urban footprint is a linear one that attaches to geographical edges rather than gathering itself around the city’s core. The parks that line these water frontages might be a better approximation of public space than any town square in the central business district.

Wide city
The wide city is about the spatial openness of Perth and the visual constancy of its horizon and sky. The wide city is found in the gaps between the city’s low, sparsely built fabric, and in the vast green breaks that perforate its plan and line its riverine and coastal shores. These gaps in the city’s fabric trade the vertices and channelled views of dense development for pervasive openness, both spatial and visual. The concern for the wide city is the question of its permeability: the space between its thinly spread forms is generally negative space; setback, asphalt, lawn, and the green tracts that line its water bodies are usually made up of stretches of grass broken by parking lots. The wide city may offer a relationship to the sky, the wind and the horizon, but its opportunity for engagement is limited. Its role is more residual than opportunistic, more visual than performative; the open spaces that make up the wide city are not currently likely sites for encounter.

Even city
In the context of the thin development pattern of the wide and private cities, the even city presumes the region’s plan to be regularly meted with civic, recreational and commercial programme. Being a vastly suburban city, tenuously spread and heavily codified, the even city concerns also a level of monotony in Perth’s built form, a pattern of similarly scaled buildings on independent sites. The even city presumes uniformity and spaciousness to govern the city’s built scape, generated by a lack of differentiation in scale, density and hierarchy in its urban
composition, with instances of verticality and compactness a rarity.

**City of the immediate future**
The city of the immediate future has two separate but interrelated concerns, one spatial and one temporal. Its spatial dimension lies with the outward extension of the region’s limits in accordance with the demands of the private city through the release of new land and the proliferation of generic suburban townscapes. The city of the immediate future describes the expediency with which parcels of housing emerge out of the sand at the outskirts of the city, and the usurpation of rural land that occurs here. Its temporal facet concerns the rewriting of the core, in which modifications to the inner city are sometimes hasty, sometimes expansive, and often totalising in their effects. A readiness for erasure, coupled with a reluctance for staging, brings the immediacy of the periphery’s development to operations on the core of the city. In both contexts, the city of the immediate future relies on the clean slate, dispensing with the past in the service of current ideals.

**Reserve city**
Reserve city grew naturally out of the activity of mapping, and the overturning of multiple unbuilt sites of varying roles, all called reserves. Parks, sporting fields, green setbacks of ocean and river, verges, adjacencies of road and railways – all referred to as reserves. Regardless of their type, reserves are spaces that are set aside for future development or precluded from development entirely: they are in fact preserved spaces. So reserve city moves beyond the plotting of sites of openness to identifying a mindset that surrounds them – an attitude of deferral, a reluctance to construct. In this sense, and particularly with regard to the substantial green frontages of the ocean and river, the reserve acquires not just a spatial significance but a cognitive one: a delirium for the unbuilt.

**City of form fixation**
City of form fixation is a condition that derives from the wide, even spread of built form. It is about the architectural consequence of singularity that results from the division of plots of land and the regulated placement of buildings upon them. If each cadastral plot receives a building on its centreline, and each building is limited in height and distanced from each of its boundaries, then the building is objectified, the site is its plinth. If architectural fabric is generated through spatial continuity, then in the city of form fixation instances of urban fabric are few.
Scales: map sets

Mappings generated in this research were created in chronological sets that refine in scale from a broad view of the city region to projective drawings of a focal site. Each mapping set has a consistent drawn language, and each has a name derived from the scale or theme of its content. Ordered from the regional to the focal site, the sets are: scouring, region, locus, tabula, pencil tabula, link, mat, redrawing and gazing at the region.

1 Scouring
The scouring map set takes the cadastral drawing of the city region in CAD space and begins to sift through and layer it. As the initial embarkation into the mapping process, it involves the coding of differences and likenesses in the city’s structure and a sifting through its morphological composition. This sorting is translated through simple devices of extracting, pasting and colour coding, and the scouring maps are presented on a black field in likeness to the operative space of the computer.

2 Region
The region set brings the city’s regional plan into paper space. The maps drawn in this set have been composed out of a compilation of multiple sources and layers. Street maps, cadastral map, and hand drawings were aligned with a composite photographic map in order to combine information regarding the city’s structure, its zoning and programme, and its physical materiality. This set alternates between computer drawings, pencil drawings and a mix of both. A conventional figure ground approach is utilised in this map set as a means of describing the location and scope of the mapped content. The drawings are planimetric, but use vertical extrusion as a tool for extracting relevant parts of the map.

3 Locus
The locus set is provided as a transition between the region and the focal site. These maps negotiate a scale change from region to tabula of 1:100 000 to 1:5000, and locate the study site within the structures of the regional set.

4 Tabula
The set called tabula involves isometric computer drawings set against a photographic plate that encompasses the study area. The term ‘tabula’ describes the treatment of the study area as a plate on which to write observed information. The photographic layer at its base is a flattened image, but the isometric view allows the tabula to incorporate a sectional dimension. The tabula

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8 For the purpose of the ADR there has been a massive reduction in the scale of the maps. What was originally drawn at A0 and A1 has been reduced to fit an A4 format. Maps will be reproduced at full scale for exhibition. In some cases, maps included in the ADR may omit part of their content in order to illustrate the focal point more clearly.
set represents a shift in the research to a focal area that comprises a collection of sites that come under the jurisdiction of a para-governmental planning body, the East Perth Redevelopment Authority, referred to throughout the research as EPRA. These sites are all post-spaces; tracts of land that have undergone large scale demolition in the construction of new infrastructure, sites that have already undergone a process of redevelopment, and sites that are awaiting the imposition of new infrastructure and development. This collective is the space in which the research moves from analysis to synthesis in the generation of projective schemes.

5 Pencil tabula
Pencil tabula represents the venturing of the mapping process into the realms of projection. This set maintains the isometric view established in the tabula set as a means of moving fluidly from analysis to synthesis within the study area, despite a shift in medium from ink to pencil.9

6, 7 link and mat
The link and mat sets concern the two main project sites, and imagine how they might be embodied architecturally. These are perspectival images of the two major projective schemes, drawn by hand and layered with graphic information.

8 Redrawing
The redrawing set is an experiment in returning the projections to the computer tabula. It rewrites the city’s figure ground to observe how the project sites fit into the context from which they emerged.

9 Gazing at the region
Gazing at the region takes a perspectival view of the region with the projective sites at its foreground. It views the project sites within the greater systems they inhabit, expressing at once the limited nature of the projects and their applicability to the remainder of the mapped territory.

Intersection of the thin cities with the scales of mapping: structure and overview

Structure
This document is structured in a way that reflects the nature of its investigation: the sequential build that is implicit in the layering process of mapping, and to mimic the intent of the research – the quality of thickening that the thin city narratives are designed to expose.

9 This change in medium does present a rift in the cohesion of the drawings, but it does so knowingly: the softness of the pencil line reflects the tentativeness of intervention.
Although the mapping sets were drawn in chronological sequence – beginning at the regional scale, honing into the focal site and stepping back again – the content of each image, whether analytical or projective, bears a relationship to one or more of the thin city narratives. The images in this document have therefore not been presented chronologically, but instead each has been aligned with its parent narrative, and each narrative forms a chapter that unfolds through the scales of the mapping in a pairing of image and explanatory text.

The narratives themselves have greater applicability to certain scales of mapping; for instance, the private city can be read at the regional scale, whereas the city of form fixation is only legible at the level of the figure ground. So rather than follow each narrative through the scales entirely – beginning a narrative, examining its presence at the regional scale, then the local, then concluding and beginning with the next – the document has been structured in such a way as to stagger the scope of each narrative thread. In this way, families of images are allowed to maintain their chronological relationships, and the layering of the narrative threads produces a sequential build, with the content of each thin city layering into the next. So the document begins with a remote view, continually gathers information and refines in scale, and eventually leads to synthesis and redrawing.

Each image can be seen as being generated by two collaborative forces: on the one hand, its scale and on the other its narrative content. This relationship has been conceptualised as a diagram (opposite) that explains the organisation of this document. In the diagram, scale and narrative form the two axes between which the chapters unfurl. In order to maintain the legibility of the original mapping sets, each image has been given a two part name, the first referring to its scale and the second its content.\(^\text{10}\)

From the diagram opposite, every image can be located within the process of the research, and the thin cities themselves can be understood as relating to certain scales. The stopping points of the bars in the diagram do not represent the conclusion of each narrative, as each will continue to be discussed in the body of the research in order to create a sense of accumulation in the unfolding of the story of the city.

\(^{10}\) Much like the naming system of \textit{genus, species} used in biological classification.
1 SCOURING
2 REGION
3 LOCUS
4 TABULA
5 PENCIL TABULA
6 LINK
7 MAT
8 REDRAWING
9 GAZING AT THE REGION

1 INTRODUCTION/SCOURING
2 PRIVATE CITY
3 WIDE CITY
4 EVEN CITY
5 CITY OF THE IMMEDIATE FUTURE
6 RESERVE CITY
7 CITY OF FORM FIXATION
8 REDRAWING/GAZING
Overview

The first mapping set (scouring) forms the introductory chapter of the research, the six thin cities constitute the following chapters and house the emergent projections, and the final two drawing sets (redrawing, gazing at the region) accompany the conclusion of the research. In this way the project is cyclical; it begins and ends with a gaze at the region, with the exploratory projects eventually forming its foreground.

Chapter one: scouring
The scouring chapter serves as an introduction to the city region and the mapping process. It examines the city at the broadest scale, shuffling through its spatial organisation, its topography, and its planning morphologies. This activity uncovers major structural systems that underlie the city’s plan, and with them particular dwelling ecologies. An examination of the relationship between planning typologies and their topographical and chronological location exposes a diametric relationship between the core and the periphery of the city, defined loosely as oppositions between order and disorder. The study of these disparate conditions raises a dialogue about privacy, and in this way it leads to the following chapter.

Chapter two: private city
In the private city chapter, the morphological groupings identified in the scouring process are firmed into legible entities, and the city is divided into plates of distinct morphological character. This shift accompanies the move from the scouring set to the regional set. The drawing of these morphological plates allows the city to be read as a set of varied components rather than a singular mass, and they form a canvas onto which further information can be projected in the reading of the city’s plan. The morphological plates are found to bear not only distinct requirements for privacy, but changed expectations of landscape. As the chapter moves from the regional map set to the tabula site at the city’s centre, the privacy of the region’s peripheral planning activity can be read into the redevelopment of its core.

Chapter three: wide city
The wide city begins in the regional map set, reading the built-up area for gaps. Using a negative figure ground, it examines these gaps as the means by which the horizon enters the city’s plan. By utilising the same device in the examination of the tabula, the study site is revealed to comprise an unusual amount of unbuilt space. Included in the wide city are a set of photographic transects – shot at regular intervals and joined end to end – that run through
the entire length of the tabula. These panoramas reveal the condition of the half-blue, where the sky occupies half of the visual field, and their walking overturns a peculiar sectional condition of solid and void that inhabits the study site.

Chapter four: even city
The even city returns to the region, presuming its plan to be spread with a regular matrix of programme, but finds again a diametric relationship between core and periphery. The even city finds intrigue at the intersection of the morphological plates identified in the private city, and moves into a question of their autonomy by examining the coalescence of several of these plates that occurs within the tabula. These plates are found to have significance beyond their morphology, and their study brings about a discussion of urban entities, as these plates and the spaces between them are found to have their own spatial and architectural character. Within this chapter a set of theoretical actions are proposed in connection with these entities and their relationship to the offsite reading of the region and locus maps. The later projections can be understood as fragments of this iterative model.

Chapter five: city of the immediate future
Exploration of the city of the immediate future begins with its concern for the expanding edge of the city by looking at aerial imagery that captures the growth of the city from sand. A tracing of the city’s extension over time reveals the remarkable youth of the majority of the city region and the concentric legibility of its changes in planning language over time. The shift from the regional scale to the tabula is closely followed by a discussion of the second facet of the city of the immediate future; its concern for the revision and razing of existing city fabric. In the context of large scale renewal projects in the city, some completed, others burgeoning, the first speculative project emerges in this chapter: the link project, on a site with a peculiar sectional arrangement that faces demolition. This project evolves as an expression of a hundred kilometres of low scaled, even city with the region’s CBD – its singular instance of consistent verticality.

Chapter six: reserve city
Reserve city looks at reserve sites as open, ambiguous and pervasive places, mapping them first at the scale of the region and then the tabula. At the core, the mapping uncovers a certain nascence attached to these sites, in the case of the river reserve a precedent for temporal habitation, and in the case of the rail reserve a latent parafunctionality.11 This chapter projects onto various reserve sites the potential to engage with the vagueness associated with

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Chapter seven: city of form fixation

City of form fixation relates to the space between objects, and is in this way tied to the wide city. It observes the way that coding in Perth prevents the generation of fabric and objectifies the single building. In this chapter, the prevalent condition of imposing large footprints on individual plots is questioned by the two major projective proposals, both of which are examples of fabric building. A housing module derived from current census data is used as a point of departure for examining the possibility of the focal projects as collective developments.

Chapter eight: redrawing, gazing at the region

The concluding chapter overlaps with the final two drawing sets: the redrawing of the city, in which the projects are returned to the figure ground from which they emerged, and gazing at the region, which examines the focal projects in a perspectival view back over the mapped context of the region. In recollecting the larger systems identified in the regional mappings, the implications of the projections move beyond the focal site toward the greater ecologies to which they belong.

Scope

The scope of the research has been limited in both a spatial and a projective sense. The sole metropolitan capital in the west of Australia, Perth is the name loosely given to both the original townsite and to its surrounding built-up area. It has grown from a small city to a region that continually engulfs smaller satellites; its CBD is inseparable from its hinterland, and it stretches along the coastline in growing tracts. The majority of the mappings incorporate the metropolitan region scheme and parts of the northern and southern schemes, roughly a hundred kilometres of coastline. Individual mappings extend the field farther south to incorporate the Peel region, but
the research could as easily have stretched the entire way to the south-western cape.

The projective aspect of the research is limited as well. Multiple sites of distinctiveness have been exposed throughout the course of the project, and although equally deserving of attention, do not move beyond discussion at the regional scale. The projections that have been included in the research are not intended to constitute either singular or conclusive design proposals; they merely seek to incite speculation and uphold the emergent codes derived from their sites.

The research is situated firmly in the current; its mappings are located within a recent cadastral plan of the city and the research is only historical to the extent that the qualities of infancy of the city and legibility of the plan bring the past of the city to the fore.

**Precedent**

Reyner Banham opened his seminal book, *Los Angeles: The Architecture of Four Ecologies*, by describing it as an atypical history about an atypical city – his mission, in effect, was one of documenting a city condemned by many as unworthy of architectural discussion: “historical monograph? Can such an old-world, academic, and precedent-laden concept claim to embrace so unprecedented a human phenomenon as this city of Our Lady Queen of the Angels of Porciuncula? – otherwise known as Internal Combustion City, Surfurbia, Smogville, Aerospace City, Systems Land, the Dream-factory of the Western world.”

Banham’s inquiry into LA as a set of ecologies goes some way to avoiding a pejorative outcome; the term ecology itself is one couched in the field of science, establishing immediately a sense of observation rather than critique. By looking at the city in this elemental way, the result is a work that celebrates a city usually chastised.

Perth, as a place, is surrounded by a couple of givens that are mentioned in passing more often than they are formally documented; ingrained ideas, sentiments. One of these is malaise, deprecation. One of these is a blue sky and unique intensity of light – a sky that is clear for some seventy percent of the year. One is ugliness – of landscape, of vegetation; one is beauty, of probably the same features.

The first provides something to fight about – for the lovers of Perth an opportunity to defend it (and also to develop a belligerent unwillingness for change). The second – the blue sky – and this

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is coupled with the city’s climate and inextricably bound to its landscape, is the most likely reference point for that defence. Many people bemoan a cultural lack in Perth; others utterly revere its landscape, its quietude. A lot of people leave, and a lot of those come back.

The intent of this research is neither to insult nor defend Perth, but to simply note that a certain cringe exists, whether in literature or casual conversation, as it may be perceived as something for the research to avoid or overcome. It might be worth acknowledging that a degree of apathy for the city has made its way into the forewords of even its most supportive literature. Both A Sense of Place and Looking Around Perth set out to praise the city but begin by chastising the place for something: a mere this, or a barely that.13 So we get the sense that the development of an affection for Perth is something unexpected, acquired, despite. It seems that even the city’s most dedicated supporters forgive it something first.

The research shares with The Four Ecologies a desire to examine the city objectively in order to better understand it for all its presuppositions. One means of dealing with this is to approach the city and its analysis through a medium that doesn’t care too much about either camp. And mapping is an appropriate tool for looking at the city in this way. The map can deal with empirical evidence and avoid the pejorative, and although the practice of mapping is widely acknowledged to be a subjective enterprise – with its content always selective – it has been used by many architects and urbanists to engage with a true city that belies the plan.

It is necessary here to identify the quandary of mapping as a fallible enterprise, in which the map is acknowledged as a medium that reveals as much about the mapper as the mapped.14 In this sense it is a subjective endeavour, but one that still, for the purposes of this research, has its foundations in scaled and actual space.15

Long the fodder of landscape architecture, mapping as a means of examining cities finds an architectural exemplar in Mario Gandelsonas; his work is perhaps the most enduring reference point for this research in his use of the map to formulate an urban text. His drawings bring the two discourses of architecture and urbanism together through the study of cities as drawn artefact.16

A great deal of the mapping process in Gandelsonas’ body of work involves the American one mile grid and its usurpation, in which “a wealth of new configurations, of

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13 Seddon forgives Perth its topography and the hardiness of its vegetation, Molyneux the flatness of its scarps: “the metropolitan region is roughly bound to the east by the Darling Range escarpment which is remarkable for having no remarkable features.” Ian Molyneux, Looking Around Perth: A guide to the architecture of Perth and surrounding towns, compiled for the Royal Australian Institute of Architects WA Chapter (East Fremantle: Wescolour Press, 1981), vii. Seddon cites the prickliness of the vegetation as one of his initial disappointments with the western landscape. George Seddon, Sense of Place: A response to an environment, the Swan coastal plain of Western Australia (Nedlands, WA: University of Western Australia Press, 1972), xiv.

14 “It has been well known since the beginning of history that the tracing of maps is a mythic act which is only superficially testimonial.” de Solà-Morales, “The Culture of Description,” 16.

15 A questioning of the validity of the drawn line forms a project in Stalking Detroit, in which the ambiguous boundary of an area designated as a “Federal Empowerment Zone” is made manifest through a series of architectural projects that trace the line in space. Jason Young, “Line Frustration,” in Georgia Daskalakis, Charles Waldheim and Jason Young, eds., Stalking Detroit (Barcelona: Actar, 2001), 130.

16 Gandelsonas, X Urbanism, 1.
unexpected syntactic constructions and highly symbolic articulations"17 are produced. As the superstructure that blankets the entire country, the intrigue of the examined cities lies in their formal deviation from the regularity of the one mile grid. This body of work finds a landscape counterpart in that of James Corner. In *Taking Measures Across the American Landscape*, Corner is similarly preoccupied with moments of divergence in the grid system as instances of resistance that confound the order of human measure.18 Both see the rationale of the one mile grid as emblematic of neutrality, and find intrigue in its moments of failure.19 In the case of Gandelsonas, contingencies, offsets, and slippages in the grid, although quite imperceptible to the eye, carry with them spatial and sometimes even social consequence: the drawn line has significance well beyond the fiction of the drawing.20

**Entities**

The majority of Gandelsonas’ images have a foundation in simple extractions from cadastral and topographic imagery. The drawings become descriptive through omission and extraction; the map becomes a field of divisions, extrusions and exclusions. By drawing out one condition or location physically from the mapped field, the dialogue of his imagery raises the existence of urban entities. The language associated with these entities is animate – walls, canyons, constellations – urban ‘character’ takes on a new, performative significance; the city becomes behavioural, autonomous. The establishment of urban entities is central to this research, both at the regional and local scales, and particularly with regard to the even city, where a series of iterative actions derive from their identification.

**Extrapolation**

Gandelsonas’ extractions, his characteristic pieces, find a parallel in Colin Rowe’s *Collage City*. These texts share a dialogue about the friction of a city’s component parts. Gandelsonas refers to the “pleasure” produced by contingencies in the grid system, and the extraction of his walls, axes and islands undoubtedly connotes a degree of celebration. In *Collage City*, this pleasure of articulation becomes a utopia. The frictions, collisions, coexistence and inclusion of urban entities provide a city with intrigue, richness, and most importantly choice. In this urban scenario, civic democracy is afforded by variation, by the collision of incompatible parts, not by the singularity of the supposedly democratic modernist plan, or the “Cartesian coordinates of happiness”21 (whose failure produces delight for Gandelsonas); “utopia has never offered options.”22

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17 Gandelsonas, *X Urbanism*, 76.
19 Corner, *Taking Measures Across the American Landscape*, 41; Gandelsonas, *X Urbanism*, 76.
20 The “invisible walls” extracted from the grid of Chicago denote slippages in the original layout of the city’s plan. Coincident with these drawn lines are demographic shifts: “streets break, producing dead-ends and implying invisible walls that fragment the plan and produce districts that coincide with the public housing projects in the north, or separate white from black Chicago in the south.” Gandelsonas, *X Urbanism*, 146.

22 Rowe, *Collage City*, 87.
Delirium
For Rowe, New York constitutes “the best of apologies for the all-prevailing grid” and this city is the subject of another referential text in which utopia extends to delirium: Koolhaas’ Delirious New York. Emergent between Gandelsonas and Rowe is a suggestion that cities are capable of defining themselves, and in the case of Delirious New York, this definition is involved not just with built form but brought into the realms of psychology. Distinctiveness is found not just in the size and shape of the city but in the mind of its inhabitants; the formal artefact reflects something of the attitudes and ideals of the city’s populace. The city is in this case a field of operations, a working laboratory for the production of verticality, density, congestion and amusement. Rowe’s freedom from the generic reaches a crescendo in this work, in which the process of Manhattan’s individuation acquires it an ‘ism’. Albeit less feverish, the role of the thin city narratives in this research is to establish what the city’s delirium might be.

Autonomy
Although greatly varied in their approach, there is a resonance gathering between these cited works, and that is the idea of autonomy and the opportunity that is afforded by a view of the city as artefact. Analysis, gazing, classification, postmortem: these are operations on the city as artefact – as a constructed thing, and in this sense find precedent in Aldo Rossi’s The Architecture of the City, in which it is established that “we can study the city from a number of points of view, but it emerges as autonomous only when we take it as a fundamental given.” This is perhaps the first work in which the city is approached as a built phenomenon: a record and an entity at once, and this in turn has a ramification for its observer. Gandelsonas acknowledges the contribution of Rossi as constituting the transition of the role of the architect from composer to interpreter. “The confrontation that emerges in the late 1950s and early 1960s results in a theoretical production that accomplishes a critical shift in the position of the architectural subject, from production to reception, from writing to reading.” The autonomous city invites the architect to interpret it, to analyse the city as artefact. In these collected works, the architecture of the city refers not to its individual buildings but to the components that make up the city itself; components made of multiple buildings: the anatomy of the city. Whether Rowe’s “memorable streets” or Gandelsonas’ “walls”, the city is understood as a body made up of discrete and differentiated parts, or entities. Paired with the autonomous city is its capacity for performative reading. Analogy allows for the animation of the city and, in some cases, the reading of the city’s

23 Rowe, Collage City, 114.
25 “This twofold idea of the city as ultimate data – an archaeological artefact – and of the city as autonomous structure not only characterises the new city as an object, but more importantly, and perhaps inadvertently, redefines its subject – the architect himself. As opposed to the humanist architect of the sixteenth century, and the functionalist architect of the twentieth century, Rossi’s architect would seem to be an unheroic, autonomous researcher...” Peter Eisenman, introduction to The Architecture of the City, by Aldo Rossi (Cambridge, Mass: MIT Press, 1989), 4.
26 Gandelsonas, X Urbanism, 63. In X Urbanism, mention of Rossi is always combined with Venturi. Moneo sees the theories of these two figures as incompatible, asserting Venturi’s acceptance of the banal and the unarchitectural as entirely distanced from Rossi’s enduring commitment to architecture as “an indispensable instrument for the production of the framework necessary to civil life.” Raphael Moneo, “Aldo Rossi: The Idea of Architecture and the Modena Cemetery,” Oppositions 5 (1976): 19. That Venturi and Rossi, The Architecture of the City and Complexity and Contradiction should be constantly paired by Gandelsonas is deliberate
anatomy becomes somewhat literal; for instance, in Gandelsonas’ analysis of Boston’s “head and neck.”

It is understood secondly that it is the experience of these components that makes up the city and its memories: urban artefacts “are conditioned, but also condition.” As the city is comprehended as autonomous, in turn the role of the architect, as reader, is not so much to invent as to augment. If the city is autonomous, then it has already gone some way to defining itself – it is the document of its social and political past, and the architect as able to assess the city in terms of the trajectory that it has set for itself, and to assist the city in the process of its articulation. And this is a rich process. The urban pieces Gandelsonas continually overturns seem to resonate with Rossi’s image of a place “where the fragments of something once broken are recomposed”, or if not recomposed, their offset expressed. Koolhaas’ appendix of projects for Manhattan are an exaltation of the existing and the nascent; perhaps they are appended in order to emphasise that “Manhattan [has] generated its own metropolitan urbanism – a Culture of Congestion” – the projects are the makings of the delirium of the city, and it is therefore the excavation of the city that is more important.

Distinctiveness

While the aforementioned texts study the existing city as an autonomous artefact – a given – a sort of inverse circumstance is delivered in Sorkin’s Local Code, in which a framework is assembled for the culturing of autonomous cities. This book, which provides a set of theoretical design codes for a generic city, imagines the possibilities for architecture that would result from exemption rather than the stricture and suppression that are the usual preoccupation of design codes. It imagines that a city’s codes might be about uniqueness rather than regularity, extrapolation rather than control. By far the most relevant code for this research is the very first in Sorkin’s Bill of Rights: “the right to a city free to elaborate the terms of its own distinctiveness.”

The friction of urban entities is endorsed by Rowe, by Gandelsonas, by Sorkin. It seems that this code of Sorkin’s engenders the mission of the rest; the extraction and embellishment of those qualities or entities that define cities, with the intention of strengthening their autonomy; distinctiveness is surely the opposite of generality. And this is the intent of the thin city narratives, the activity of identifying urban entities, and this activity is paired with an endorsement of their speciation. This research sits somewhere in the middle of the two approaches of analysis and the

27 Gandelsonas, X Urbanism, 112.
28 Rossi, The Architecture of the City, 32.
31 Sorkin, Local Code, 15.
provision of codes; it looks for consistencies and differences in the city’s existing configuration, and seeks to utilise these as design generators.

Extraction

Although speculation is implicit in their findings, most of Gandelsonas’ mapping projects do not go so far as to make recommendations for architectural intervention. A departure from the precedent of Gandelsonas’ X Urbanism is the venturing of the research from analysis to synthesis. In Edge of a City, Steven Holl takes the maps of various cities, and draws from their logic a set of imaginary projects. Gandelsonas’ work focuses more heavily on analysis, and Holl’s focuses more on the projectual extrapolation of moments within the plan that invite heterogeneous intervention. While Holl creates monumental projects that stand out from the homogeneity of their contexts, Gandelsonas prefers the terrain of the grid and its moments of failure to the absolute unruliness of the urban periphery. The projects in Edge of a City perhaps owe something of their monumentality to Rossi and his contemporary in Giorgio Grassi, these great linear buildings that seem to slide between existing fabrics or occupy the desolate fringe. Holl’s “spatial retaining bars” designed for Phoenix almost look like the upper levels of Rossi’s Gallaratese strung out and looped around in a horizontal spiral, more void than solid, forming a window to the horizon and to the wilderness now preserved by the setting of the city’s limits. In fact several of the projects have the likeness of these long buildings – for Manhattan, Dallas and Phoenix – variously stacked, coiled or spiralled according to the topology of their sites. The spatial retaining bars inadvertently address another one of Sorkin’s codes, in fact, the second: “the right to a city with a clarity of limits.”

This body of research is sited somewhere in between the analysis of mapping and the synthesis of projection. It dabbles too between the disorder of the city’s edge and its structured core, although the core receives eventual projection while the periphery does not. In the context of these precedents and their shared concern for autonomy, as a wide city, an even city, differentiation is a welcome outcome: variation and the identification of entities are invited by the research, sought by the mappings and the thin city narratives alike. These paired mechanisms are intended to overturn sites of nascence within the city’s plan, and to inform speculation upon them that derives from the distinctiveness of the city itself.

Footnote

From quite a separate position to the above figures – perhaps a little closer to Holl – comes

32 Gandelsonas, X Urbanism, 160. Gandelsonas identifies a set of twin axes that divide two grids of inner Des Moines. Currently joining three public spaces, he locates the possibility of a fourth. The ‘gates’ produced by the infection of these axes becomes the site for a new housing project next to downtown Des Moines in Mario Gandelsonas, “The Order of the Modern City,” RIBA Journal 96 no.12 (1989): 55.
34 “These sites, where the articulation of architecture and the city can take place, are usually found in the space of failure that subverts the permanent traces of the geometric grid and not in the unrestricted spaces where the chaotic and violent urban forces are inscribed.” Gandelsonas, X Urbanism, 76.
36 Sorkin, Local Code, 15.
Manuel de Solà-Morales and his gaze. He perceives the incorporation of the basic stock of the city, infrastructure and built form, into its fabric as a choreographed performance unfolding in time: a dance.\(^{37}\) He advocates “an architecture of the city that is the opposite of an urban architecture of the buildings themselves, but which is architectural organisation of the city’s physical body (spaces, fabrics, and squares.)\(^{38}\) This sounds similar to the position of the rest, but places its emphasis on the synthetic onus of the urban project and its simple constituents: “the attention devoted to the layout of roads as a means of formalisation, the proposal of new building fabrics, and the reinterpretation of urban spaces...”\(^{39}\) He rejects, in a way, the idea of theory altogether in favour of the capabilities of the urban project itself to reinterpret and enrich the city. To some extent, the projects that are raised in this research could have stemmed from the analysis of their local sites alone, but the mapping process has lent them a licence for exaggeration that derives from a comprehension of the greater region – in particular the enormous scale of the “link” project as articulating the meeting of the even city and the central business district – and an understanding of the regional ecologies to which the inner city belongs. Indeed the first attempts at reading the city were constrained to the core, but the core of the city would not explain itself; it became necessary to look at the city at a wider scale to fully comprehend it: the ‘city’ has no stopping point.

This is not to undermine the mapping process at all – it has been indispensable – or the significance of the figures mentioned in this introduction (in particular Gandelonas whose work has been an enduring reference) but to see mapping and the thin cities as simply a means of better understanding the city – not trying to bundle it into generalisations or compartmentalise it, but to interpret it, to scour it for insight as to why the city is the way it is and to ponder what it wants; a deserved experiment.

Part of the reason as to why the research sits slightly outside of these precedents is that Perth is a peculiar place. Its delirium is not overtly expressed, nor is its formal structure. This research borrows a little of the language from each of these cited texts – gazing, autonomy, entities, mapping, codes, distinctiveness – but not their specific methods or ideologies. The intent of the research is to look objectively and hopefully at the city, and to garner from its reading an armature for its writing.

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\(^{37}\) “Perhaps, after music, the most perfect metrical expression of time, no other expressive activity requires as specifically characteristic a use of time as compositional material as does the town planning scheme.” Manuel de Solà-Morales, “Space, Time and the City,” *Lotus International* 51: The European City: the Science of Division (1987): 25.


### CHAPTER DIAGRAM

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The scouring chapter represents the beginnings of the process of mapping. It is the tentative and initial exploration of the cadastral image as the virtual field of the city region. Rolling the mouse through the city’s cadastral computer file is something like flying over its virtual topography, and the beginnings of these mappings took shape by finding interesting moments in the plan, sampling them out, and wondering about their place and derivation in the actual city. This chapter serves as an introduction to the research — as the embarkation into the mapping process and a description of the mapped field — as well as an introduction to the place, a representation of Perth’s basic spatial and ecological structure, beginning with its most basic components of terrain, water and cadastre.

Scouring looks at instances of morphological variation within the city’s plan, and uncovers pervasive structures beneath it. It looks at deviations from these structures, finding some of them to be topographically wrought, and others to relate to little more than planning trend. The scouring chapter identifies particular morphological types through a taxonomical sorting, and begins to interpret the nature of habitation within them. In its exposure of varying desires for privacy within these morphological groupings, the scouring chapter leads into the first thin city narrative: private city.
1.1.1 SCOURING
HYDROLOGY

The first determinant of Perth’s organisation and its primary object of desire is water: an enormous stretch of coastline coupled with the curves of the Swan River and its subsidiaries. The coastline, a seemingly limitless series of beaches, invites a similarly limitless development trajectory. The city’s cadastre hugs the Indian Ocean in a band that grows narrower with distance from the core and the banks of the Swan. Parallel to the coastline is a linear system of wetlands and, to the north of the city, suburban development has not ventured much east of this economically fertile strip between coast and swale; it becomes a city with a breadth of less than four kilometres.

The mouth and the elbow of the Swan River house the two cores of the city region and its twin business districts – Fremantle at the mouth of the river and Perth at its protected elbow. The orientation of their plans is derived from their adjacent hydrology, and both major and minor grids throughout the remainder of the region have also been hydrologically derived.

To map the region’s coast and its river system is to draw a pair of ecologies – a riverine ecology, which houses some of Perth’s most noteworthy historic architecture and its most affluent suburbs, and a dunal ecology that approximates Banham’s Surfurban Los Angeles; a belt that houses a great deal of the city region’s suburban development and holds a blue and barefoot promise for the city’s inhabitants.¹

¹ On Surfurbia: “One way and another, the beach is what life is all about in Los Angeles.” Banham, Los Angeles: the Architecture of Four Ecologies, 21. “The true beach strip, up to four or five streets deep, lay between the tracks [of the electric railway] and the sand.” Ibid., 30. Similarly in Perth, at least to the north of the city, this band is wedged between the combined freeway and railway system and the sand.
1.1.2 SCOURING RELIEF

A second organising layer is the region’s contours, and in particular the rift that is formed by the Darling Escarpment - “the hills” - which forms another linear band in the topography of the city and a parallel and alternative utopia to the coast. The forested scarp runs for over a thousand kilometres, from Shark Bay in the north to Albany in the south, and its length forms for the plain a secondary horizon that separates Perth from the desert, which in turn separates Perth from the rest of the nation. Not a huge range, for the most part less than 500 metres above sea level, but a perceptual edge to the city and a visual datum. Navigation in Perth is generally defined by proximity to the coast, to the hills, or to the river.
1.1.3 SCOURING CADASTRE

Looking at the cadastral layer of the region’s map, the ecologies of coast and foothills can be read as parallel and linear densifications in the city’s property subdivision. On the left, the cadastral plan amalgamates along the coast and to the right it masses at the feet of the scarp. At its extremities, the cadastre dissolves into little lumps – small coastal and rural towns not yet engulfed by the regional footprint. Between these two thickenings lies the flat topography of the plain, where another horizon is sometimes formed by the fences and consistent fascia heights of generic suburban houses that edge the freeway system in tracts.
1.1.4 SCOURING
THE EASILY BUILDABLE

Reading the cadastral over the layers of hydrology and relief shows a map of the easily built, in which development unfolds between these book-ends of coast and scarp to occupy the development-friendly level land that lies between. The desire for privacy pushes constantly outward the boundaries of the city and, in simple terms, the region has enough flat and buildable land to satisfy its hunger for single dwellings. Manhattan was forced skyward by its topographic constraints; Perth, with no such gastric band, continues to infill the longitudinal plain between the parallel lines of coast and escarpment.

As Reyner Banham said of Los Angeles, accompanied by an aerial view, “So, in a city with good communications and apparently unlimited space, the citizens could gratify their obsession with single family dwellings in their own gardens.” Privacy for many is a dream, and Perth has the space for that dream to unfurl in. The cadastral clearly prefers this tenable terrain between scarp and coastline, and the pieces of it that venture beyond the escarpment tend to align with swales and valleys.

Perth is actually mentioned in *The Four Ecologies* as the only other city with as unique a seaside setting as LA, and three of the architectural ecologies used by Reyner Banham to describe Los Angeles – Surfurbia, the Foothills, and the Plains of Id – are shared by Perth, and are here organised into three parallel and linear bands, from coast, to plain, to escarpment.  

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3 On the Plains of Id: “These central flatlands are where the crudest urban lusts and most fundamental aspirations are created, manipulated, and, with luck, satisfied.” Banham, *Los Angeles: the Architecture of Four Ecologies*, 143.  

The foothills in Perth, although home to no such grossness as Hollywood or the Pacific Palisades, are the locus of some great private houses, terraced streets and long views over the city.  

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1.1.5 SCOURING
SAMPLING MORPHOLOGIES

Within the cadastral map, simple morphological shifts occur across the city region. Sampling out particular moments within the plan reveals a heterogeneous structure made up of grids of various orientations, and the intersections and overlaps between them. At the periphery of the city, the stems of the freeway flower into bundles of loose ends; a morphology that resembles a cartoon brain or rabbit warren, bearing no relationship to the gridded rural tenure beneath it or the instances of residual grid remaining within it. A closer look reveals that any planning type across the whole region can be divided into one of these parent categories; grid or warren.
1.1.6 SCOURING
FRINGE MORPHOLOGIES

Looking specifically at those areas built up in recent years, with roadways that might have appeared between one street directory and the next, at suburbs still emerging from the sand, there seems to be a radial, new urbanist trend adopted in their street layout.
1.1.7 SCOURING
SCOURING THE CADASTRAL

Looking at the morphological patterning in greater detail reveals several planning subtypes that fall relatively easily into the two main categories of grid and warren. The map on the previous page shows extractions from the region’s cadastral dropped into a vertical catalogue of types, beginning with the true warren and ending with the true grid. The major criterion for dividing planning types in this mapping is continuity, and the secondary criterion is orthogonal rationality. In terms of continuity, a grid can be negotiated laterally, whereas warrens are defined by double tracking; by the necessity of retracing the entry road as the exit.

A true warren is both discontinuous and unorthogonal, usually a collection of winding dead ends, a cul-de-sac morphology with no directional logic. Dead ends find a variant form in the pod subtype, where the dead end or roundabout is widened to contain a block of houses. Pods make little P, D and S shapes stemming from an access road, and are found in both orthogonal and warren types. As pods still entail double tracking, a true warren can be comprised of dead ends, pods, or both.

There are grids that appear to be warped like the warren type that are actually continuous, and conversely there are orthogonal grids that truncate in the manner of the warren type. This generates two deceptive subcategories of truncated orthogonal and warped continuous. Relating to the warped subtype is the “city beautiful” aesthetic, the favoured typology of the new urbanist wave. Another emergent type, the stickiest one, is where curly, truncated types exhibit some kind of orthogonal consistency.

These morphological classifications begin, at the level of masterplan, to describe intentions for privacy and security, and certainly the primacy of the vehicle. The layout of the discontinuous warren, with its limited entry points, is an explicit image of notions about privacy and security purported in the new suburban landscape, creating a condition of impermeability for the outsider through utter disorientation.
1.1.8 SCOURING GRIDS AND WARRENS

The two way grid is the most open and easily negotiated urban structure. It can be traversed laterally, providing multiple means of reaching a singular point. Its axes are extendible, its scope therefore limitless, and its structure divisible. The grid in this way is a free structure – freely extended, divided, and negotiated. A point within a grid system is neither privileged nor isolated; a grid is a singular and permeable surface.

The retracing necessitated by dead ends within a warren type begins to engender impermeability, and a singular path for a particular destination. Pockets of warren morphology often have minimal points of intersection with their feeder road, meaning they become a field of neighbouring but isolated bubbles. The proliferation of dead ends makes the warren structure non traversable, and in this way lends privacy to each pocket. The warren resists thoroughfare, it is exclusive and indivisible. Looking at this morphology, Albert Pope describes a spiralling action derived from one’s movement from freeway, to artery, to feeder, to parcel, to block, to driveway as a winding down in scale; "forming a pattern of increasing exclusion... in contrast to the infinite extent of the open grid", naming the warren type “egocentric spirals of exclusion”, in which the private home is the culmination of the spiral and the centre of the individual's universe.4

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1.1.9 SCOURING
CADASTRAL + MAJOR ALIGNMENT

This examination of the major morphologies of
grid and warren, and their subtypes, has a wider
application to the major planning rationale of
the city region. Within the cadastral plan, two
expansive structural types pervade: a north-
south grid and a forty-five degree grid. The third
represents the disintegration of both, where the
chaotic warren becomes the governing type.
1.1.10 SCOURING
MAJOR ALIGNMENT

The forty-five degree component dates back to the city’s initial property subdivision, and its orientation relates to the egalitarian division of river frontage. Enormous tracts of land stretching from riverbank sometimes to the foothills carried the name of a single owner; the long thin blocks, sometimes two kilometres in length, allowing each a share in the river and the plain. As Paul Carter reflects: “left to their own devices, the Swan and Canning river settlers, at least, would, it seems, have stretched out their isolation to infinity”, giving each a claim upon the river, the plain, the foothills or ocean. This plan was drawn up prior to land survey, and the enormity of these allotments reflects, perhaps, an incongruity in the perception of scale between the drawn line and the actual ground. The boundaries of these properties presumably became access ways and began a process of ongoing compartmentalisation, as they remain in alignment today in the form of major streets.

A north-south orientation serves as the superstructure for the remainder of the region, and extends into the rural paddocks of the fringe. These historic grids remain legible and have sustained their original form despite small scale surgery in later adaptation. The forty-five degree plan now reads as a singular chunk inserted within a greater north-south grid whose obscurity increases with distance from the core. The outward march of suburbia has brought disintegration to these structures, which eventually give way to the warren type.

Smaller segments of grid with independent orientations crop up throughout the cadastre and, at the core, the two neighbouring grids of the Perth central business district and Northbridge lie at odds with the juncture of these two regional structures.

Understanding the city as a set of component structures that are chronologically wrought allows the city to be read as a historic document, with finer manipulations and infilling taking place within a greater framework. In this sense, the map is a chronological and typological text – the city explicates itself in the plan. A current map is a historical document, containing traces of planning decisions made over time, and morphologies and their divisions can be read as an alphabet or inventory.

6 Carter, The Road to Botany Bay, 222.
7 Such deception of the “microcosm” of the map is described by Carter in an incident where a group of emigrants to South Australia disembarked from their ship at Kangaroo Island, imagining their arrival at Nepean Bay on foot would coincide with the ship’s. Three arrived days later and the other two presumably perished. See Carter, The Road to Botany Bay, 202-206.
1.1.11 SCOURING DISTORTIONS

Within these major alignments, the cadastral map can be examined for adherence to, or distortion from, these sets of grids. Further north, distortion is so prevalent as to form its own rationale (an irrationale?). So, toward the core of the city, rational, gridded planning predominates and deviations are isolated, and in the fringe the inverse occurs, distortion dominates and instances of orthogonal rationality are few.
1.1.12 SCOURING
FIELD OF DISTORTIONS

Examining these deviations as a free field begs the question of cause, whether they might be a response or reaction to an exterior condition. Given that the large scale layout of the city has been dictated by the primary elements of hydrology and topography, these manipulations could have been similarly derived.
1.1.13 SCOURING
HYDROLOGICAL DISTORTIONS

Distortions from the grid superstructure attached to the river and other water bodies are clear responses. The major grid shifts that occur within inner suburbia are dictated by the coast and the river’s edge. At major bends of the Swan, a warped or radial grid is a common planning response, and in the northern inland lake system a minor grid appears whose logic is dictated by the axis of the shoreline.
1.1.14 SCOURING RELIEF DISTORTIONS

The relationship between planning morphology and relief is less clear. Distortions in the escarpment and relating to water bodies tend to be obviously compliant with the contours, but within the plains it becomes less determinate. In the hills, both grids and warped types can be identified as reacting to the terrain, and a particular type – usually a main road following a contour and minor roads bracing the slope – is the clearest response, stitching together the patterns of relief.

Within the warren type to the north, planning becomes more serpentine, which may reflect the undulating character of the dune system it occupies. However, in many instances, distortions in the road layout seem to exceed the demands of the contour, creating a planning morphology with a superfluous degree of curvilinearity.
1.1.15 SCOURING
ARTERIES AND DISTORTIONS

"On the fringe of the modern city, displaced fragments sprout without intrinsic relationships to existing organisation, other than that of the camber and loops of the curvilinear freeway."8

The primacy of the vehicle in the laying out of the city’s plan is reflected by the many distortions that unfurl from the curves of the freeway and arterial road system. Distortions within the gridded core of the city tend to be limited and clearly attach to the intersection of varying grids and to the elbows of linear arteries. Again, in the warren, the scenario is less clear. It seems as though many of the main arteries are laid out with respect to relief, but the shape of the remaining cadastre cannot be attributed to topography alone. There are some moments of obvious compliance with the contours, but otherwise the curliness of the warren seems to be independent from the terrain, extending the pattern of the major road in a ripple through each parcel.

8 Holl, Edge of a City, 9.
1.1.16 SCOURING
READING DISTORTIONS

Looking specifically at two of the major regional structures, the forty-five degree segment and the northern warren, distortions can be read as a comparison between rationality and disorder. Read as tectonic pieces, the forty-five degree grid becomes as positive form with its distortions or deviations subtracted out, and in the warren, moments of gridded structure become the negatives within a curvilinear solid. In this way the two conditions read as tectonic oppositions.
A simple reading of the base layers of the city’s plan – its hydrology, its cadastre and its relief – exposes a city organised by two parallel axes of coast and escarpment intersected roughly at right angles by the river. Layering into these structures information regarding the planning typologies of the city allows for a discussion about dwelling ecologies. The river is bordered by traditional grid structures, which sometimes warp in accordance with its curves, and it houses a great deal of the city’s noteworthy architecture, much of it in the private realm. The hills and the ocean represent parallel and opposite utopias, beach and forest, and both offer recreational value and visual prospect to the remainder of the cadastre, which thickens along these edges accordingly.

An examination of morphologies, major structures, and deviations reflects a consistent inverse relationship between the core and the periphery of the city region. At the waters’ edge and within the grid, deviations from, and experiment with, the grid take place as responses to topography and prospect. Similarly in the hills, the terrain is often responsible for the layout of roads and town centres. Within the periphery, where topography and hydrology make no demands of morphology, planning decisions seem to adhere to little more than the layout of roads winding away from the freeway or the whim of the planner, proliferating arrangements of social exclusion in the privatisation of the road.

So we see a diametric emerging between the two major parts of the city, one rationalised by the grid – seen perhaps as a democratic structure, or in the least one of incorporation – and one with a primary interest in privacy, with a sense of self-government about its planning, a freedom from structural or topographic constraint.