

GRID MENTALITY

Observations of a Machine

Marcus COLE

New York City
United States of America *fao*
The Royal College of Art
London

2016

006 FOREWORD

008 METHOD

- 009 1 Subjective Conscious :
If the Grid Were an Object
- 011 2 Cartography
- 014 3 Narrative :
The Architectural Story
- 016 4 An Image or Text?
- 018 5 Structure

020 CONTEXT

- 021 1 Historical Context :
The Birth of a Psyche
- 028 2 Defining the Grid
- 037 3 Machine :
Observations of an Entity

041 DETAIL

- 042 1 Approaching Manhattan
- 044 2 Short Story :
The Control of the Line
- 049 3 Material Applications
- 054 4 Immaterial Implications

061 PHOTOGRAPHIC
ARCHIVE

084 IN LINE

- 085 1 Learning Lessons from the Line :
As Simple as a Stroke
- 089 2 To Take a View from 2nd to 11th
- 096 3 Short Story :
Vertical Living

100 IN JILT

- 101 1 The Suburban Conundrum
- 108 2 Territorial Application
- 111 3 Looking Forward

114 END NOTES
121 BIBLIOGRAPHY

I'm an eye. A mechanical eye. I, the machine,
show you a world the way only I can see
it... Thus I explain in a new way, the world
unknown to you

- Dziga Vertov



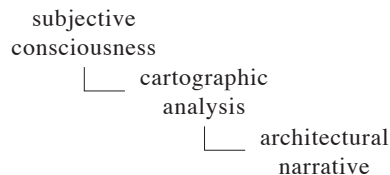
FOREWORD

This dissertation both presents and represents the grid. It is an artefact of its mentality - an example of a set of rules that govern a particular object in a particular space. In this case, the rules control appearance, the layout of text or the placement of image. The intention of raising this is to draw the reader into the psyche of order and control that this thesis will argue is the essence of the grid. It is also to show that its mentality can be applied on any scale and on any object, human or inhuman.

To achieve this, it adopts a range of research methodologies that help analyse the spatial qualities behind the grid. Three key principles formulate a strategy to deal with what is undeniably an extremely well trodden subject matter within architecture. They seek to tackle preconceptions of the grid in an urban context and in doing so, generate the most unique and inherently personal strain of research - the observation.

They are constructed chronologically. The first and most obvious of them is the principle of subjective consciousness within 'all-things-architecture'. It results in a need to experience the grid to make any meaningful observation. This phenomenological approach begets the second principle - what is the method of this experience? In this case, cartography and walking allow a personal interaction with the grid and presents its urban context as a primary source. The third principle centres on the need to then present the findings. Here, architectural narrative is the tool used through both text and image alike.

METHOD



1 Subjective Conscious : If the Grid Were an Object

The theory of subjective consciousness has consistently been at the forefront of modern philosophical thinking, and while its roots are firmly grounded in the study of the mind, its connotations within architecture are intriguing. Within contemporary design history, the notion of subjectivity and its relationship to the author continues to be contested.

Design historians Kjetil Fallan and Grace Lees- Maffei in *Its Personal: Subjectivity in Design History*¹, recently tackled the correlation between past utopian ideals of an objective response to topics steeped in historical context. While their article centres on creating a historiographical debate within design history, a sophisticated criticality towards the importance of design subjectivity is outlined, “The practices of design, our experiences of their outcomes, as well as the narratives we create about them, are all deeply personal – and therefore subjective.”²

The emphasis that is placed on the importance of subjective processes builds upon the foundations set in early modernist architectural writing. In novels such as Rasmussen’s ‘*Experiencing Architecture*’, the description of sense over description of space became integral in the critical analysis of a building. However where Fallan and Maffei differ is through their approach to using this subjectivity to counter objective preconceptions. This can readily be applied to the grid, which has acted as a mechanism of urban development pre-dating the Roman Empire. It is by no means short of context or preconception.

Yet by approaching the machine as an observer, less emphasis is needed on its context, instead, the shackles of existing theory can loosen.

Applied within this dissertation, there arises an ability to develop an innovative yet deeply personal outlook on the grid; one based on experience. The grid is an object of design history, one that has been both practiced and analysed historically. Thus viewed through subjective eyes, it can be interpreted as a more abstract notion of liveable space. This is not to assume that this will form a unique process within architecture - Rasmussen exercised a level of subjective thought that encouraged the reader to share his experience of space and hence progress a subject matter beyond its mere existence. Instead, this body of work seeks in part, to draw on notions of subjective consciousness and emulate, not replace previous understandings of the grid.

To observe the grid at a scale beyond your line of sight, you must turn to cartography. Here, the link between what is experienced and what is depicted is measured. Graphic representations of longitudes and latitudes project onto a two-dimensional plane and bring about a sequential numbering system that allows us to navigate irrespective of scale. In turn, this is used as a tool to move through space allowing for both an objective and phenomenological understanding to occur simultaneously.

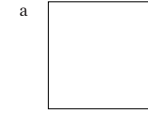
Cartography shares many similarities to the urban grid. In the same way that a map simplifies navigation through a system of integers and marks, the grid simplifies the city. It acts as a reification of the laws that govern cartography. Yet our experience of the grid often remains focused on its' drafting. This can be attributed to the scale of the city, which is hard to read through experience alone, but it also limits the influence we perceive the grid to have to the boundaries of cartography. It allows the grid to be assumed as a marking on a map, a simple deliniation of space. We turn to it for an understanding of wider impacts on space but this only provides an analysis of the grid as a structure, it avoids the essence of phenomenology that the likes of Rasmussen portrayed.

In John Berger's *Ways of Seeing*³, an argument is made for the eye being the primary portal through which we gather information. In other words, vision comes before thought and opinion, the eye before the map :

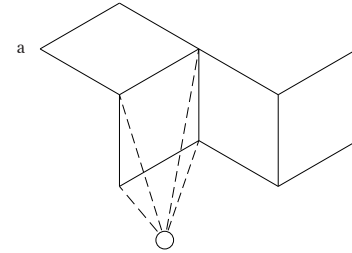
“It is seeing which establishes our place in the surrounding world; we explain that world with words, but word can never undo the fact that we are surrounded by it.”⁴

Prioritizing vision in this context is particularly poignant when implicated in tandem with cartography. The work of Karen O’Rourke’s *Walking and Mapping*⁵ proposes a stimulating balance between the acts of freely walking a city in contrast to following its cartographic depiction.

The urban grid shares a symbiotic relationship with cartography, each informing the other. This balancing act forms the backbone of the second methodological principle, but it is how cartography is used to enrich the experience outlined in the first principle that is of particular interest.



cartography plan view



walking experience

The third principle addresses the expression of research via text and image. An experience of a city can never be fully conceived through the means of expression alone as the mere act of taking a photograph objectifies its contents and brings it new meaning. Indeed, a photograph often fails to appeal to a number of crucial senses such as smell and touch. Similarly text, while possessing the ability to describe a personal encounter, falls short in depicting an accurate visual impact. Hence it is important to utilise both in order to draw on their pros while countering their cons. The importance of this is shown in ‘4. An Image or Text?’.

Within this extremely loose definition of ‘text’, there lie two distinct modes of representation- theoretical thinking and descriptive narrative. Sophia Psarra touches upon descriptive narrative in perceiving the built environment in *Architecture and Narrative*⁶. Psarra argues the relationship between narrative structure and representation is inherently architectural, “a narrative requires a narrator and a reader in the same way in which architecture requires an architect and a viewer”⁷. Hence through narration, architecture is expressed in a means that allows the reader to experience the spatial qualities suggested by the narrative.

Applied to the grid, the application of fictional writing can provide a denser analysis that encompasses what it means to live it while still alluding to its greater context. Within the thesis, short, intermittent fictional stories frame

the more theoretical analysis of the grid in the hope of providing an insight into these personal experiences of the grid. Their purpose is to think beyond the application and touch upon the implication. It is clear what the grid is capable of in practice - the rules that govern it’s existence do not allow for much leeway and it is easy to measure. What is more difficult is quantifying its effect on psyche. What does it feel like to work, live and play in it’s mechanisms? How far reaching are its integers? Does it really just control space? Is it tangible? If so, can it be touched, moved or altered? How does it begin or end? How visible are its effects? Some of these questions can be answered through observation, others must be explored through opinions, a few cannot plausibly be answered at all with any meaning. However what can be ascertained is an archive of observation, something which stands apart from academic thinking or practical application without challenging the presence of either.

All three of these methodologies are inherently critical in achieving this. The grid is a concept not bound to scale, it has a relentless nature and its systematic application moves freely from the macro to the micro. It is also extremely difficult to define, can often be over analysed and remains linked to notions of politics, geography, anthropology, mathematics, philosophy, design - the list if not endless is atleast substantial. It must be addressed in a nature equally as diverse. One that can transcend both scale and view as well as thought and perception.



“ Summer in downtown Manhattan is unenviable.

When you remain in one of the many thousands of rooms that line the streets you stay blissfully unaware of your true surroundings. You act as a single entity in a single room, the temperature is comfortable, sounds are muffled, smells are familiar. It is only as you steps across the threshold that the insignificance of your dwelling materialises. The experience is like an electronic device, but in reverse. A presteen external finish convinces you of its simplicity, a single glass sheet hides the inner workings that hold its true complexity. For Manhattan, the inside becomes the glass screen facade, and the complexity of what makes the experience the welcomed isolation is all too clear to see from the outside. Air con units that calmly monitor your internal environment on one side, ferociously blast out hot air on the other. Into the already stifling hot street. The street reveals the machines true struggle against the odds. Some splutter along others purr with efficiency, but they’re all part of the same system. Facades are littered with these units, desperately trying to maintain internal order. Their noisy identities are only hidden by the equally noisy traffic below. Once you’re on the street there is no question about what is being prioritised. Its sticky, uncomfortable and the windows seem to go on for ever. There’s no end in sight.

It’s hot and there’s too many of us - let’s go back inside. ”

5 Structure

The body of research is split into four succinct chapters and subsequently broken down into four sub chapters. A grid-like scenario whereby each section of the thesis contains a repetitive set of components. The structure evaluates the grid from a micro to a macro level of scale, deciphering its inner details within New York to its more territorial impact nationwide.

This bottom-up process is one that O'Rourke argues is inherently cartographic in *Walking and Mapping: Artists as Cartographers*⁹, she notes, "The book begins on the ground with a close study of an emblematic walking project and works its way up to a higher angle view of what is involved."¹⁰ This allows for a progressive development of subject matter that continually develops with previous observations in mind. In many ways, it is an integral notion within the structure of this thesis.

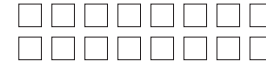
Each observation of an object can be directly applied to any observation of a room, building or territory - this is what the grid allows for.



research



chapters



sub chapters

CONTEXT

1 Historical Context : The Birth of a Pysche

It should be noted that an analysis of the grid's historical context is not the purpose of this thesis. This is not to suggest that a historicization of the grid is not relevant, or to imply that elements of its historical context are not drawn upon. Instead, it asserts that the context outside of its introduction to America through the Land Ordinance of 1765 only support the subjective conscious approach outlined previously.

There are, however, elements of its initial birth into the built environment that are worth mentioning. The re-planning of Grecian cities, such as Miletus in 450 BC provides early examples of territorial-scale planning as a mechanism for embodying social order. Indeed, during the Roman Empire's vast expansion into the Mediterranean, the creation of castras ¹¹ were conceived with exactly this in mind. By standardising their military camps on a grid that followed a specific and detailed set of dimensions, the Roman Army intentionally looked to architecture as a way of asserting control on a territorial level as well as providing a sense of familiarity for their soldiers. No matter where in the world a centurion was sent, they could expect the same amenities in the same positions in all camps - a home away from home.

This notion is retained in the birth of the grid in America. In 1682, William Penn implemented an indexical system in the creation of Philadelphia. In a letter that superseded his arrival on the continent he wrote:

“Be sure to settle the figure of the town so as that the streets hereafter may be uniform down to the water from the country bounds...This may be ordered when I come, only let the houses built be in a line, or upon a line...”¹²

Yet while this command came over 100 years before the American’s won their independence, many attribute the birth of the American grid to Thomas Jefferson and the Land Ordinance of 1784. The Ordinance split America into sections that, on a territorial scale, offered Jefferson a method of controlled expansion. Furthermore it expedited an urban strategy allowing the newly formed government to record human movement into the Mid-West and more crucially, a system by which debt collection could be efficiently managed. Expansion meant plots of land that permitted the collection of money to repay war debts, “you ain’t no kind of man if you ain’t got land.”¹³

In essence, the grid posed an architectural system that embodied everything America had fought for, while subtly abetting the control they now needed to assert. Mark Pimlott in *Without and Within*¹⁴ notes:

“The Land Ordinance determined the distribution and density of townships and their method of survey, which was to remain unaltered throughout the entire continental territory. Its methods were unaffected by topography: its ambition was to be egalitarian and democratic.”¹⁵

micro scale



macro scale



no scale

Blank squares outside of the original thirteen colonies that lined the East Coast of America were still considered, calculated and accounted for. Within the ordinance, this unchartered territory could be defined and therefore valued by its cartographic placement alone, allowing jurisdiction of both land and ideals alike. Indeed William Penn's vision for Philadelphia provides one of the first examples of the grid being used as a vessel for ideology. The surveyor Thomas Holme's "Portraiture of the City of Philadelphia", posted on an advertising board in London in 1683, was designed to encourage shareholders and lure settlers into a new way of living - one based on the freedoms and ideals of equality set out in the Magna Carta, 1215.

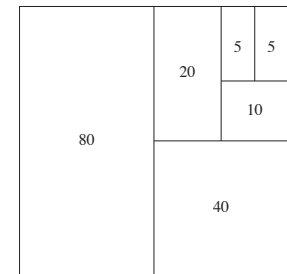
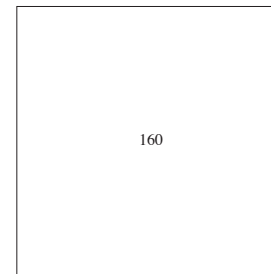
The portrait presented broad streets, civic squares and green trees. It showed urban growth already underway but more importantly the potential to accommodate those enticed by the vision. It sold the American Dream. A sense of equal opportunity was imagined through the equal breakdown of plots. A vision of potential growth portrayed by simply demarcating unused space. The hope of infinite possibilities in the repetitive and seemingly simple nature through which the grid had been applied. In many ways, the birth of the American Dream and all it stood for came hand in hand with the application of the grid.

This notion of dimension and control that were present the American grid's supposed origin is important when subsequently defining it. Stan Allen reaffirms the notions laid out by Pimlott in *From Object to Field*¹⁶. Allen, while

A rod is 16 ½ ft.
 A chain is 66 ft or 4 rods.
 A mile is 320 rods, 5280 ft.
 A square rod is 272 ¼ square ft.
 An acre contains 43,560 square ft.
 An acre is 160 square rods.
 An acre is 8 rods wide, 20 rods long.
 Townships are split into sections.
 A section is 25,600 sq rods.
 Half a township is 80 acres.
 A quarter of a township is 40 acres.
 There are 36 sections in a township.

a township

36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6
12	7	8	9	10	11	12	7
13	18	17	16	15	14	13	18
24	19	20	21	22	23	24	19
25	30	29	28	27	26	25	30
36	31	32	33	34	35	36	31
1	6	5	4	3	2	1	6

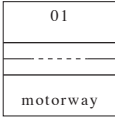
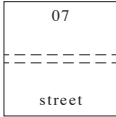

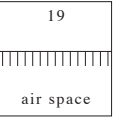
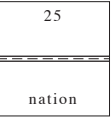
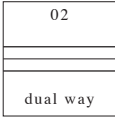
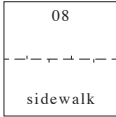
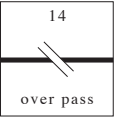
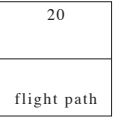
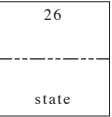
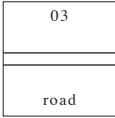
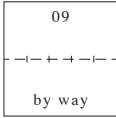
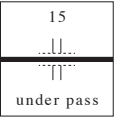
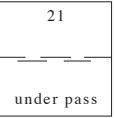
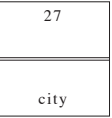
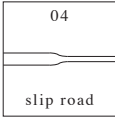
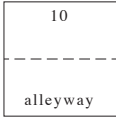

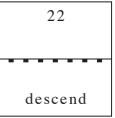
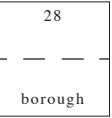
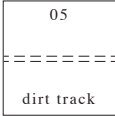
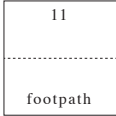

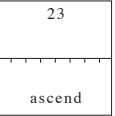
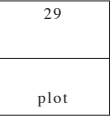
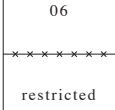

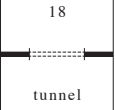
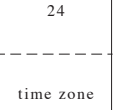
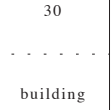


a section

analysing the territorial influences of the Jeffersonian Grid ¹⁷, states it “is at once a symbol of democratic equality and an expedient means to manage vast quantities of territory; an attempt to impose measure on the immeasurable.”¹⁸ Pimlott and Allen, although writing almost a decade apart, both seem to conclude that there is something more than urban planning lying behind the American grid.

Hence the very essence of the grid projected a notion of democracy while extrapolating an extremely restricting degree of control. Both of these are complicated notions tied up in all manner of theory and writing. However the point that must be taken in relation to this body of work is that these notions were implemented through architecture and cartography or the lack of.

Lines that were distinguished through different hatches and symbolic representations imposed a control across whole territories. Their orthogonal nature having as big an impact on future jurisdictions as much as past ones. This spanned and accounted for roads, paths and state boundaries while accommodating for future technological advances such as the air ways, highways and airways. America didn't simply deploy a grid system that can be seen in countless examples across the world, it evolved its uses, realised its power and etched it into its psyche and future permanently.

road	walk	rail	air	land
01  motorway	07  street	13  dual track	19  air space	25  nation
02  dual way	08  sidewalk	14  over pass	20  flight path	26  state
03  road	09  by way	15  under pass	21  under pass	27  city
04  slip road	10  alleyway	16  intersection	22  descend	28  borough
05  dirt track	11  footpath	17  single track	23  ascend	29  plot
06  restricted	12  track	18  tunnel	24  time zone	30  building

2 Defining the Grid

As mentioned, the relentless and extensive nature of the grid's application across the world means there are no shortage of attempts at its definition. Thus when tackling the challenge of evaluating the psychological connotations behind it, a clear definition of what is meant by 'grid' is paramount to its understanding. The Oxford English Dictionary loosely defines the term grid as "a network of lines that cross each other to form a series of squares or rectangles"¹⁹. However in reality, the grid surpasses any formal geometric definition that can be made.

The American grid is an evolution that surpasses the physical manifestation of space known through any other examples of grid planning. It is relentless and all encompassing. It dictates the lifestyle, the divisions and laws of the country. It is not simply a method of planning; indeed this thesis will go a long way to arguing that it incorporates America's notions of jurisdiction, their understanding of dwelling and the manner in which they presently exist. Within Colin Rowe's essay 'Chicago Frames' issued within the 'Mathematics of the Ideal Villa and Other Essays' the grid is defined as - "convincing as fact rather than as ideas."²⁰ In truth through observing its nature within America, it can be argued that it is far more convincing as an idea than it is as fact.

In theory, the grid has no scale; its modular nature allows you to present the same systematic approach to the layout of a house as it does to the that of a country. Nothing clearly demarkates one line from another:

ix



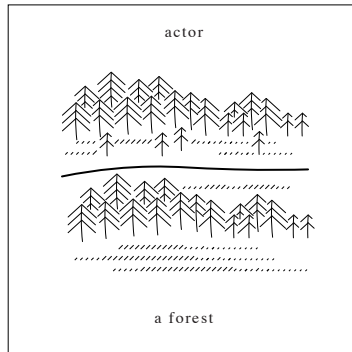
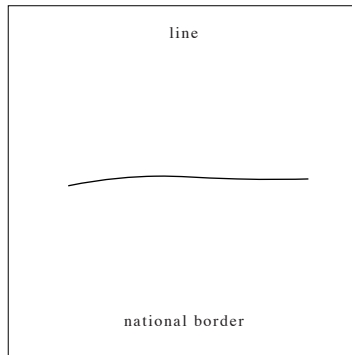
A national border
A motorway
A street
A footpath
A wall
A grout line

Without the presence of an actor placed within the grid, there is no clear definition of scale :

x



A toothbrush
A painting
A footprint
A lamppost
A car
A forest



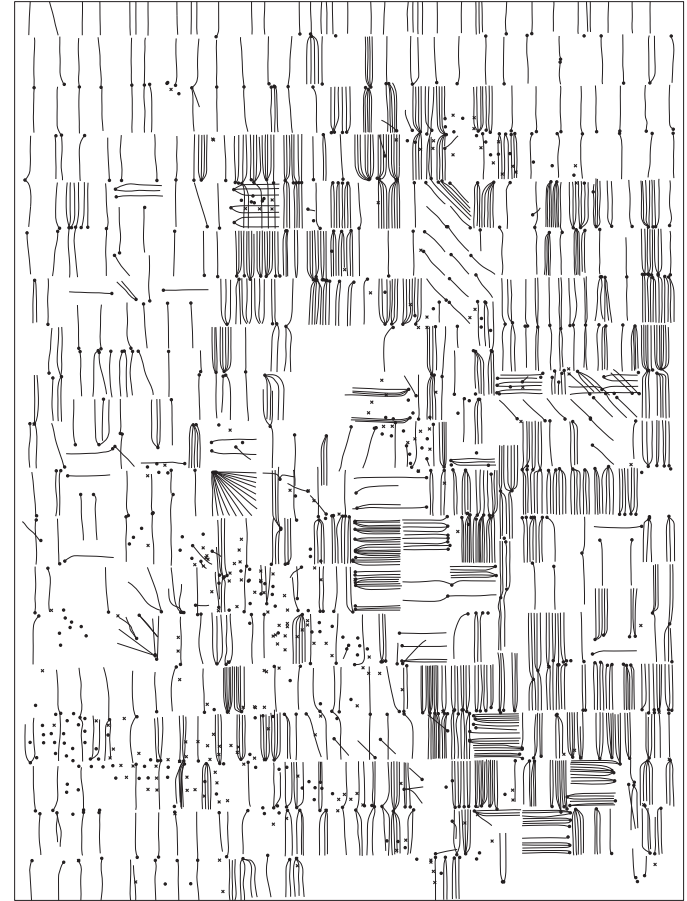
This creates a far more sinister illusion of control behind the nature of its implementation. Rosalind Krauss points to this in *The Originality of Avant-Garde, and Other Modernist Myths*²¹ when she writes, "...its lack of hierarchy, of center, of inflection, emphasizes not only its anti-referential character, but—more importantly, its hostility to narrative..."²² In essence, what arises from the grid is a way of life and the power to impose it exponentially. Yet there is room to dispute the emphasis Krauss' places on the grid's hostility towards narrative. While the grid is indeed able to blur hierarchies and camouflage centres, narrative holds similar capabilities. Within narrative, fact and fiction can be blurred and the roles of subjectivity and objectivity reversed to disprove and prove one another. With this in mind, a narrative of the grid could allow the breakdown of its more sequential and inflexible characteristics and allow an outside point of view. Could narrative actually hold the key to unlocking the the grid's anti-referential character?

In addition to these initial definitions, the grid also acts as a platform from which advances in technology are able to flourish within a framework already designed to supply every need. Let us take the example of the automobile. Created almost 100 years after the origin of the American grid, it provided a method of rapid transport across large swathes of territory. As the scale of impact began to augment, it also resulted (as many technological advances do) in a backlog of infrastructural and miscellaneous needs. Gasoline, made

from crude oil was needed to run the machines and thus finding oil became of critical importance. For this, the grid had already provided a systematic way of searching beneath the land to extract the resource. The image 'xii' shows the placement of oil rigs and the direction of the fracking in the bakken formation North Dakota. The data was taken in 2016. It is clear to see how the grid has influenced the huge scale resource extraction strategy, this image can be seen repeated in fracking zones across almost the whole of the United States of America, from Southern Texas through to Western Los Angeles.

Furthermore, the automobile brought about the need for better and faster highways, the roadside Motel, the Gas Station and even the American Diner. These too, all found positions within the grid acting as a catalyst for unyielding culture creation and place-making. The technological advancement that created these strong symbols of American culture rapidly became a part of the American Dream and therefore a part of American psyche. You 'made it' if you owned a car and people used them to flock to motels, consume gas and fill diners. Yet in the background, obscured from sight, these elements were being supplemented by the grid. Think of America as a racer. The grid was the powerful engine that evolved an invention like the automobile into one that not only assisted the growth of the American economy but also the growth of ideology, in consumer culture and the redefinition of what it meant to be American.

These notions are inadvertently addressed by popular culture



historian Michael Witzel in his series of books that document and evaluate a number of archetypes to have emerged from the United States. In his book *The American Motel*²³ he reminisces, “The automobile was the interstellar spacecraft of the 1900’s...people were no longer tied to the tiny hamlet, village or city they called home.”²⁴ While Witzel is right to point to the drastic influence the creation of the automobile had, one can argue from our understanding of the grid thus far that the framework had been in place for efficient travel across America since Jefferson in 1784, the lines already pencilled into the territory through land division.

This facilitated the rise of architectural nuances like the motel, by already having a plot ready and waiting for them. All that was required of the motel was to attach itself to roads that swept orthogonally across huge swathes of America, incorporate itself into the repetitiveness of the system, duplicate and in turn, incessantly influence the cultural history of America. Think of the countless films to come out of Hollywood that feature ‘The Motel’ and the cultural connotations that have been born from it. It can be argued that films such as *Psycho*²⁵, *Drive*²⁶ and even *No Country for Old Men*²⁷, widely renowned to depict American culture, are born out of the grid. Thus this essay’s attempts to define the grid will seek to acknowledge its multifaceted nature, namely its ability to act as both an urban strategy and cultural tool alike. Complete control.



From blueprint to invention
 From invention to application
 From application to culture

3 Machine : Observation of an Entity



From culture to psyche.

These previously outlined characteristics frame the grid more as a machine than a tool. Its levels of cynicism to be determined on a case by case basis. This machine cannot be tampered with but should also not be feared. It is not a machine that is out of control - in fact it is quite the opposite. It expands into small crevices of American life where, unless you are looking, you would never envisage seeing it. This machine has set parameters, and while there exists strategies that allows for its components to adapt and progress, it is always within itself and follows an unremitting progression that can expand and contract to infinitesimal degrees, “Logically speaking, the grid extends, in all directions, to infinity.”²⁸

To define the grid in this way, one must also define what is considered when using the term machine. It is not uncommon practice to utilise personification when depicting the built environment on an urban scale. Roads can be envisioned as veins, institutions as organs and its inhabitants as cells. Yet this does not seem logical for the American grid. There is an ever-present feeling that this doesn’t suit its cities, “Manhattan is a counter-Paris, an anti-London”²⁹. Manhattan, which provides the largest case study within this body of writing, felt more systematic and thorough than its European counterparts; nothing seemed left to chance. This more mechanic depiction is a notion supported by other authors that have written about American Cities over the years. For example, Koolhaas, when outlining the structure for his manifesto writes,

“They show the progression (and subsequent decline) of Manhattan’s determination to remove its territory as far from the natural as humanly possible.”³⁰ In addition, Mike Davis in *City of Quartz*³¹ emphasizes the priority placed on physical mechanics over human essence within Los Angeles, “The automobile mitigates against such a feeling, and so do the new houses. Hollywood lacks the patina of age.”³² The use of the word patina, more frequently used to describe a state of age on materials, reinforces this nature.

Both of these examples, although coming from different periods and socio-political contexts, stipulate how engrained the sense of mechanism is within the cities. The grid system runs off oil not blood, powered through an engine room, not a heart. This is not to say all depictions always follow this concept. Reyner Banham in *Los Angeles: The Architecture of Four Ecologies*³³ personifies the oil rigs that populate Los Angeles:

“The Pacific Coast Highway is lined with a double file of pumps standing shoulder to shoulder behind a token ‘beautification’ fence, their orange ‘heads’ nodding tirelessly and slowly and always out of synchronization with one another.”³⁴

Here, Banham attempts to integrate a mechanic process into one that actually lives within the city, alongside its inhabitants. He stipulates both the

mechanisms and inhabitants as equals, both playing equal roles in making the city what it is. In doing this, he holds on to a level of equality within the grid, “because the point about this giant city, which has grown almost simultaneously all over, is that all its parts are equal and equally accessible from all other parts at once.”³⁵ This is integral when addressing the grid as a machine. While its meticulous nature is seemingly apparent, there is still the notion of experience and dwelling within that is integral to understanding exactly what its influences are on society- in other words, the social connotations of the multifaceted machine that performs multiple roles.



DETAIL

Still taken from 'Metropolis', 1927, Fritz Lang
Depicts a machine at the heart of an unknown
American city.

1 Approaching Manhattan

The work of Alexandra Horowitz was particularly significant in composing how Manhattan was to be approached. In *On Looking: 11 Walks with Expert Eyes*³⁶ she walks the city through the eyes of others to help perceive it in a unique context. Within her stories, the city performs the role of a supporting actor allowing Horowitz to achieve an alternative and entirely humanistic perspective of the city. Her intentions are expressed most clearly with regard to this thesis when she writes:

“Part of seeing what is on an ordinary block is seeing that everything visible has a history. It arrived at the spot where you found it at some time, was crafted or whittled or forged at some time, filled a certain role or existed for a particular function. It was touched by someone (or no one), and touches someone (or no one) now.”³⁷

The short stories that frame this case study hope to apply a similar sense of alternative understanding, ensuring a level of humanistic interaction within the study of urban scenarios. Yet, conversely to Horowitz, the following stories are entirely urban. While Horowitz stipulates, “The result of all this walking is not a master’s degree. It is a tale of what there is to see in any environment, urban or rural”³⁸, the accounts within this writing are specific and regulated, like their subject matter- their existence needs to be understood from within.

xv



LINE CONTROL

She reckons the view of the sunrise is the only good thing about having to wake up this early. Its warm glow strikes the panes of regimented windows that line the bank of the river like soldiers. It reflects down the ranks of avenues, glimmering for a brief moment and softening the hard lines of the city. She describes it as Manhattan's 'calm before the storm' and she has a point. Of course, the city at night is loud and abrasive, especially on the Lower East side. Yet in those early hours before dawn, the city descends into a sense of serene stillness—a brief pause before the gears of the coming day reset and roll relentlessly into motion. Not quite the city that never sleeps.

Monday morning, and the weekend passed faster than she would have liked. It always seems to when you have that sense of dread about the coming week. It should be said, she doesn't face the same Monday blues as normal people. She often refers to others as 'normal' but she's told she must stop. In truth, she loves her work. It's the reason she moved to New York and in many ways, the only motive for staying.

Her trepidation probably stems from some sort of Obsessive Compulsive Disorder. To her, it is just a rational response to being too close to others. She is fully aware that Manhattan is far from the ideal home for this. Its tall buildings almost burst at the seams with human occupation each floor a repetition of the one below, piling a suffocating density of immeasurable force on the island. She's surprised it doesn't sink under the weight of it all. Even

worse, this density routinely pours into the narrow lines between blocks as they navigate towards other empty tall buildings to work, all seemingly at the same times of the day. She often wonders why no-one has thought to stagger commutes and lunches - life would be so much more agreeable if they did. She imagines how they might implement such a law across the city. Block by block perhaps, starting in the Lower East Side winding up the grid. Taking no consideration of individual preference, just a blanket emotionless decision delivered in topographical purity. She gets lost in the minutiae of this fantasy but it always ends in the same, disappointing way - a burgeoning realisation that this vision is Orwellian beyond measure. She shuts the door on the thought as quickly as it was opened. There's enough tyrannical thinking governing this island without her adding to it.

Today she switches her thoughts to her work. She imagines New York as a giant data centre, overheating under the strain of activity. When you are trained as a technical analyst, it's a normal way to process your surroundings. She imagines the buildings as servers, each storey acting as a board with the humans performing the all-important role of the data and thus reason that the servers exist. The data moves along the thin copper wires that seem impossibly inadequate to cope with the stress or volume of information.

She remembers that this was one of her first thoughts when she took her laptop apart aged 12 -how can so much be held by so little? It is the same

way that she feels about her flat, her apartment building, her block, her city. At this point she smiles and muses over the irony of living in her job, for her job. Her issues with commuting are bearable along the line; she lets the façade's towering mass engulf her, finding comfort in its manifestation. The real issues are met at the intersections where data travelling up avenues collides with that travelling along streets. Here, in a hive of perpetual anxiety, she must wait. Packed up against the node of the line anticipating the 'yellow man' at the pedestrian crossing to grant her safe passage out of the scenario she finds so intolerable.

When braved, it's presented moments she would care to forget. The stench of the bins found on every corner, the breath of others lurching down her neck, as powerful and imposing on her skin as the gusts of luke warm air that billow up from the subway beneath her. No, in her mind it must be avoided and this is the cause of her early starts. Those brief moments at the mercy of New York's Traffic Control are so painful that she will break from her straight commute searching only for yellow men no matter where it may take her and avoiding the dreaded red hand at all costs. Being so professionally aware of digital beings allows her to personify the traffic lights she stumbles upon. To anyone else the traffic light guarding the intersection between 2nd & 11th is the same as that between 3rd & 12th. The same as any intersection found throughout the grid. Yet she knows 3rd & 12th is a far more generous in the morning if

it hasn't rained the night before. If you don't want to be at the mercy of the red hand you must learn these things.

So what should be an effortless, even repetitive commute becomes a game of cat and mouse with the city. Its streets become a labyrinth governed by a higher being and she becomes the mouse within the maze. Almost daily, new routes await her, controlled quite simply but equally as painfully by a simple stop or go sign. She can recall times when the line has had her zig zagging across Manhattan, teasing her by bringing her close to her destination, only then to throw her off course with an effortless flash of crimson red.

She's started mapping where she's ended up, this is an attempt to try and convince her of the insanity of it all. Perhaps if she saw it written before her she'd have an awakening and realise what a waste of her time it all is, but she knows she won't change. The facades no longer feel comforting, more suffocating, like guards marching her down an unwanted path. So it is Monday again, it's come around as it always does like clockwork. She takes a deep breath, thinks of the sunrise and steps onto the line.



Link NYC :

Objects and regulations, standardised for ease of use, govern the street. For example, the new WIFI hubs introduced by Mayor Bill de Blasio⁴⁰ are an example of grid mentality gone wrong. Placed exclusively on corners they offer the inhabitants of Manhattan the opportunity to charge smartphones and watch news bulletins. These are actions that take time, and thus are agents of the block not the line. So the corners become clogged with users, many of them homeless, who see

a great method to pass time. Clogged corners lead to overcrowded intersections. Hence this new technology implemented throughout Manhattan creates pockets of intense density in an already crowded node of the grid. Disarray ensues.



The Air Con Unit :

This acts as a microcosm for the sense of grid control instigated along the z-axis. The unit is integral during the summer months as temperatures soar creating an urban-scale concrete oven. In the summer, air-con rules all. So in a scenario whereby everyone actively seeks it, the grid system provides a perfect framework. Windows throughout the city are standardised to fit the specific dimensions of the unit, or perhaps it is the other way around- the chicken and the egg conundrum springs to mind.

Regardless, a plethora of exact dimensioned units find their way into the windows of the high-rise apartments above. In this state, the air-con unit acts like a point of reference on the vertical grid. Supplying a clear example of the grids implementation within detail.

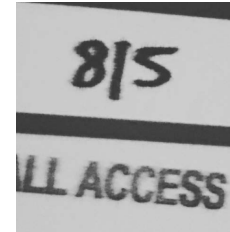


This iconic image of Marilyn Monroe illustrates the presence of a subterranean activity.

Grates & Manholes :

Applied within the centre of the road and just adjacent to the curb’s invisible boundaries, these offer a portal through which the grid’s multi-dimensional characteristics are seen.

The manhole forms not just as a barrier between what lies above and below, but also a clear connection joint between the x, y and z axis. The subway system that runs beneath Manhattan is in tune with the grid above and access between the two is integral to the larger urban grid functioning. This can be seen in the placement of stairwells but equally in the grate. The soft hum of passing trains and the rush of wind that bellows up heightens this wider context of the city.



Signage :

Signage forms an integral part of the streetscape and its implementation with the block is interesting to observe. Signs such as “Post No Bills” are intuitively linked to processes of grid repair within the city, for they are always placed on hoardings. The signs themselves are intermittently posted in stencil spray paint. This again offers us an insight into larger material processes within the grid. The sign is slap dash, no thought given to its placement other than the within view of walkers-by. The lack of rigor shows a level of temporality to the hoarding, which forms an all too familiar sight throughout New York. Yet oftentimes, the hoardings will move frequently down streets as if perpetually in motion. Thus the sign’s temporal nature acts as a microcosm for the temporal machine that works its way through the grid, repairing facades and broken lines.

In some cases, it is thought provoking to place these observations in the context of Actor Network Theory (ANT). Developed by Bruno Latour in the 1980's, ANT formed a new strain of thought on the connections between human and non-human entities. It can be a complicated theory to understand in its entirety, largely down to the inconsistencies in debate that have arisen from its conception. Put simply, 'actors' may be both human and inhuman. The networks that they generate are not construed as systems but as the traces. In turn, the theory then describes how the connection between these actors leads to the creation of new processes that do not necessarily practice the typical characteristics of the individual actors when autonomous.

Its architectural context is something that Kjetil Fallan addresses in his article *Architecture in Action*.⁴¹ Within this body of writing, Fallan addresses reservations of applying ANT to other bodies of research outside of Science and Technology. While evaluating in the context of critical design history he writes, "interdisciplinary research in general and theory transfer in particular is not without its perils."⁴² In doing so, he stipulates the need for caution when blindly applying theory across disciplines. Yet later he determines: "ANT is primarily a mode of thinking about interactions of people and things."⁴³

This as a concept is entirely architectural. Fallan also looks to the work of architect Mattias Kärrholm and his doctorate dissertation⁴⁴. Kärrholm appropriates ANT to architecture by arguing that the spatial artifacts can per-

form both the role of the actor and that of the network. This allows him to in many ways theorise succinctly between scales. Evaluating Kärrholm's work, Fallan notes:

"In considering the territory as an actant, he focuses on what these spatial artefacts do and their relations to other actants, whereas in considering the territory as a network, he focuses on how the territory can be seen as an effect of associations and translations that are made within a network of actors."⁴⁴

While this provides intriguing insight into how ANT can be applied within architecture, its notion becomes overtly complex in relation to the grid. It holds force to remember Fallan's reservations surrounding cross-disciplinary theory transfer. Hence within the framework of this thesis, it is a way of approaching the immaterial expression of the grid in details.

A classic example given to explain ANT is the gun and the man forming a gunman. Without the gun, man is just man, and the gun alone cannot shoot itself. However together they form a new meaning that alters the perception of the two. Apply this to the predetermined notions of the grid outlined within this dissertation thus far, and there lies a captivating relationship between the territorial grid expressed within America and the details within it. With this in mind, the grid should be perceived as an actor. Subsequently, the details observed on

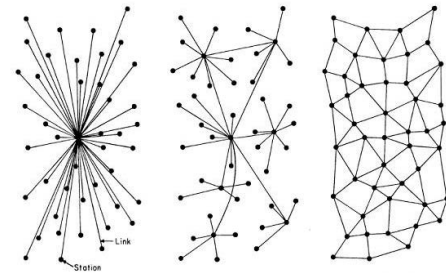
the block, which are actors in their own right, form individual networks with the grid. The grid and details form new characteristics and adopt new roles through which they can be defined and evaluated.

This is a notion supported by the research done by Geoff Manaugh into the observations of burglars in a city. In one example, Manaugh's burglar utilises the exact same detail, to x-ray the interior of the block, scoping the anticipated floor plans through the layout of the stairs. He attributes the success of the burglar to "a close reading of the building exteriors and a detailed understanding of the regulations that shaped them."⁴⁵ In essence what allowed this ability to bypass the grid was the very thing that gives it such totalitarian control. The regulations that governed the design of the building fall into the same systematic and legislative grid on which it is maintained and this allows it to be easily read, if you're looking in the right places,

"Knowing the maximum legal distance an individual apartment could be from the nearest emergency door meant that you could also deduce the buildings layout from the placement of those exits."⁴⁶

This therefore creates a link between the legislation that governs the layout of a building and the details implemented on its façade.

This analysis of details suggests Koolhaas is wrong to stop at the urban scale when analysing control, as the network of details can create regulation just as coherently as the physical boundaries of space he focuses on. Through its literal application seen in details like the air-con unit as well as the more metaphorical instances viewed through the eyes of ANT, there is a consistent level of grid mentality that manifests in even the smallest scales of the city. As mentioned previously, the same rigor can be applied to the tiling of a kitchen as a city. In many ways, the observations above support this.



Centralized, Decentralized and Distributed Network Diagram- Paul Baran 1962.



The Trash Can :

The trashcan forms an integral and pivotal role in keeping these streets clean, yet its function seems usurped by its strategic placement. Placed on the corner of blocks, it creates ease for passers by but difficulty for collection or those in dwelling- it is an agent of the line not block. The corner presents a stopping point in traffic and a smart place to pick up litter. Yet the majority of occupants live between not on corners.

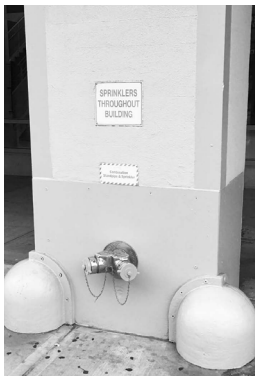
Litter left within is piled onto the curb- a pugnacious monument to the lack of coherent strategy for the interior. The result is a strangely beautiful chaos, a rise against the machine. Trash accumulates in the middle and thus in turn its pick up takes longer. Traffic is stopped not at the intersection but in between and this nullifies the perceived control applied by the trashcan.



The Curb :

This presents an example of the metaphorical power of grid mentality on the architecture of Manhattan. The curb moves in two orthogonal directions and the efficiency of this makes it easy to regulate and over bear with legislation. For example, no object can be placed within 18 inches of the edge and turning circles are governed at the points in which they change plane.

In this state, the grid extends a buffer zone between road and street, articulating the lines of the grid in the same manner in which a shadow gap articulates mass in architecture. The legislative and systematic application of control imposed by the 18 inches of road, metaphorically enforces the grid of control upon the city.



PHOTOGRAPHIC ARCHIVE

The Fire Managers :

Fire management seems to be of paramount significance in Manhattan- the stakes are just that bit higher in a high rise. This can be seen in the presence of the external escape stairs, an archetype of New York. However, the fire hydrant provides more fascinating example. The fire hydrants are placed quite uniquely in two settings; this is not common for grid implementation. One is at the side of the road that creates a network with the fire engine, but another resides on the edge of buildings that make up the block. Here, an insight is provided into the sprinkler systems that networks vertically through the buildings and interacts more specifically with a multitude of rooms. Through the fire hydrants connection to the grid, we are offered an x-ray view and the grids characteristic shifts from the horizontal to the vertical plane.



xxv

Midtown Manhattan



xxvi

Discarded Bottle



xxvii

Queens Street from Subway



xxviii

Empty Subway Platform



xxix

Line Under Line



xxx

Road Junction from Above



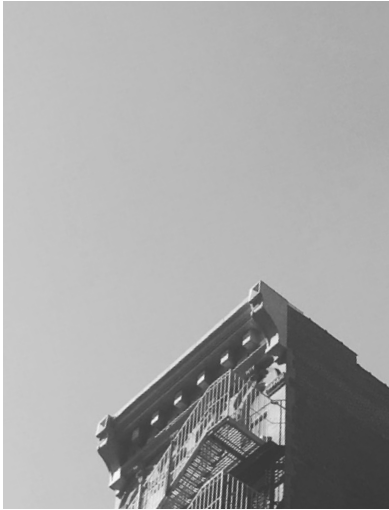
xxx1

Water in Manhattan



xxx2

Broadway Junction



xxxiii

Building Top



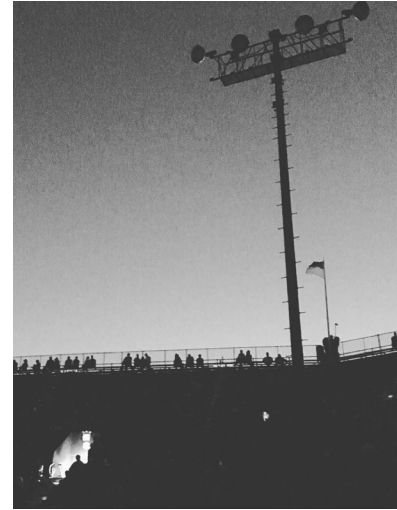
xxxiv

Brooklyn Bridge



xxxv

Junction from Corner



xxxvi

Open Air Concert in Queens



xxxvii

In a High Rise Near Central Park



xxxviii

Broken Fire Hydrant



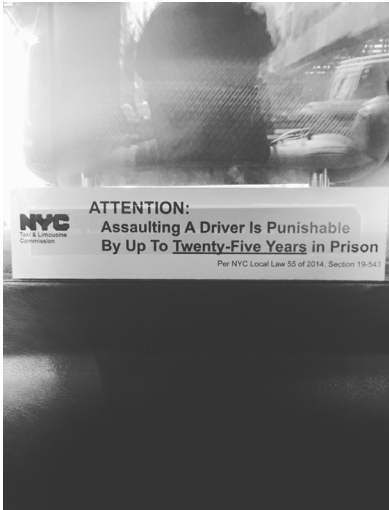
xxxix

Manhattan from Hudson



xi

Pier on Hudson River



xli

A Cab Ride Across Manhattan



xlii

Breakdown by Grand Central



xliii

Subway Commute



xliv

Late Night Boat Trip



xlv

Leaving America



xlvi

Downtown Manhattan

IN LINE

1 Learning Lessons From the Line

Momentarily step back from Manhattan and abstract the grid to its purest form, and one can evaluate into the importance of the line. Ellen Lupton examines the grid's graphical nature in her book *Thinking With Type* ⁴⁷. Within this, she discusses the notion of the Golden Section. The formula, laid out as $a : b + b : (a+b)$, creates an extremely specific and exact relationship between dimension that closely regulates its application to text and image.

Lupton interestingly notes, "...when you remove a square from a golden rectangle, the remainder is another golden rectangle, a process that can be infinitely repeated to create a spiral." ⁴⁸ What is interesting about Lupton's observation is that while her analysis is centring on type and image, it shows that the grid, even in its most fundamental and purest form, applies the same principle as at its' most complex urban scale: namely, an extremely specific dimensional rigor that provides the framework for its application. Think of Jefferson's territorial application in 1784:

"In this system the townships are six miles or 9.6 kilometres square, composed of 36 one-mile (1.6 kilometres) square sections, each of which may be may be subdivided into quarters or smaller... Townships are identified as being north or south of a baseline and in a range east of west of a longitude meridian line..." ⁴⁹

Such precision shows the exact nature of the grid, and the line is the marking

point that controls this regulation. Ultimately the line is the demarcation of space within and thus holds the key to understanding boundaries and thresholds within the city. Furthermore, the line represents motion and more specifically within an architectural framework, infrastructure. This can take the form of sidewalks, vehicular roads that range from two to six lanes, over-ground railroads, raised pathways, underground passages, tunnels and flyovers. These all differ in their physical nature, hence stimulating interrogations can arise when applied to Manhattan.

The notion that it demarks dimension is clear, but its own dimensions are left unturned; the line could be anything from 0 to every increased value. The breadth of this line allows the walker to experience the extents of urban thresholds and furthermore, allows the sense of transition between neighbourhoods to flourish. Mapping these transitions and the experience of the line forces us to rethink the fundamental beliefs we may hold for a city. It creates a connection between the overseeing views from above, which is inherently cartographic, with that which is integral to an experience- the view from eye level.

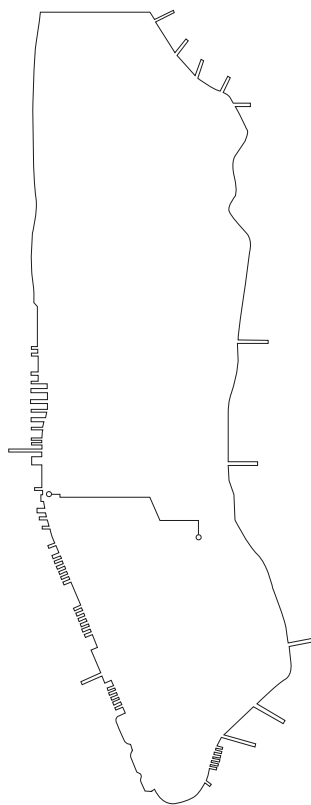
Karen O'Rourke reinforces this in *Walking and Mapping*⁵⁰. She places emphasis on the difference between using a predetermined map while walking and mapping through walking. She argues one is a top-down approach while the other the opposite, "Walking is the way most of us make our way

around the world most of the time..."⁵¹ Thus a walk can provide a deeply personal and formative projection of a city, one based entirely on a user experience in space. Conversely, Maurice Merleau-Ponty, writing in 1945, stresses the importance of the map arguing it

"Makes possible both the finiteness of my perception and its opening out upon the complete world as a horizon of every perception."⁵²

Both observations in tandem, placed within the context of the subject matter at hand, provide the backbone of the second principle within this thesis methodology, and a key to unlocking the properties of the line.

Hence, the following map and subsequent text follow a specific cartographic walk undertaken across Manhattan in order to evaluate the line. A framework of a map was used as a navigation tool but its content was progressed through the action of walking. The following text should be read in conjunction with the adjacent map.



2 To Take a View from 2nd to 11th

The route cuts through the engine room of Manhattan, starting in Gramercy and ending on the West equivalent in Chelsea. Stepping onto the pavement, there is an immediate desire to self-orientate and a search begins for signs that fix your being to a nodal position within the grid. Road signs provide this, allowing an instant understanding of both your x and y coordinates. Travelling from a street onto an avenue, the first clear observation that comes into mind is the difference in breadth between the two. The street is almost a secondary system to the avenue and this hierarchy is shown through lanes and flow of traffic. A New Yorker will tell you to only take cabs down an avenue; streets will leave you in a sea of traffic.

While passing from 18th up to 23rd Street, an understanding of one-way systems begins to formulate, only certain streets are accessible to traffic, a system that causes a slower flow of movement horizontally across Manhattan and keeps a speed highway running down the avenues. To primarily think of roads when walking in Manhattan is second nature. The dimension of the sidewalk leaves no question of who is in charge of the line- it is the vehicle and specifically those vehicles navigating the avenues. This is quite clearly shown when you reach the corner of 18th & 7th. Here, the regulations that govern intersection allow avenue cars to turn blindly into streets whether the light is red or not. The idea is to present priority to the pedestrian but the sense of hierarchy felt on entering the line is re-established and the car is king.

The work of photographer Navid Baraty⁵³ shows this observation in a clear and articulate manner. Taken not from the view of the street but instead high up in buildings, the true workings of the line's breadth can be perceived. Geoff Manaugh's *A Burglars Guide to the City* provides a telling example of this. While accompanying the LAPD on a helicopter flyover across Los Angeles he notes:

“Anyone's geographic understanding of a city can be profoundly improved when given access to an aerial view- when the city is laid out below you like a diagram.”⁵⁴

Within this journey, the likes of Gramercy, Mid-Town, Flat Iron and Chelsea are all encountered. Yet the definition of where these neighbourhoods begin and end isn't as clear as the system that they reside in. Gramercy's threshold is in many ways a more simple observation as the Flat Iron building looms into view, there is a shift in the width of street and the number of pedestrians almost doubles. Yet from here down towards Chelsea the definition of boundaries blur. The only point of reference to that you may be passing through, comes at the corners such as 23rd & 8th, with the presence of stores that often begin with 'Chelsea' or other neighbouring areas. This is a slightly confusing observation within a city that seems so thought through. In this method, by simply opening

a shop on one corner a block down and naming it 'Chelsea Food Market' you subscribe the rest of the block to a new neighbourhood. In many ways this is exactly what has happened to the Meat Packing District. Those that find Chelsea trendier have invaded the boundaries. Thus through a war of retail attrition, Chelsea has stolen entire blocks from its neighbour.

It appears that neighbourhood boundaries are not as black and white as the grid. Indeed by passing through them while walking across from 2nd to 11th Avenue, the transition is seamless- almost ephemeral. The specific dimensions still remain, but it doesn't seem as though they govern the line in the same way they do the block.

This journey was performed a number of times, never down the same route and the feeling was always the same. What was originally assumed to be predictable was in fact surprising, as if the grid of neighbourhoods were in fact another grid superimposed over the hard line above. A slightly more washed-out and blurred version abiding by its predecessor's rules- but only just.

“A living city witnesses... constant change in its spatial configurations, shaped by changing boundaries which define and redefine areas to have different function.”⁵⁵



Navid Baraty (2011). Intersection.

Interestingly, the corner is more prescriptive when observed on this walk. The only thing that differs is the typology of parts that make it up. Within the busier areas surrounding 6th and 7th Avenue, big stores capitalise with huge shop displays and adverts that entice you in to the line to enter their stores. The corner is busy with passing pedestrians and subway entrances keep a steady flow of walking traffic moving throughout. Further on, towards 8th and 9th there is a similar bustle, but the superstores such as Bed Bath and Beyond are replaced by those corner shops that demark neighbourhoods.

Now a ‘Greenwich Bakery’ or a ‘Chelsea Market’ occupies the corner, but there remains a large number of people, eating outside food stores and occupying the corner node. Even further down the route into 11th Avenue and you are faced with some of the larger housing projects implemented in New York. Here the corners aren’t often implemented with retail but there is still this presence of human activity consistently on the corner. In this case, residents drag chairs down elevators and actively sit on the street corner, selling cold drinks and sharing stories with neighbours and passers by.

The corner forms a point of American activity. This is seen by the placement of new details within its jurisdiction as discussed earlier and the observations of human occupation. Yet not all of it is positive. The connotations behind ‘Corner Boys’⁵⁶ are a classic example of this. The corner is utilised for the illegal sale of narcotics in the poorer neighbourhoods of America. Here, we

find the machine's engrained role within both the policing and societal structure within America, "The Corner is the poor-mans living room."⁵⁷

In the HBO series *The Wire*⁵⁸, the Baltimore Police Department embarks on a six-series battle with the drug gangs over the right to the corner. Throughout, the grid acts as a machine providing both the police with an easily worked system to implement hard-line strategy while also allowing the gangsters with at least three escape routes by their placement on the corner. What is, on face value, an extremely severe battle within America is a result of how deeply engrained the grid is. It again provides a framework for the social battle that then ensues.

The result of these observations is an understanding that the line does not just form the dimensions of the grid, it is also is the key instigator in how it is socially navigated. Whether it is the hierarchy of vehicles to human movement, the transient nature of neighbourhoods or the seemingly social movement of New Yorker's to dwell on the corner, the line presents them with the method of being in the city and not the block. Thus fascinatingly, the line appears to acts as an integral component in governing social order within the city.



Still from Season 3 of *The Wire*.

VERTICAL LIVING

To the untrained eye, Manhattan can appear flat. Through its seemingly interminable synthetic surface, its true topology remains hidden in plain sight as if dwarfed by the city's apparent disregard of anything natural. Couple this with an almost insatiable quantity of vistas producing infinite horizons and it becomes increasingly challenging to judge both distance and gradients. In reality, from Central Park, north towards Harlem, the city tilts vertically. This isn't just in the rise of the land but also the height of buildings that gradually wane in scale. He finds these shifts somewhat overwhelming. To him, the lines are heading in the same direction, on an unstoppable collision course, and somewhere within these two unremittingly tilting planes, he happens to find his home. Spanish Harlem, stuck in an ambiguous and diminishing elevation- it is vertical claustrophobia on an urban scale.

To really notice it, you have to be willing to walk long distances. He will overhear tourists voicing their surprise at the incline, but it is never seen. They just feel the slight burn in their legs. He is scornful of their blindness and feels that from Harlem the shift is glaringly obvious, like standing just within the shadows of a long, dark tunnel. He can see out clearly, every detail of what's in the light. But those in the light don't even know he's there. It's funny how all encompassing this image can be, because of course tourists don't see it. Tourists don't come to Harlem and certainly don't venture into the dark of the tunnel. So they haven't had the privilege of this unique insight into the city he

calls home. He doesn't dwell on it too often, just occasionally when drunk in a bar. In this state he will take the time to enlighten whoever will listen as to what being a true New Yorker really means. Being aware of this shift forms just one of an extensive list of criteria.

Personally, he ticks all the boxes of what makes a true New Yorker. Of course it helps that he came up with the list. In his eyes, he is a master of Manhattan. Covert in his knowledge of the city, he performs an inconspicuous role of knowing how it actually manifests. Maps offer an insight into its layout, yes, but not its verticality. Sure you can pay \$30 and get up one of the celebrities of the sky, but this is just one perspective from one building. To truly understand the New York, which is inherently a vertical city, you need to navigate the z-axis, bit by bit, frame by frame. This is his trump card, a window cleaner by trade, he operates through the clusters of skyscrapers that make up Lower Manhattan forming part of an elite group of workers that hold the master keys. There aren't any skyscrapers to clean up in Harlem.

No, he has to take the subway to partake in his sky-bound analysis. What this means is that his journey through the z-axis starts underground on the subway. It's not the part of his infinite knowledge he's most proud to boast about, in fact he doesn't much care for the subway and he certainly doesn't hold it in the same regard as the skyscrapers he cleans. Instead it forms an uncomfortable but necessary part of his day, something to be endured. This endurance

is another box on the ‘true New Yorker’ list- you have to be thick skinned to survive in the Big Smoke. It helps if you’re foolhardy too.

He’s of the opinion that the subway is the consolidation of incoherent planning and appalling maintenance. The purity and clarity of Manhattan that he holds so dear is lost once he descends down insalubrious stairways into cramped concourses. Here, chipped white tiles frame a scene of chaos that forms the antithesis of above. He floats quickly past visitors struggling with dated ticketing systems and with a wry smile watches them panic in the mayhem. He slips through the malevolent jail bars that separate the paid and unpaid spaces, their painted steel fingers lurching out at commuters in an unremitting show of hostility. Signs then point him aimlessly to a maze of stairwells declaring, in fake confidence, the directions of incoming trains. Again he smiles, he knows the way through the maze, but the subway is not for the faint-hearted.

The summer is when it really gets interesting. A wall of sticky, insufferable heat hits you while descending to the platforms. The stench of those who have made the subway their home for the previous night lingers heavily in the air, burning nostrils and ensnaring all senses. His religious upbringing means it comes naturally to see the subway as a metaphorical hell. But those fleeting moments in the hands of the devil are worth his day with God in the clouds.

Manhattan from a high window is a sight to behold, but try being on the other side of that pane. He hangs precariously from wire, polishing in-

cessantly until the imposing reflections of neighbouring buildings materialise and he is encased in a coffin of glass. Only then does he feel the true power of the city. He becomes painfully aware of his mortality, but more crucially his insignificance. He doesn’t see this as a bad thing, in fact the opposite. It’s a humbling experience, one that plenty of his fellow New Yorkers down in Wall Street could do with.

He moves from pane to pane, systematically working his way up into the clouds, he’s reminded of the unassailable reality of it all- Manhattan is a kit of parts, its summation daunting. Visitors strain their eyes in amazement but not him, he knows. The buildings make the city, the windows make the buildings. It’s all relatable when you break it down. The God-like symbol of the skyscraper is omniscient, but equally not immortal. He learned at on September 11, 2001. Only in this scenario do you see New York for what it is- a collection of skyscrapers who’s height instils dominance on the street scape below. He hangs up there, filling his lungs with fresh air no street dweller could dream of feeling and thinks of those infamous photographs of the skyline builders. As he eats his lunch in the same way and on the same axis as those early builders, he wonders whether they knew what he does.

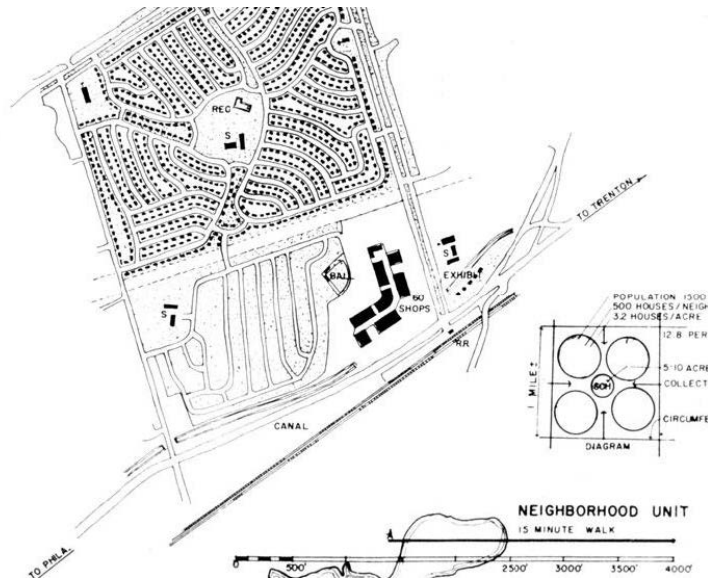
IN JILT

1 The Suburban Connundrum

Having explored the grid presented through Manhattan, it is important to look at the moments in which the grid jilts out of focus and the seemingly all-encompassing system is momentarily shifted. These tend to happen at the macro scales and they can be considered an anti-grid mentality. As Geoff Manaugh flew around Los Angeles he depicted one of these moments in a particularly profound manner, “There are holes, however, gaps in the urban fabric where a certain street will disappear for several blocks before reappearing further on.”⁵⁹ He continued, recalling a conversation with the pilot, “we had been flying over a part of the city that was out of sync with the city’s grid.”⁶⁰ Intriguingly, the concept of the gap within the system conveys a malfunctioning component within the machine. The machine is out of sync, as if its application went off-line and peculiarities were given the opportunity to form.

However, while this seems more incidental, the creation of Levittown in 1948 provides an archetypal example grid jilt. Established by Alfred Levitt and his two sons, it was constructed with the view to house returning soldiers from the war and accommodate the anticipated baby boom. With this new mass housing scheme in mind, the Levitts did not turn to the typical pattern of American urbanisation; instead they commandeered an antithesis of the grid. Streets were designed along curvilinear patterns and cars were directed to the outside of the community with the hope of reducing noise and traffic.

The design drastically altered what has been considered the line in



Plans for Levittown drawn up initially by the Levitt Brothers.

this thesis. Its specific dimensions that we see in Manhattan were replaced by a trail that twist and turned. Its physical form was more akin to the trails developed by Frederick Olmsted⁶¹ in Central Park than any form of town planning within New York. Furthermore, the model created a family-orientated scheme that changed the face of American housing and fuelled the growing notion of ‘The American Dream’,

“Even at the time, the iconic community represented for many all that was hopeful and wholesome for the estimated twenty million Americans who followed Levittown’s lead and made the trek to suburbia in the 1950s.”⁶²

From the success of Levittown, it would appear that its creation and subsequent copies saw a move away from the grid that America had so rigorously adopted. Indeed, at face value and while read cartographically, the new suburbia appeared to show a desire to live off grid, encouraging Americans to move away from the stress and rigor of the cities. However, by merely scratching the surface of the trove of information surrounding both Levittown and American suburbia, the grid quickly reinstates itself. If we primarily look at the principle behind what Alfred Levitt and his son’s were attempting with the scheme, there is an overriding sense of mechanic systemisation. In 1948, Alfred Levitt was quoted in *The American Magazine* to have said:

“We are not builders, we are manufacturers. The only difference between Levitt & Sons and General Motors is that we channel labor and materials to a stationary outdoor assembly line instead of bringing them together in a factory on a model line”⁶³

Instantly, the metaphors of the machine come flooding back. By approaching housing as a method of manufacture, Levitt de-personalised the most personal of spaces, the home, and in doing so, reaffirmed just how engrained the grid was within America’s psyche. While the streets do not follow the physical depiction of the grid, it is still present nonetheless, lurking behind the façade. Moreover, when it came to the planning of units, they did not look for the same levels of innovation applied in their streetscape. Instead, they followed the exact same principles laid out by Jefferson in 1784. Communities were constructed as ‘sections’ within a mile-square area. The street names desperately attempted to place as much distance between themselves and the metropolis with idyllic names such as ‘Crabtree Lane’. They were so firmly linked to nature in a way that Manhattan, with its completely disregard for the landscape, could never be. Yet, even with their ties to nature, those streets within a section always began with the same letter as that given to the section and followed a specific form such as the tree. Hence the line was still governed by the same regimented and mechanic indexical system that is second nature to the grid.

The control imposed through grid planning is unearthed even further in the landscaping of both the front and back yards. Every house was conditioned by a ‘Homeowner’s Standards’ that specifically noted the length of grass, the placement of shrubs, even the colour of your fence. Suburbia was to appear on the surface a natural wonder, but in reality, it would be a synthetic wonder to be implemented in the same machine like manner in which they rolled out 30 houses a day. Indeed the houses themselves followed the grid’s repetitive and modular nature. While this was no doubt for economic viability and ease of construction, it is interesting nonetheless that huge swathes of one of the original attempts at perfecting the American Dream would be so deeply engrained with the systematic principles of the metropolis they looked to leave behind.

This is still seen in cases of suburban communities more recently in American history. As part of initial research into the subject matter presented in this thesis, a study was undertaken on a small gated-community in Los Angeles named Bell Canyon. By investigating the legislation that governed the community, the same findings are seen throughout the laws that condition their vision of a domestic lifestyle. The community not only actively upheld many of the same principles as Levitt in 1948, they embellished upon them with new notions such as an ‘Architectural Committee’, who’s mission statement sums up the undeniable presence of grid mentality :



Selection of images of Levittown

“ To protect maintain and enhance the value of community assets by providing oversight and enforcement of by-laws.”⁶⁴ The findings of this preliminary research can be found within the appendix of this essay.

Hence, even ‘off grid’ there is no escaping its relentless control, due mainly to the very essence of the question posed within this dissertation. The mentality of the grid remains in the psyche of Americans, even within its antithesis. While the physical barriers may disappear, it is implemented through legislation and regulation, imposed upon those escaping its relentless nature through social culture, and governance:

“The grid indelibly etched the land and the American psyche... ‘Squareness’ was good. A ‘square deal’ was a good deal, to be a ‘four-square man’ was to be solid, honest and hardworking. The grid defined America physically and psychologically.”⁶⁵

2 Territorial Application

This notion can be clearly seen at an even larger, more territorial scale, in The Bakken Formation that lies within the western edge of the State of North Dakota. Advancements in resource extraction, namely the process of hydraulic fracturing, have resulted in the production of a number of independently working grids that act as fuel for the country, feeding the economic requirements of America. The existing grid that dictates both the agricultural and urban layout of the state has been infringed upon by the addition of this industry that works both independently and in line with the existing system.

Corporations searching for oil beneath the state and in a frenzied expansion of capitalist opportunity, have rapidly developed its own subterranean system whose sole purpose is to extract oil in the most efficient and cost effective manner; its grid as relentless as the urban above. This subterranean level follows the infrastructure atop, essentially the lines of the grid, but remains in its own jurisdiction based on oil field boundaries and corporate ownership beneath the ground.

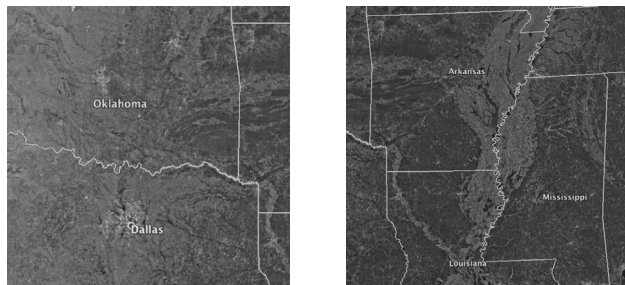
What is therefore seen within this example, shown by the two maps adjacent, is the implementation of yet more grids in order to navigate and control the natural resources within the country. Furthermore, the Bakken Formation shows us the undeniable ability for the grid to consistently apply its rigor to all scales. The observations of verticality previously noted throughout this thesis, such as the subway in Manhattan and its connections to the

line, are seen just as clearly throughout the application of oil industries over huge swathes of North Dakota. Hence the grid completes its transition from the micro to the macro as explored within this thesis in a seemingly unscathed condition. It is so vast that even time zones submit themselves to fall within it. It becomes invisible to the eye, simply due to the monumental size of its dimensions and thus is seen only through maps or satellite imagery.

Yet what is most intriguing is the relationship it forms with the natural landscape. In many ways, it is here that the grid meets its match. Imposing formations such as Yellow Stone National Park, The Rockies and The Grand Canyon provide vast, organic instances that are just as infinitesimal as the grid. Such is their scale that they are impossible to disregard as done on an urban scale. Indeed, huge expanses of water such as Lake Michigan or never-ending snaking rivers like the Missouri or Mississippi river, offer such monumental manifestations that the grid must account for them.

Within these circumstances, the grid begins to follow the natural landscape, jilting and twisting as it tries to fit within its system. The image of a child smashing a circle block into a square hole seems to spring to mind. The adjacent satellite images show some of these encounters that can be found across the United States. Interestingly, there isn't a seemingly natural breakdown from the grid into a more natural agreement with the land. Instead, at points where it cannot continue, it simply stops, to be restarted at the exact mo-

ment it can return. In this light, it does exactly what a machine set up to control would do. Reasserting itself into every crevice it can while skirting tentatively around what it cannot.



Examples from Google Earth of the Grid in Jilt

3 Looking Forward

At the beginning of this body of writing, the subject matter of the grid was approached from an entirely observational point of view. The intentions were to explore just how engrained grid mentality was in America and utilise different methods of research to begin to peel away any facades covering its presence. It was envisioned to result in a sterile and cynical conclusion. One that proved the grid was a controller, restricting the American citizens to an invisible prison of legislation. However, upon personally exploring the variety of scales presented through both lived experience and theoretical analysis, a much bigger picture began to surface. The grid evolved as it was lived and read about it, each observation seeming to turn it from a machine that strategized America into one that seemed inexorably more powerful as a metaphor. It encompassed the legislation, and in essence the constitution upon which America was built. A constitution that to this day singles America out as a unique nation governed quite simply by a set of principles and rules.

The grid does in many ways apply a large degree of control through its application, but this is in the fundamental nature of any grid, which begged the question, what made its application in America so comprehending? The fact that the grid was an integral element of these first founding thoughts goes a long way to explaining its prominence throughout the American psyche and hence its inevitable application. Indeed it seems suitable to suggest that grid mentality can almost present itself as an unwritten constitution. Simply missed

by the founding fathers as they laid out their plans for a great nation. The very metaphors, like the machine applied here, the microcosms and scalable concepts seen throughout this thesis are just as an integral part of its presence and form a pivotal role in allowing the American grid to evolve at the same speed as the nation itself.

It follows that the American grid must be lived, it cannot be perceived through evaluations from a map or body of historical text. Only through its experience can a true evaluation of its presence be acknowledged and this makes any accreditation of the physical control a grid presents redundant. The control that it imposes is not a notion imposed purposefully from inception and in order to govern every aspect of the country's urban and social formation. Instead, the control that it now pertains over the multitude of scales comes from the number of figurative grids that have branched off its early implementation. Networks of moments that have made America what it is today, the social networks created within its framework that in many ways have manifested in a natural and organic nature. Thus while this thesis explores the presence of grid-like characteristics of space within America, its supposition must remain open, extended as an ability to address the grid in a number of different contexts. Moreover, while researching, there were a large number of occasions whereby an observation could have formed its own individual thesis.- this is the typical of its nature. Ultimately the grid is mechanic, but perhaps not a machine, it is bigger than

this metaphor can accommodate for. Better suited, it can be seen as a factory of infinite dimensions. One that can house different machines, some literal, some emblematic, that can work within its parameters, indeed even those that wish to work against it. In this light, the grid forms part of the framework on which the country can continue to progress. As Doreen Massey notes in *For Space*⁶⁶.

“Space is always under construction; ‘it is always in the process of being made. It is never finished; never closed.’”⁶⁷

Thus in the context of space, which forms the primary point of architectural investigation within this thesis, the American grid acts as a metaphorical frame for which space develops and will continue to develop in the future. In essence, the grid more powerful as an idea than fact.

END

END NOTES

- 1 Kjetil Fallan & Grace Lees-Maffei, 'It's Personal: Subjectivity in Design History' in *Design and Culture*, 7:1, 5-27.
- 2 Fallan & Lees-Maffei (2015) 'It's Personal' : 5.
- 3 John Berger, *Ways of Seeing* (Penguin UK, 2008).
- 4 Berger, *Ways of Seeing* : 1.
- 5 Karen O'Rourke, *Walking and Mapping: Artists as Cartographers* (Cambridge MA, MIT Press, 2013).
- 6 Sophia Psarra, *Architecture and Narrative: The Formation of Space and Cultural Meaning in Buildings* (Routledge, 2013).
- 7 Psarra, *Architecture and Narrative*, 2.
- 9 Karen O'Rourke, *Walking and Mapping: Artists as Cartographers* (MIT Press, 2013).
- 10 O'Rourke, *Walking and Mapping*: xix.
- 11 In the Roman Empire, the Latin word *castrum*, plural *castra*, was a building, or plot of land, used as a fortified military camp. It was designed to house and protect the soldiers, their equipment and supplies when they were not fighting or marching.
- 12 John Russell Young, 'Memorial history of the city of Philadelphia, from its first settlement to year 1895, Volume 2' (Рипол Классик, 1898) 22.
- 13 Ethan & Joel Coen, *O' Brother Where Art Thou* [film] (Hollywood, 2000).

- 14 Mark Pimlott, *Without and Within* (Rotterdam: Episode Publishers, 2007).
- 15 Pimlott, *Without and Within*: 66.
- 16 Stan Allen, 'From Object to Field: Field Conditions in Architecture and Urbanism' in *AD (Architectural Design)* 67 n.5-6 (May-June, 1997) 24-31.
- 17 Jeffersonian Grid refers to the system put in place in the Land Ordinance of 1784 within the United States. Land was broken up into sections which were then split into quarter sections and so on resulting in the subdivision of plots that could be sold to prospective buyers.
- 18 Allen, 'From Object to Field' (May-June, 1997).
- 19 Oxford English Dictionary, Oxford Dictionaries - Dictionary, Thesaurus, & Grammar (online) <https://en.oxforddictionaries.com/definition/> [Accessed 16 Sep. 2016].
- 20 Colin Rowe, 'Chicago Frame', in *The Mathematics of the Ideal Villa and Other Essays* (Cambridge MA, MIT Press, 1976) 99.
- 21 Rosalind E. Krauss, *The Originality of the Avant-Garde, and Other Modernist Myths* (Cambridge MA, MIT Press, 1985).
- 22 Rosalind E. Krauss, 'The Originality of the Avant-Garde' : 158.
- 23 Michael Witzel, *The American Motel* (Motorbooks International 1st Edition, 2000).
- 24 Witzel, *The American Motel*: 9.
- 25 *Psycho* (1960) Film, Hollywood: Alfred Hitchcock.
- 26 *Drive* (2011) Film, Hollywood: Nicolas Winding Renf.
- 27 *No Country for Old Men* (2007), Film, Hollywood: Joel Coen & Ethan Coen.
- 28 Rosalind E. Krauss, 'Grids' in *The Originality of the Avant-Garde, and Other Modernist Myths* (Cambridge MA, MIT Press, 1985) 18.
- 29 Rem Koolhaas, 'Delirious New York' (New York, NY, Crown Publishing Group, 1994) 20.
- 30 Koolhaas, *Delirious New York*: 11.
- 31 Mike Davis, *City of Quartz* (Verso Books, 2006).
- 32 Davis, *City of Quartz*: 50.
- 33 Reyner Banham, *Los Angeles: The Architecture of Four Ecologies* (University of California Press, 2009).
- 34 Banham, *Los Angeles: The Architecture of Four Ecologies* 32-33.
- 35 Banham, *Los Angeles*: 9.
- 36 Alexandra Horowitz, *On Looking: A Walkers Guide to the Art of Observation* (New York: Scribner, 2014).
- 37 Horowitz, *On Looking*: 263.
- 38 Horowitz, *On Looking*: 15.

- 39 Koolhaas, *Delirious New York* : 20.
- 40 Mayor Bill de Blasio is currently serving as Mayor of the City of New York since 2014. He is an American Politician and part of the Democratic Party.
- 41 Kjetil Fallan, "Architecture in Action: Traveling with actor-network theory in the land of architectural research," *Architectural Theory Review*, 13, no. 1 (2008), 80–96.
- 42 Fallan, "Architecture in Action" *Architectural Theory Review*, 13 no.1: 185.
- 43 Fallan, "Architecture in Action" *Architectural Theory Review*, 13 no.1: 187.
- 44 Mattias Karrholm, "Arkitekturen territorialitet- till en discussion om territoriell makt och gestaltning i stadens offentliga rum." Doctoral dissertation, Lund: LTH, Lunds Universitet, 2004. pp.59-70.
- 45 Fallan, "Architecture in Action" *Architectural Theory Review*, 13 no.1: 188.
- 46 Geoff Manaugh, *Burglar's Guide to the City*, (Farrar, Straus and Giroux: New York, 2016) 87.
- 47 Manaugh, *Burglar's Guide to the City*: 88.
- 48 Ellen Lupton, *Thinking with Type*. (New York: Princeton Architectural Press, 2004).
- 49 Lupton, *Thinking with Type* : 176-177.
- 50 Introduction to Ohio Land History' [online] Available at www.users.rcn.com/deeds/ohio [Accessed 21.09.2016].
- 52 Maurice Merleau-Ponty, *Phenomenology of Perception* (Paris:Gallimard, 1945), transl. Colin Smith (London: Routledge, 1962, 2005).
- 53 Navid Baraty (2011). *Intersection*. [online] Available at: http://www.navidbaraty.com/gallery.php?gallery_id=13 [Accessed on 10.09.2016].
- 54 Manaugh, *Burglar's Guide to the City*: 37.
- 55 Ali Madanipour, *Public and Private Spaces of the City*. (London: Routledge, 2003) : 61.
- 56 'Corner boys' is a slang term that gained momentum in America during the 1980's. It was coined by the older generation to describe the youth who would hang around on street corners. It is often linked to the young drug dealers who would sell on these corners in poorer neighbourhoods.
- 57 David Simon, *The Wire*. [Television Series] (Baltimore, 2002-2008).
- 58 David Simon, *The Wire: Season 1*
- 59 Manaugh, *Burglar's Guide to the City*: 50.
- 60 Manaugh, *Burglar's Guide to the City*: 50.
- 61 Frederick Law Olmsted was an American landscape architect widely accredited as the 'Father of American landscape architecture. He was the co-designer of Central Park in Manhattan New York.
- 62 Crystal Galyean, "Levittown." April 10, 2015 [online]. Available at <http://ushistoryscene.com/article/levitt> [Accessed October 3, 2016].

- 63 Tom Bernard, "New Homes for Sixty Dollars a Month," *The American Magazine*, April 1948, p. 105. Cited in Giles Slade, *Made to Break: Technology and Obsolescence in America*, p. 130.
- 64 Mission Statement of Bell Canyon's Architectural Committee [online]. Available at <https://community.associawebsites.com/sites/BellCanyonAssociation/Pages/Acw-Default.aspx>
- 65 John Warfield Simpson, *Visions of Paradise: Glimpses of Our Landscape's Legacy*. (University of California Press, 1999) : 58.
- 66 Doreen Massey, *For Space*. (Thousand Oaks, CA: SAGE Publications, 2005).
- 67 Massey, *For Space* : 12.

BIBLIOGRAPHY

BOOKS

Allen, Stan. "Mapping the Unmappable: On Notation". *Practice: Architecture, Technique and Representation*. London: Routledge, 2009.

Ballard, J. *High-rise*. New York: Holt, Rinehart and Winston, 1977.

Ballon, Hilary. *The Greatest Grid: The Master Plan of Manhattan, 1811-2011*. New York: Columbia University Press, 2012.

Banham, Reyner. *Los Angeles: The Architecture of Four Ecologies*. Middlesex: Penguin Books, 1976.

Berger, John. *Ways of Seeing*. Penguin Books, 1972.

Castagnoli, Ferdinando. *Orthogonal Town Planning in Antiquity*. Cambridge, MA: MIT Press, 1971.

Codella, Michael. and Bennett, Bruce. *Alphaville*. New York: Thomas Dunne books/St. Martin's Press, 2010.

Cohen, Jean-Louis. *The Future of Architecture, Since 1889*. London: Phaidon, 2012.

Cole, T. *Open city*. New York: Random House, 2011.

Davis, Mike. *City of Quartz: Excavating the Future in Los Angeles*. London: Verso, 1990.

Ellin, Nan, and Edward J. Blakely. *Architecture of Fear*. New York: Princeton Architectural Press, 1997.

Foucault, Michel. *Discipline and Punish*. New York: Pantheon Books, 1977.

Gehl, Jan. *Cities for People*. Washington, DC: Island Press, 2010.

Gundogan, Ercan. *A Theory of Capitalist Urbanisation: David Harvey*. Saarbrücken: VDM Verlag Dr. Müller, 2009.

Harvey, David. *The Condition Of Postmodernity*. Oxford [England]: Blackwell, 1990.

Highmore, Ben. *Cityscapes*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan, 2005.

Holloway, Marguerite. *The Measure of Manhattan: The Tumultuous Career and Surprising Legacy of John Randel Jr., Cartographer, Surveyor, Inventor.* W.W.Norton & Company, 2013.

Horowitz, Alexandra. *On Looking.* New York: Scribner, 2014.

Koolhaas, Rem. *Delirious New York: A Retroactive Manifesto for Manhattan.* London: Monacelli Press, 1978.

Krauss, Rosalind. (1985). *The Originality of the Avant-Garde and Other Modernist Myths.* Cambridge, Mass.: MIT Press.

Lefebvre, Henri. *The Production of Space.* Oxford: Blackwell, 1991.

Lefebvre, Henri. *Critique of Everyday Life.* London: Verso, 1991.

Levin, Thoman Y, Ursala Frohne and Peter Weibel. *Ctrl [Space].* Karlsruhe, Germany: ZKM Center for Art and Media, 2002.

Linklater, Andro. *Measuring America: How Wilderness Shaped the United States and Fulfilled the Promise of Democracy.* New York: Walker &, 2002.

Lupton, Ellen. *Thinking with Type.* New York: Princeton Architectural Press, 2004.

Macphee, Graham. *The Architecture of the Visible.* London: Continuum, 2002.
Madanipour, Ali. *Public and Private Spaces of the City.* London: Routledge, 2003.

Manaugh, Geoff. *A Burglar's Guide to the City.* New York: Farrar, Strauss & Giroux: 2016.

Massey, Doreen B. *For Space.* London: SAGE, 2005.

More, Thomas. and Ogden, H.V.S. *Utopia.* Arlington Heights, Ill.: Harlan Davidson, 1985.

Negarestani, Reza, and Alvanson, Kristen. *Cyclonopedia: Complicity with Anonymous Materials.* Melbourne: Re.press, 2008.

O'Rourke, Karen. *Walking and Mapping: Artists as Cartographers.* MIT Press, 2013.

Orwell, George. 1984. New York: Signet Classic, 1977.

Perec, Georges. *Species of Spaces and Other Pieces*. Middlesex: Penguin Books, 2008.

Pimlott, Mark. *Without and within*. Rotterdam: Episode Publishers, 2007.

Psarra, Sophia. (2009). *Architecture and narrative*. Milton Park, Abingdon, Oxon: Routledge.

Reps, John William. *The Making of Urban America: A History of City Planning in the United States*.

Princeton, NJ: Princeton University Press, 1965.

Rasmussen, Steen E. (1962). *Experiencing architecture*. Cambridge MA: M.I.T. Press, Massachusetts Institute of Technology.

Rossi, Aldo, and Eisenman, Peter. *The Architecture of the City*. Cambridge MA: MIT Press, 1982.

Lupton, Ellen. *Thinking with Type*. New York: Princeton Architectural Press, 2004.

Macphee, Graham. *The Architecture of the Visible*. London: Continuum, 2002.
Madanipour, Ali. *Public and Private Spaces of the City*. London: Routledge, 2003.

Manaugh, Geoff. *A Burglar's Guide to the City*. New York: Farrar, Strauss & Giroux: 2016.

Massey, Doreen B. *For Space*. London: SAGE, 2005.

More, Thomas. and Ogden, H.V.S. *Utopia*. Arlington Heights, Ill.: Harlan Davidson, 1985.

Negarestani, Reza, and Alvanson, Kristen. *Cyclonopedia: Complicity with Anonymous Materials*. Melbourne: Re.press, 2008.

O'Rourke, Karen. *Walking and Mapping: Artists as Cartographers*. MIT Press, 2013.

Orwell, George. 1984. New York: Signet Classic, 1977.

Perec, Georges. *Species of Spaces and Other Pieces*. Middlesex: Penguin Books, 2008.

Pimlott, Mark. *Without and within*. Rotterdam: Episode Publishers, 2007.

Psarra, Sophia. (2009). *Architecture and narrative*. Milton Park, Abingdon, Oxon: Routledge.

Reps, John William. *The Making of Urban America: A History of City Planning in the United States*.

Princeton, NJ: Princeton University Press, 1965.

Rasmussen, Steen E. (1962). *Experiencing architecture*. Cambridge MA: M.I.T. Press, Massachusetts Institute of Technology.

Rossi, Aldo, and Eisenman, Peter. *The Architecture of the City*. Cambridge MA: MIT Press, 1982.

Sorkin, Michael. *Local code*. New York, N.Y.: Princeton Architectural Press, 1993.

Tardt, Donna. *The Goldfinch*. Little, Brown and Company, 2015.

Tschumi, Bernard. *The Manhattan Transcripts*. London: Academy Editions, 1992.

Wilson, Thomas D. *The Oglethorpe Plan: Enlightenment Design in Savannah and Beyond*. University of Virginia Press, 2012.

Witzel, Michael. *The American Motel*. MBI Publishing Company LLC, 2000.

Allen, Stan. "From Object to Field." *AD magazine/After Geometry*, 1997, Number 127.

Barthes, Roland. "The Death of the Author." (1968) *Image, Music, Text*. Tr. Stephen Heath (New York: Hill and Wang, 1977) 142-148.

Daston, Lorraine, and Galison, Peter. "The Image of Objectivity." *Representations*, no. 40 (1992): 81-128.

Ellin, Nan. "Fear and City Building." *The Hedgehog Review - Fear Itself* 5, no. 3. (August 2003): 43-61.

Fallan, Kjetil. and Lees-Maffei, Grace. (2015). "It's Personal: Subjectivity in Design History." *Design and Culture*, 7(1), pp.5-27.

Fallan, Kjetil "Architecture in Action: Traveling with actor-network theory in the land of architectural research," *Architectural Theory Review*, 13, no. 1 (2008), 80-96.

Figueiredo, L., Amorim, L. "Decoding the urban grid: or why cities are neither trees nor perfect grids." (2007) *ITU Faculty of Architecture: Istanbul, Turkey*.

Galison, Peter. "War against the Center." *Grey Room* 1, no. 4 (2001): 6-33.
Hurt, S. and Rowe, C. "Chicago Frame" *Mathematics of the Ideal Villa and Other Essays*. (1976): 99.

Latour, Bruno. "On actor-network theory. A few clarifications plus more than a few complications." (1990) *Soziale Welt*, vol. 47: 369-381.

Lee, CM Christopher, and Jacoby, Sam. "Typological Urbanism: Projective Cities" *Architectural Design*, no 209. (January/February 2011).

Turner, Alasdair, Doxa, O'Sullivan & Penn. "From Isovists to Visibility Graphs: A Methodology for the Analysis of Architectural Space." *Environn Plann B* 28, no.1 (2001): 103-121.

Baraty, N. (2011). Intersection. [online] Available at: http://www.navidbaraty.com/gallery.php?gallery_id=13 [Accessed on 10.09.2016].

Klier, M. (1983). Der Riese. [online] Available at: <http://www.medienkunstnetz.de/works/der-riese/> [Accessed on 05.09.2016].

Knight, P. (2012). The Great American Grid. [online] Available at: <http://www.thegreatamericangrid.com/archives/777> [Accessed 14.07.2016].

Morphocode (2015). Urban Layers: Explore Manhattan's Urban Fabric. [online] Available at <http://io.morphocode.com/urban-layers/> [Accessed 14.07.2016].

Galyean, Crystal. "Levittown." US History Scene. April 10, 2015 [online]. Available at <http://ushistoryscene.com/article/levitt> [Accessed 21.08.2016].

"A Day on the Grid" Aldo Urbinati, Alexandra Vougia, Ross Adams, Gabriela Garcia de Cortazar, Emmanouil Stavrakakis, Alison Moffett, Nerma Cridge, Merve Anil, Eleanor Dodman, Alejandra Celedon, Costandis Kizis, Arturo Revilla, Ryan Dillon, Valeria Guzman Verri, Jingming Wu. Lecture Hall, Architectural Association, 36 Bedford Square, WC1B 3ES. 10 May 2013.

"The Unfinished Grid: Design Speculations for Manhattan". Museum of the City of New York, December 6, 2011–April 15, 2012. Curated by Gregory Wessner.

No country for old men (2007) Directed by Ethan Coen, Joel Coen USA.

Taking of Pelham 123 - trailer (2009) Directed by Sony Pictures Entertainment.

Rear window (1954) Directed by Alfred Hitchcock USA.

Psycho (1960) Directed by Alfred Hitchcock USA.

Birdman or (the unexpected virtue of ignorance) (2014) Directed by Alejandro G. Iñárritu USA.

White earth (2014) Directed by Christian Jensen USA:.

TRON: Legacy (2010) Directed by Joseph Kosinski USA:.

Metropolis (1927) Directed by Fritz Lang Germany:.

Inside man (2006) Directed by Spike Lee USA.

Die hard with a vengeance (1995) Directed by John McTiernan USA.

The overnights (2014) Directed by Jesse Moss USA.

Drive (2011) Directed by Nicolas Winding Refn USA.

Blade runner (1982) Directed by Ridley Scott Hong Kong:

Minority report (2002) Directed by Steven Spielberg USA.

With thanks to

Naomi House
Florence Maschietto

for inspiring this research and
putting up with endless
conversations about the grid.