

*CURATING
AN EGAL-
ITARIAN
TERRITORY*

AXONOMETRY AND THE POLITICAL IMAGE OF THE CITY

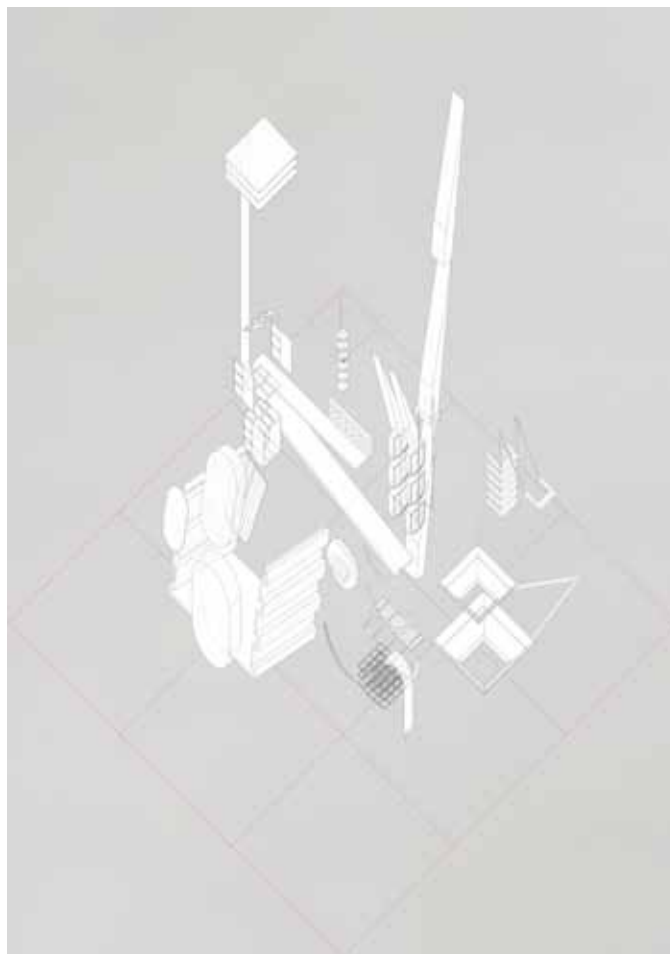


fig0.1

Curating an Egalitarian Territory
Axonomy, and the Political Image of the City
Sayan Skandarajah

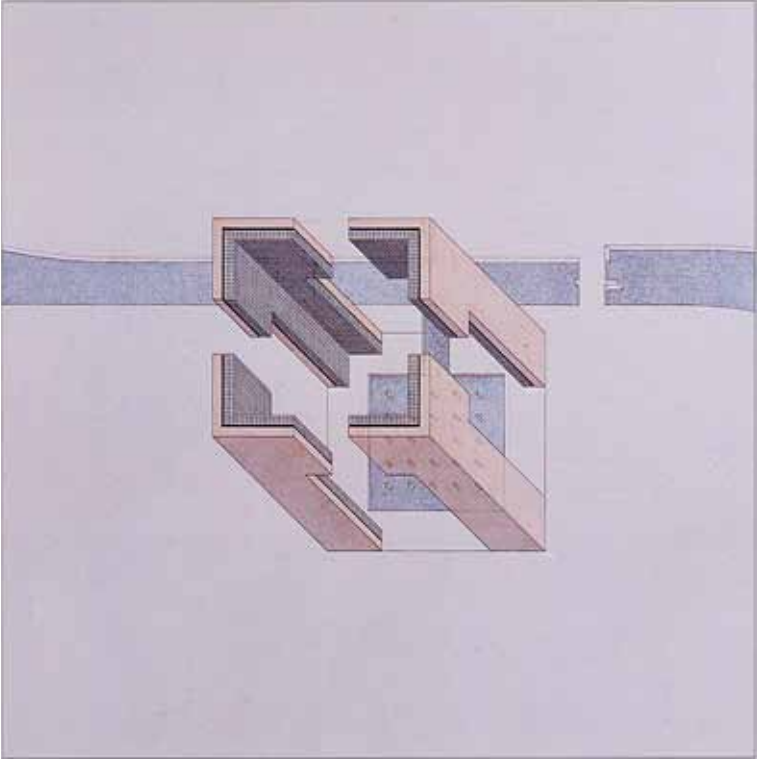


fig.0.2



In the introduction to *Temple Island*, a series of allegorical architectural drawings exploring geometry and the cone of vision, Michael Webb describes viewpoint in axonometric projection as where 'the observer is everywhere and nowhere'. He goes on to refer to Pascal's description of God as being 'a sphere whose centre is everywhere and whose circumference is nowhere'.¹ What Webb alludes to here is the principle that the axonometric viewpoint equates to that of a God's eye view, an omnipresent eye, organising and perhaps controlling space from above.

This thesis questions the ideologies embedded within axonometry as a mode of representation, which allow for an image to play a political role in our perception and understanding of the city. In addition to notions of dominance and power as mentioned by Webb, one could argue the underlying aspect of non-hierarchical space presents in axonometry an egalitarian perception of the city. Specific examples in history will be used to examine how these conflicting properties lead - intentionally or otherwise - to the construction of a political image. The thesis will assert that the associated senses of abstraction, temporality and inherent notions of power, accumulate to the communication of a political architectural rhetoric. In parallel, a close analysis of design work undertaken by the author will be used to punctuate, test and in some cases re-establish the theoretical status of representation in architectural practice.

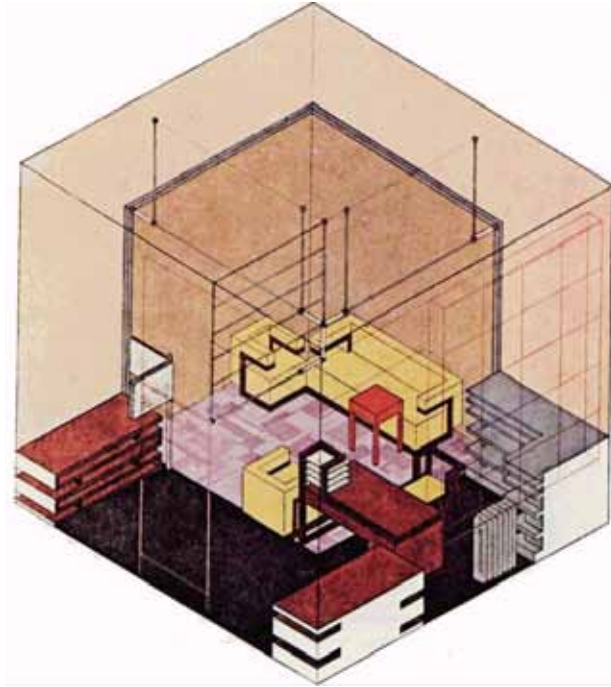


fig0.3

I would like to thank Penelope Haralambidou for playing a crucial role in the formation of ideas in this thesis. I would like to thank Abigail Ashton and Andrew Porter for developing my attitude towards the design work presented in this document. I would also like to thank Liam Ross, for sparking my interest in the axonometric and representation.

FOREWORD ~ *The Production Of Axonometry*

[NOTE ~ Two voices here lead to a conversation reflecting the status of representation of the city. They will be structured in parallel as independent texts, affording a choice in the sequence in which they are read.]

VOICE A [teal]

A critical interpretation of the properties of the axonometric, throughout its history.

INTRODUCTION ~ *The Political Image of the City* 14

1A ~ *[Re]Composing Spatial Ambiguity* 20

The celebration of abstraction and ambiguity from El Lissitzky to Ivan Leonidov.

2A ~ *The Autonomous, Territorial City* 36

The representation of autonomy and identity in the city, from OM Ungers to Rem Koolhaas.

3A ~ *The Omnitemporal space* 58

The role of Chinese painting in representing time, narrative and duration in the hand scroll.

VOICE B [pink]

A speculative design project set in the city of Copenhagen, using the axonometric as a driver.

INTRODUCTION ~ *An Egalitarian Territory* 15

1B ~ *Spatialising Equality* 21

Egalitarianism is explored as a spatial ideology in Denmark and implemented as a tool for design

2B ~ *Introducing a Municipal Enclave* 37

The introduction the scope of the design proposal; a new enclave within the centre of Copenhagen.

3B ~ *Drawing Possibility* 59

The use of representation to explore flux and change in the city and its proposed architectures.

CONCLUSION ~ *Axonometry as Rhetoric for Architectural Simultaneity* 74

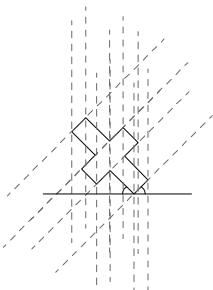
FOREWORD

The Production of Axonometry

I
Plan projection A



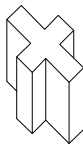
Plan



Rotate 45 degrees + Vertical projection



Z axis drawn

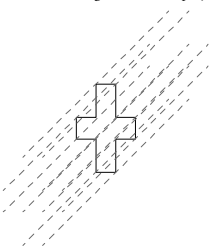


Implied space

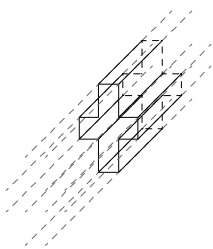
II
Plan projection B



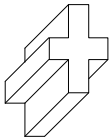
Plan



Project 45 degrees



Z axis drawn

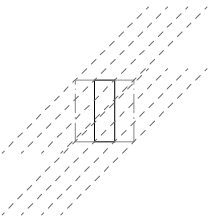


Implied space

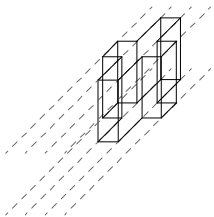
III
Elevational projection



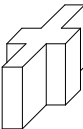
Elevation



Project 45 degrees



X + Y axes drawn

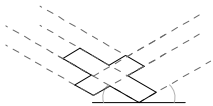


Implied space

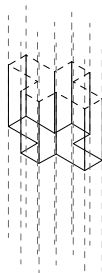
IV
Isometric projection



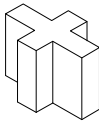
Plan



Plan skewed to 30 / 150 degrees



Z axis drawn



Implied space



The axonometric is a form of three-dimensional representation in two dimensions communicating multiple surfaces of objects in strict mathematical logic. Fig F.1 outlines the forms of axonometric drawing and ways in which three dimensional drawings are constructed from two dimensional information. For the purposes of this thesis, 'axonometry' will apply to all forms of representation that rely on parallel projection, with a vanishing point at an infinite distance.

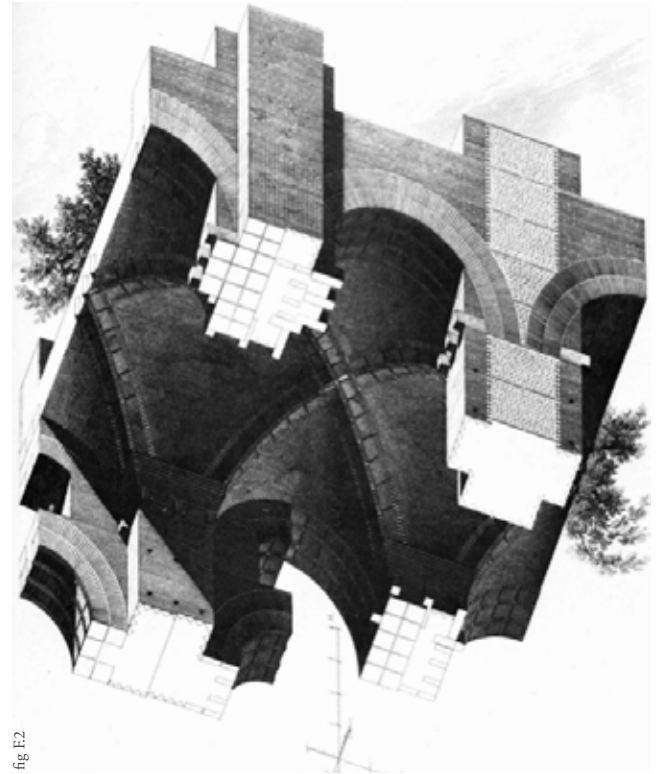
I ~ Plan projection A: Plan rotates 45 degrees, projected vertically to required height, x and y axis shown at 45 and 135 degree angles and z axis shown vertically.

II ~ Plan projection B: Plan projected 45 degrees to required height, x and y axis shown horizontally and vertically whilst z axis shown at 45 degrees.

III ~ Elevational projection [Oblique]: Elevation projected 45 degrees, x axis drawn horizontally, y axis at an angle of 45 degrees and z axis drawn vertically.

IV ~ Isometric projection: Plan drawn with x and y axis at 30 and 150 degree angles and projected vertically to required height (z axis).

As Yve-Alain Bois describes in *The Metamorphosis of Axonometry* 'The rays of projection run parallel, so that there is no diminution in depth and no limit or stopping point of space'.² Infinity is introduced into axonometric drawing as, unlike perspective drawing, there is no 'vanishing point'. Thus, parallel lines in reality are parallel in representation and potentially continue for infinity, highlighting the emphasis that axonometry has on truth to the object rather than truth to our visual perception.



Bernard Schneider summarises that ‘perspective shows what we see of an object, whilst axonometry shows what we know about it’³. Massimo Scolari also recalls the connection with parallel projection to the ‘inner eye’ and ‘understanding’⁴ of space. Axonometry therefore straddles the line of being the most ‘true’ and accurate form of representation whilst also being the most abstract and impossible view of space.

Scolari highlights this slippage in reality and perception of the axonometric as ‘the object must be rotated, otherwise their projection would appear on the drawing paper as a dot’⁵ yet also asserts that the particular form of drawing affords ‘a three dimensional proof of functioning and buildability’. Despite its abstraction, axonometry is one of the most useful forms of spatial communication, being simple to both construct and interpret as a logic of understanding space.

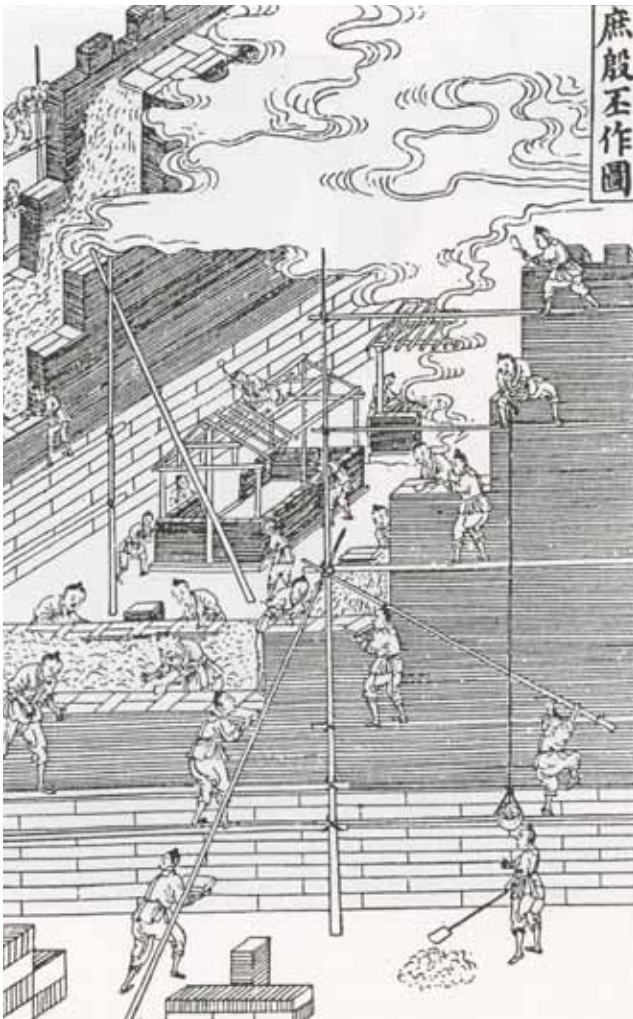


fig F.3

The building of a city wall [Late Qing]

It is clear here that transformation from scientific use, to painting and inevitably to architectural representation, was facilitated by the range of perceptual qualities axonometry afforded. Bois suggests that ‘military art, technical drawing or geometry, emphasize the convenience and accuracy of axonometry, whereas the modern artists celebrated its perceptive ambiguity’⁶ perhaps highlighting the subversive potential of representation in architecture.

The shift in emphasis from the perspectival Renaissance to the Modernist axonometric highlights that the choice of representation completely changes the shaping and interpretation of architecture. Stan Allen alludes to this by suggesting that ‘perspective records what already exists, whereas the axonometric constructs that which does not yet exist’.⁷ This ‘constructional’ quality of drawing raises issues of spatial conception as design, and how objectivity in axonometry allows for space to be exploded or disassembled. The status of axonometry as a diagram is alluded to by Bruno Reichlin as a ‘bridge between requirements and form’⁸ presenting how information and knowledge can be communicated through drawing.

Conversely, the emphasis on space that is abstract and ‘irrational’ indicates a curious connection with the viewer’s subjectivity in the implied space. This connection is also alluded to in Claude Bragdon’s *Frozen Fountain* where ‘Man is Isometric’ as it is ‘less faithful to appearance, is more faithful to fact; it shows things more nearly as they are known to the mind’.⁹ This relationship between drawing and the mind highlights how axonometry radically changes the way architecture is interpreted and understood in regards to the ‘self’.

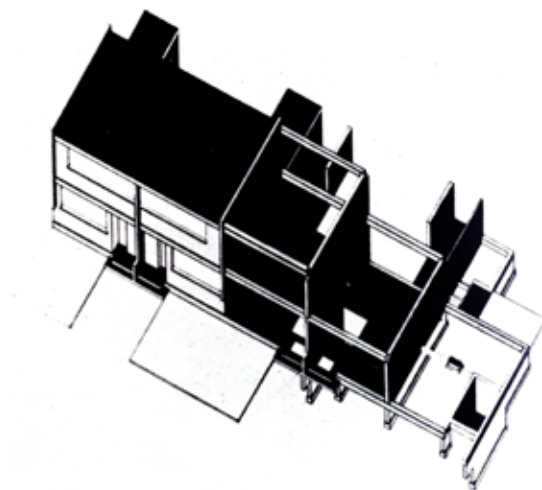


fig. F.4
Walter Gropius, Törten Housing Estate. Assembly sequence of prefabricated units



Notes

1. Webb, M. [1987] Temple Island, A Study, Architectural Association.
2. Bois, Y-A. [1981]- 'Metamorphosis of Axonometry', *DAIDALOS* no.1:56.
3. Schneider, B. [1981] 'Perspective refers to the viewer, axonometry refers to the object' *DAIDALOS*, n.: 81.
4. Scolari, M [2012] *Oblique Drawing - A History of Anti-Perspective*, Cambridge: MIT press:16.
5. *ibid*:325.
6. Bois,op.cit:56.
7. Allen, S. [2008] *Practice : architecture, technique & representation*, New York : Routledge:16.
8. Reichlin, B. [1981] 'Reflections, interrelations between concept representation and built architecture', *DAIDALOS*, n.1:71
9. Bois,op.cit:41.

Illustrations

- 0.1 Drawing by Author, 'Anchors'
- 0.2 OM Ungers, Architectural Design v.61 n.92 1991: 98
- 0.3 Herbert Bayer, 'The office of Walter Gropius', from Bois, Y-A [1981]
- F.1 Drawing by Author, 'Taxonomy of Axonometry'
- F.2 Auguste Choisy, from Bois, Y-A [1981]
- F.3 From Scolari, M [2012]
- F.4 From Schneider, B. [1981]

INTRODUCTION

The Political Image of the city

To establish the otherwise tenuous impact, or even relevance of architectural representation in the governance of city's identity, we refer to Jacques Rancière's, who claims 'Politics revolves around what is seen and what can be said about it, around who has the ability to see and the talent to speak, around the properties of spaces and the possibilities of time.'¹ As architectural representation is intrinsically to do with these notions of vision, space and time, its connection to a political role according to Rancière, is inevitable.

This aspect is also referred to by Henri Lefebvre, who asserts that the role of representations are 'certainly abstract, but also play a part in social and political practice: established relations between objects and people in represented space are subordinate to a logic'.² He elaborates that the role of representation goes beyond pictorial descriptions of space but also become instrumental in the production of space to define an identity. These collective perceptions of the character and identity of spaces and cities can be constructed and controlled by the drawing itself.

Michel Foucault alludes to this describing that discipline and power are about

'How to oversee someone, control their conduct... put them in the place where they will be most useful.'³

The ability to overlook, reposition and the resultant sense of control that constitutes Foucauldian discourse perhaps are all manifest specifically in axonometry in particular as architectural representation. Axonometry allows the reader these levels of control in both in the production and in the perception of such a space and thus become a vehicle of establishing power.

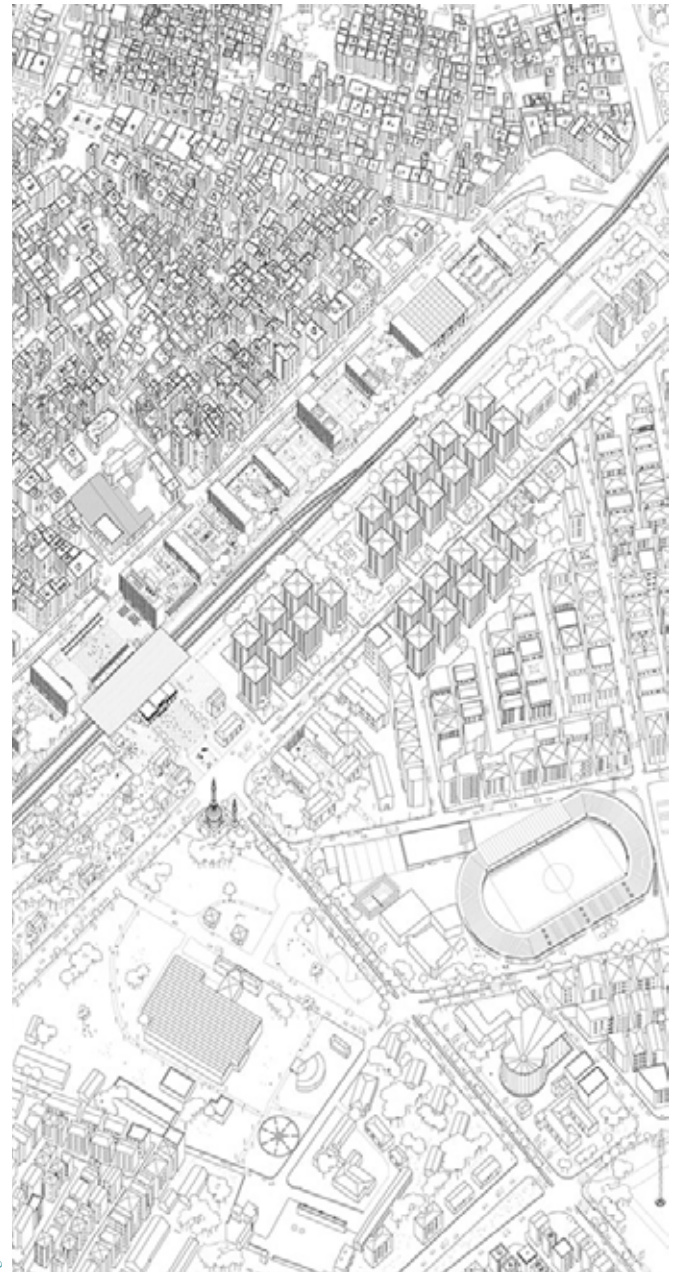


fig. Int. 1

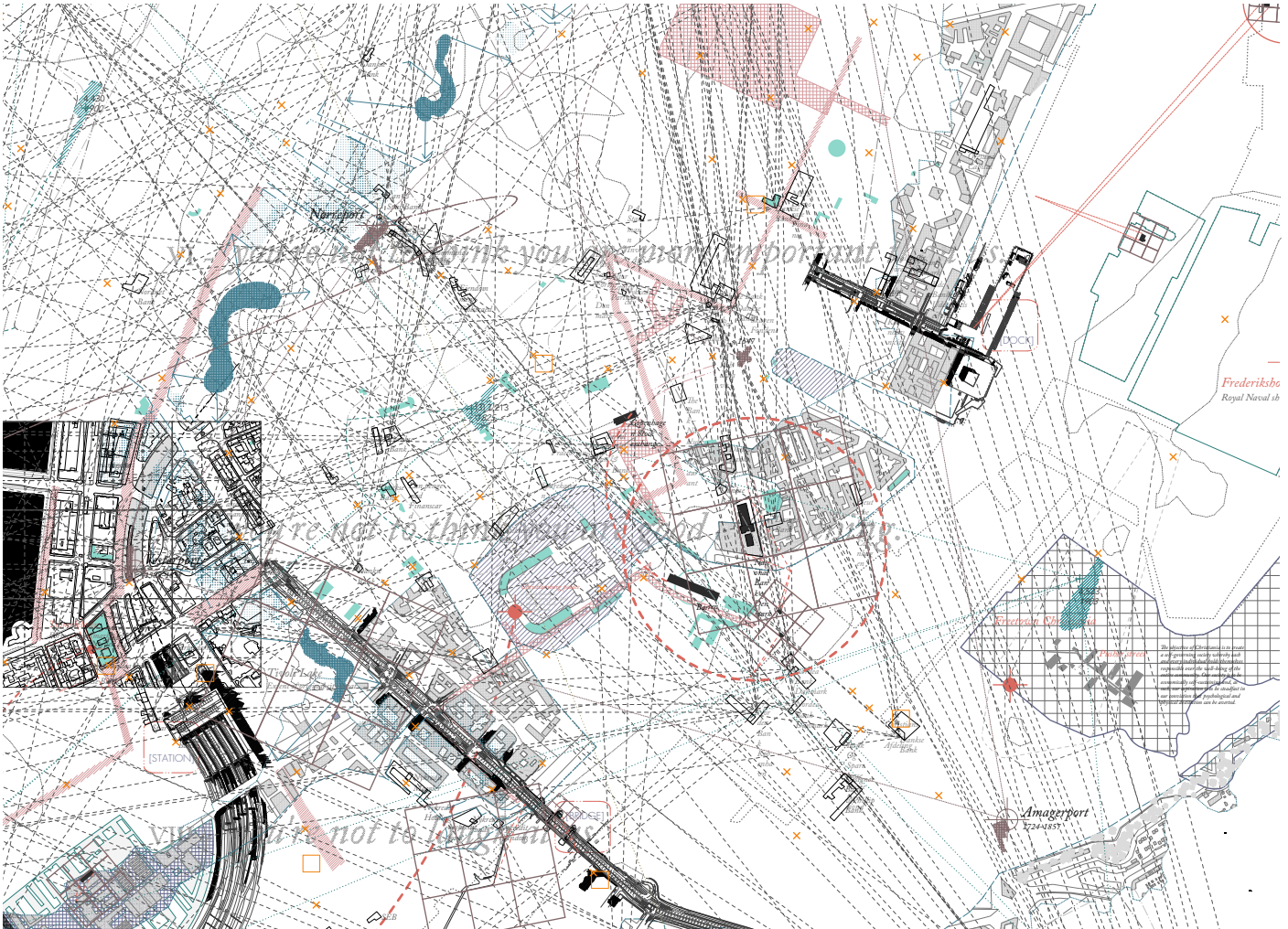


fig. Int.1 Mapping the simultaneity of territories in Copenhagen, such as the change in reclaimed land and other overlapping infrastructures.

The following design project is sited in Copenhagen, Denmark, critiquing its realm of egalitarianism, assessing what 'territory' might mean within a context based upon equality. Denmark is considered to be one of the world's most egalitarian countries - yet the project asserts that an underlying exclusivity makes the country inherently hierarchical in society. Through representation, these tensions will be explored and reflected.

Massimo Scolari explains why axonometry was prevalent in military use as ‘in war one single view does not serve, since the whole has to be shown’,⁴ demonstrating that the ability to see all, draw all and essentially be master of space, is a quality that axonometry affords.

Axonometry is also regarded as simplest for the layman to understand and is often used to describe assembly sequences and construction techniques (fig Int.2-3), due its diagrammatic and measurable quality.⁶ This is a form of empowerment due to its communicative role from the draftsman to the reader and simplicity in both its interpretation and construction. This however lead to its association with the commoner and less learned craftsman - affecting the implications of its empowerment, compared to the more sophisticated perspective. The association of perspective with the bourgeois artistic realm of the Renaissance and the relegation of axonometry to builders sketchbooks and soldier’s diagrams⁶ meant that representation itself has a status and even a class connotation.

Instead of beginning with the roots of axonometry, we will start with its ‘rebirth’ as architectural representation in Constructivism due to the celebration of its ambiguity and abstraction. How these properties were adopted to test notions of autonomy, and territory in the city by OM Ungers and Rem Koolhaas will be examined in the second chapter. The last segment will then look back to the earliest forms of axonometry in Chinese painting to discern why notions of flux, change and duration became embedded into this way of depicting space from the very start.

This non-chronological structure will allow us to thematically dissect and theoretically interpret these examples as a mirror to the design work in ‘voice B’. Through this, the ideologies of representation that contain a political dimension will emerge in the design work, as they are contextualised and structured within this historical discussion.

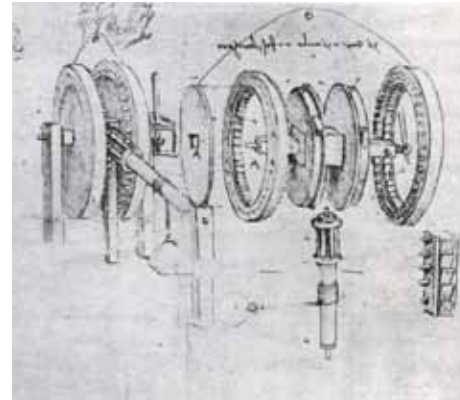


fig Int.2

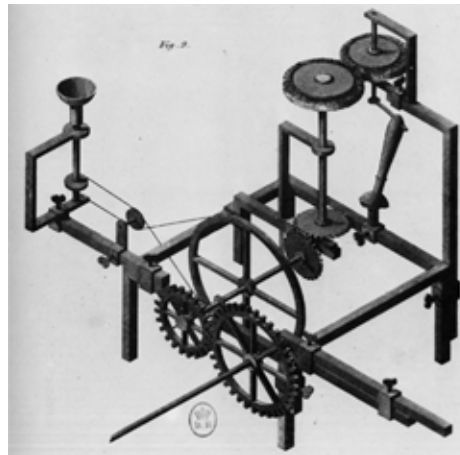


fig Int.3

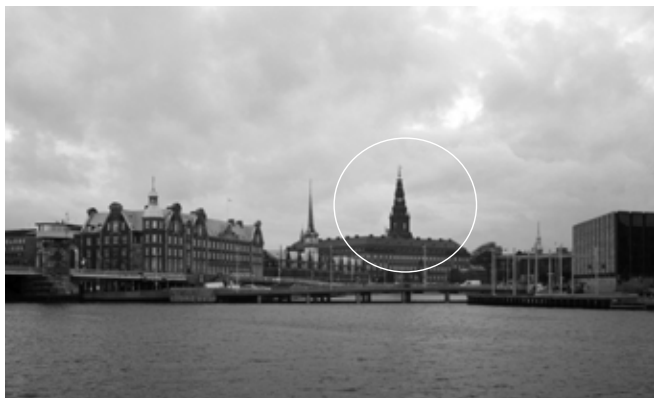


fig 1m.2 Geopolitical context – The Danish Parliament, situated in between the National Bank and the Stock Exchange, all built on reclaimed land.

In Denmark, egalitarian ideologies range from governmental organisation, tax redistribution, city infrastructure, employment opportunity, social dynamics and is even found in roots of Danish mentality. This is perhaps best demonstrated by *Janteloven*; a set of ten fictional ‘laws’ such as ‘Don’t think that you are special’,¹ adopted by the Danish as indicative towards their attitude against individualism, favouring the ‘norm’, forming a social code of egalitarianism. This social code and emphasis on equality leads to Denmark’s ‘political image’.

In contrast, this project asserts that the city is confronted by an inevitable underlying hierarchy stemming from social codes that generate an air of exclusivity in the city. Ethnographically the country is dominated by ethnic Danes [91%]² and is hard for foreigners to settle in, with citizenship being notoriously difficult for immigrants and even descendants to attain. This leads to a underlying social and political elitism in the practice of a society built on equality.

The design project addresses these tensions by exploring the role of representation in inserting a new political territory in the heart of Copenhagen. The project will aim to extrapolate ideas presented in ‘voice A’ in order to test, refine and subvert them within a new geopolitical context. The role of axonometry will explore how these ideals and contradictions become materialised in an interpretation and design of space and territory. By doing so, it will critique the implications of an ‘egalitarian territory’ and the inevitable contradictions that arise in using those terms.



Notes

1. Rancière, J. [2004] *The Politics of Aesthetics: The Distribution of the Sensible*, London: Continuum:13.
2. Lefebvre, H [1974] *The Production of Space*, Blackwell:41.
3. Foucault, M. [1977] ~ *Discipline and Punish - The birth of the prison*, (A. Sheridan, Trans) New York: Pantheon:159.
4. Scolari,op.cit:9.
5. Scolari, op.cit:2
6. Scolari,op.cit:9.

Illustrations

Int.1 DOGMA, ‘Gardens’ from Aureli, P V. [2013] *Dogma - 11 Projects*, London: AA Publications.
Int.2 Leonardo Da Vinci, ‘Sketch for a winch’, from Scolari, M [2012].
Int.3 Unknown author, from Bois, Y-A [1981].



Notes

- 1. Sandemose, A. [1936] . *A Fugitive Crosses His Tracks* (E. Gay-Tift, trans), New York: A.A. Knopf.
- 2. Based on ‘Statistics Denmark’ data, © Statistics Denmark. All rights reserved.

Illustrations

- Int.1 Drawing by author.
- Int.2 Photograph by author.

CHAPTER ONE

[Re]Composing Spatial Ambiguity



fig. 1

Axonometry as architectural representation reoccurred when Suprematism began to develop and the spark of Modernism inspired a reaction against the Renaissance. According to El Lissitzky, who Bois says has ‘written the birth certificate of the axonometric’,¹ ‘Suprematism has extended the apex of the finite visual cone of perspective into infinity’.⁴ The ideals of Suprematism, brought representation into the irrational and infinite. Suprematists, Constructivists and eventually Modernists, were responding to the static nature of the Renaissance and sought alternate forms of representation facilitating this shift in focus.

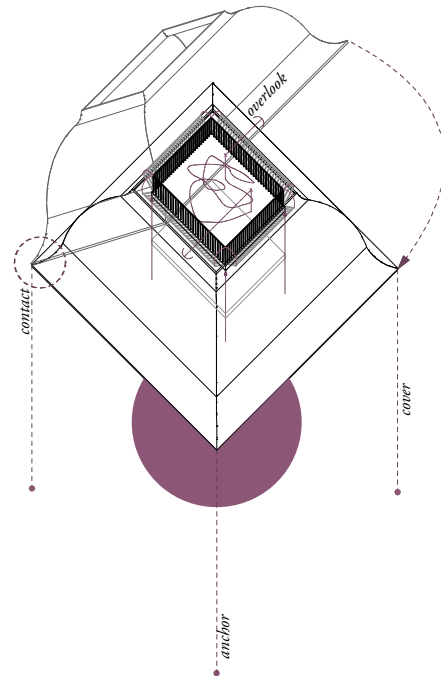


fig 1.1

Egalitarianism in Denmark and its associated hierarchy initiates the examination of how such a political and social ideology might become manifest in spatial rhetoric. This chapter questions to what extent forms of egalitarian socialities appear in architectural and spatial relationships. The correlation of this principle of elitist equality to architectural representation, the axonometric, will be established. The architectural fabric of Copenhagen will be dissected to test these forms of spatial ideologies as anchors of the city and of the future city.



Lissitzky developed Suprematist ideas spatially in his painting series 'Proun' (fig1.1-2, 1.5) which Allen described 'suggested a continuous space in which elements are in constant motion'³ intending to create the 'ultimate illusion of irrational space with attributes of infinite extensibility in depth and foreground'.⁴ This ambiguous nature of axonometry was particularly celebrated and explored by Lissitzky and later Russian Constructivists.

The ambiguity and irrationality stems from two properties of axonometry. Firstly, although it affords a view that is perhaps easiest to understand in the 'mind's eye', it depicts space from a viewpoint that can never be occupied in reality and is hence not a depiction of space in respect to our bodies, but in respect to its own abstract reality.

The second is the potential for spatial slippage when depth is alluded to but not defined. There is a multiplicity in its interpretation, leading to drastically different spaces, similarly to what has been described the 'necker cube effect' (fig1.4). However, when Lissitzky developed his 'Proun' series into a curated exhibition space 'Prounen raum'(fig1.3), Allen suggests 'it becomes evident that the infinite extension of the visual field is more present as representation than as experience'.⁵ The perceptive ambiguities and a divorce from our own bodies, on which the paintings rely on, contrast their physical manifestation which solidify what was only alluded to in the paintings.

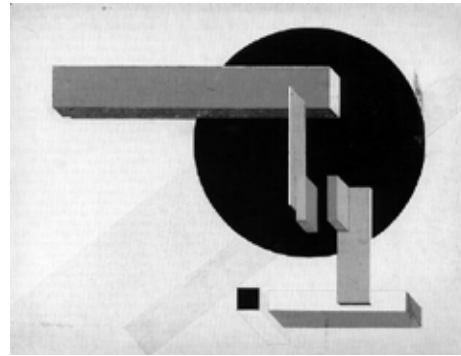


fig 1.2



fig 1.3

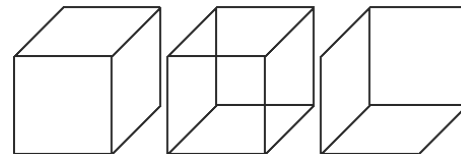
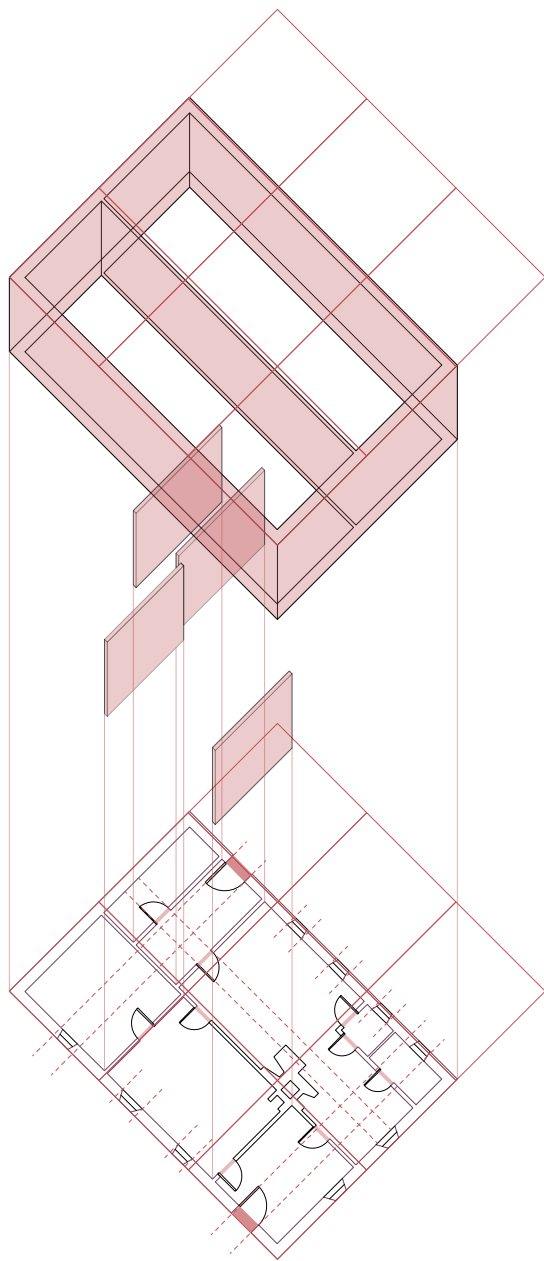


fig 1.4



Principles of equality have been spatially manifest in Danish housing from the vernacular to the modern. The emphasis of balance, moderation and symmetry reflect the ideology of egalitarianism and is embodied by the nine square grid [3X3].¹ By examining architecture in Denmark from different periods, the use of the nine square grid, and the spatial tool of symmetry is found within its organisation and layout.² In 'Wrapping for Imagination, Cubic Thoughts' OM Ungers states that the square itself stood for 'universality, proportional balance, spatial clarity, harmony, infinity and permanence.'³ Architectural composition has therefore been a tool of egalitarianism as codes of society are reflected in the spaces in which such societies live.

The notion of equality and non-hierarchical organisation also form the roots of axonometry as the uniformity of space and scaled distribution means that its view is inherently equal. This view cannot be achieved by an single individual and it thus a shared and democratic, as each spatial element is equally weighted regardless of distance, scale or temporal position. Conversely, the view of perspective is hierarchical as the viewer is placed at the centre of representation, space being governed by its relation to that single 'self'.⁴ This interpretation of axonometry as 'egalitarian' present opportunities for critical examination and architectural testing through representation.

fig 1.2 *Spatial analysis of a Danish Vernacular house*

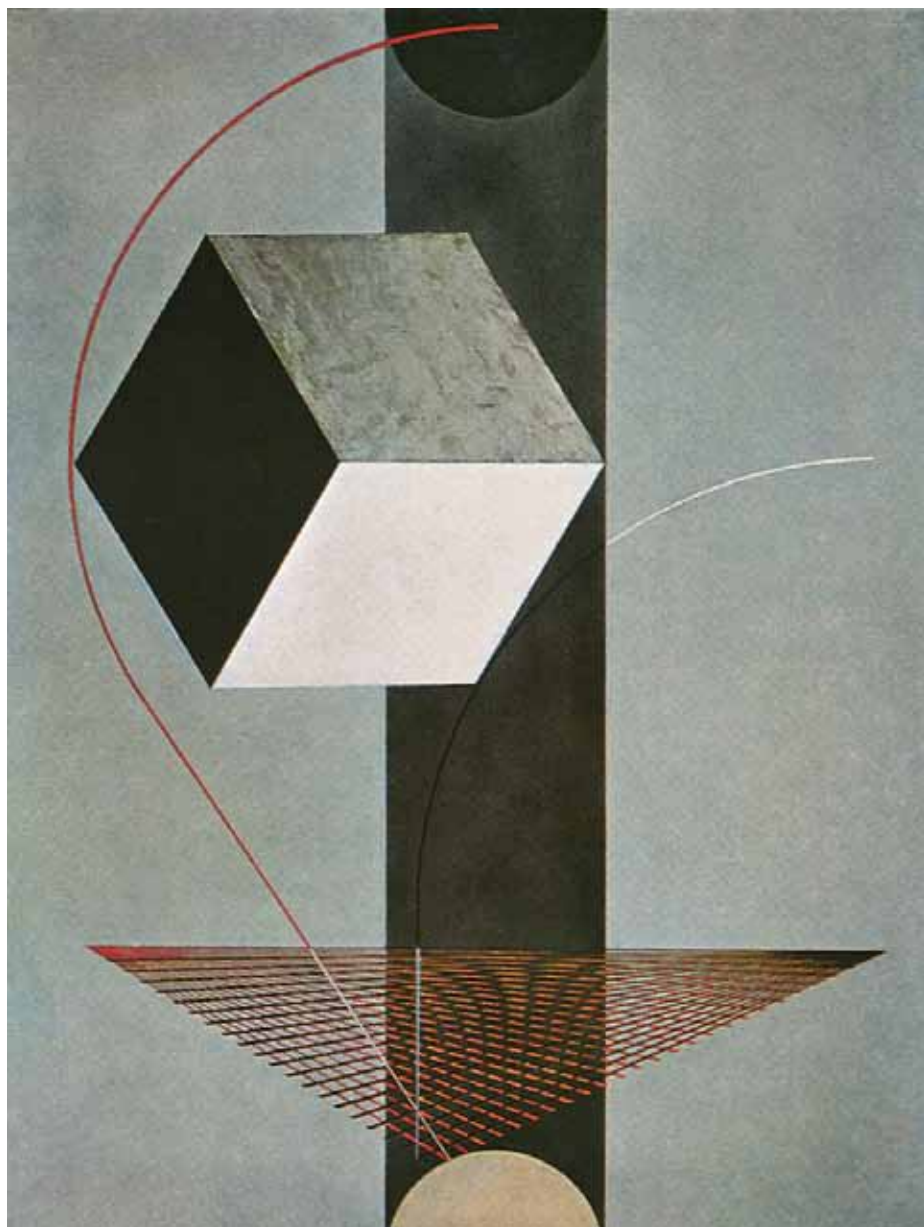
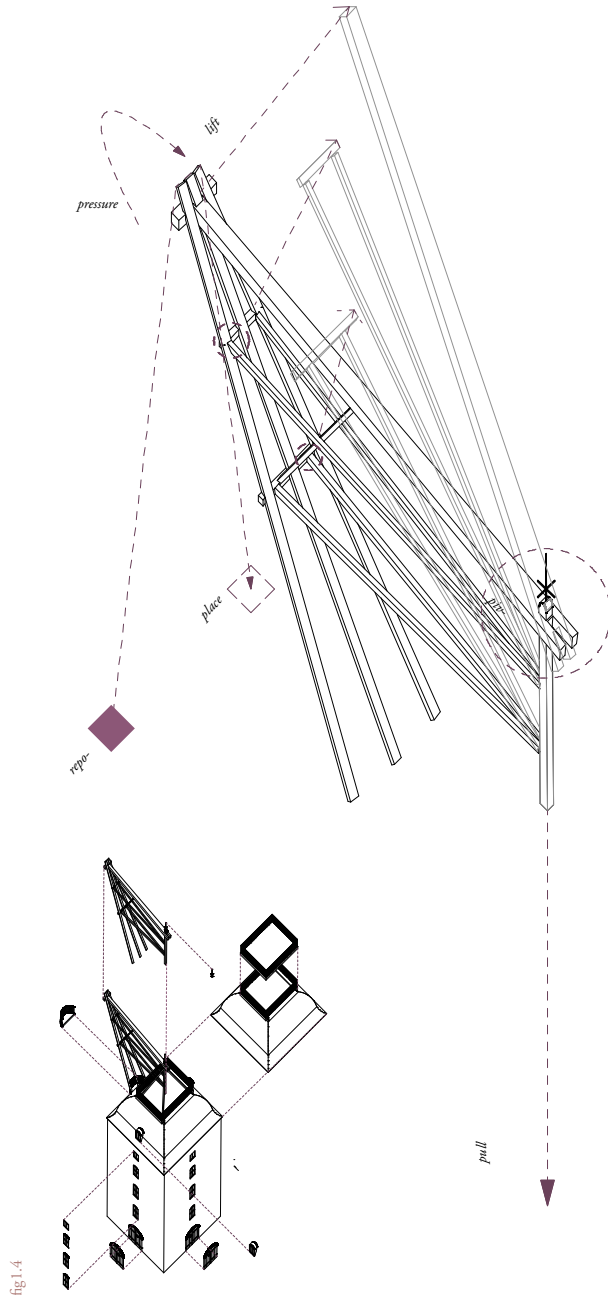


fig1.5



Elements of a shipping crane [a 'Residual Instrument'] are spatially dissected for their operation and behaviour.



The axonometric is used to spatially dissect a set of five existing building elements in the Copenhagen that express a particular post-Fordic⁵ residuality. These buildings once played an industrial role within the city and have an operational behaviour that has since been rendered obsolete. In egalitarian society, elements such as windows and doors contain tacit messages about being inviting, open and uniform within a neighbourhood.⁶ The role of architectural elements are therefore studied in these 'residual' buildings to determine how their behaviours might be instrumental to a new city image, using axonometry to unpack, explode and animate.

Ivan Leonidov had adopted Lisstizky's artistic revolution as a motive force for architectural ideas about arrangement and living in a new political world. Leonidov's prominence in Constructivism attracted praise and criticism, coining the term 'Leonidovism'.⁶

His work explored the combination of the plan and the axonometric, dealing with the arrangement of spaces and ideas of motion. In his design for the film production studio (fig1.7) 'the stage, shifting around freely on the platform can move towards the cameraman or away from him at any desired speed'.⁷ These motive concepts are alluded to in axonometry and it is clear how the liberation of composing space within axonometry was favoured by Leonidov. In his account of Leonidov, Andrei Gozak states 'the notions of architectural dynamics, of the changeability of space and form in response to changes in function, all this found an original incarnation in his designs'⁸ making connections between the way space is drawn and the way in which it is conceived.

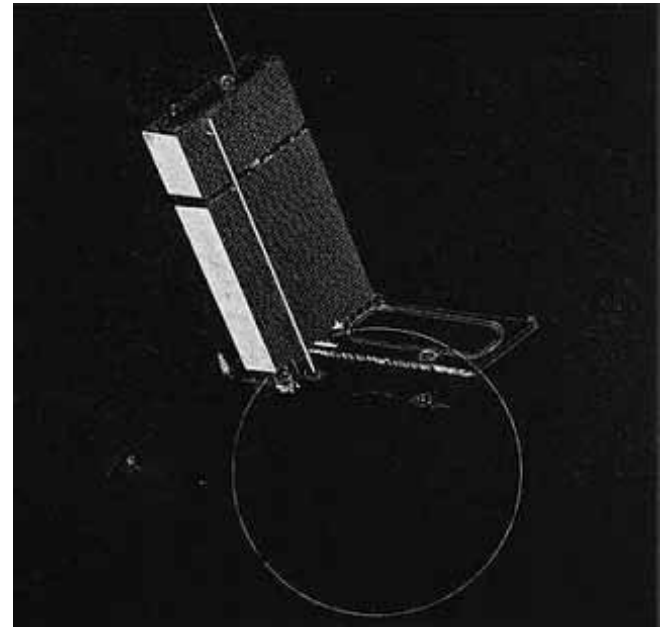


fig1.6

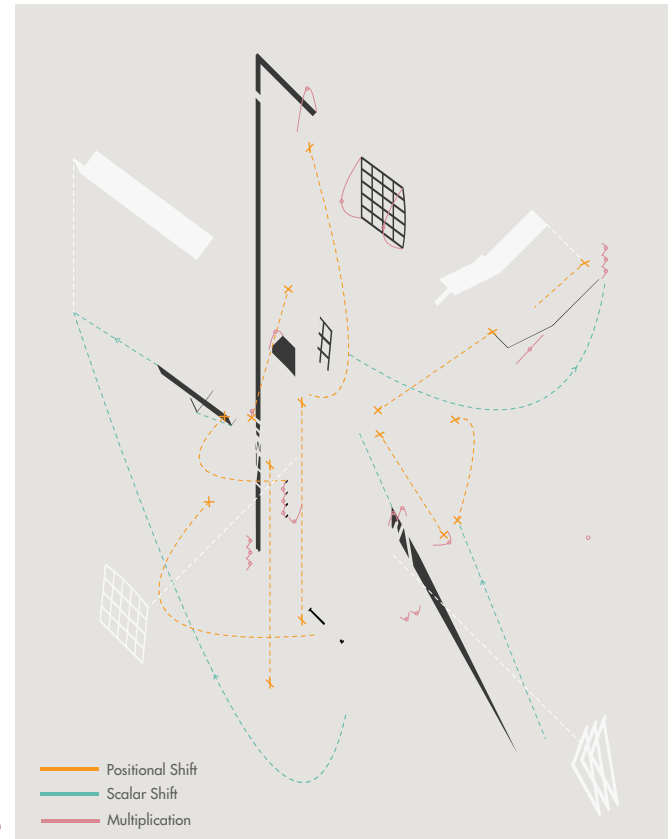


fig1.7



fig1.6

fig1.7



The behavioural analysis of the identified ‘residual instruments’ reinterprets and recontextualises these actions using axonometry as a compositional tool (fig1.6). The arrangement uses the nine square grid as a theoretical framework, and are re-scaled, mirrored and multiplied, using principles such as symmetry and balance as spatial cues (fig1.10). These drawings represent the shift in status of the original building elements, using the nature of axonometry as a vehicle.

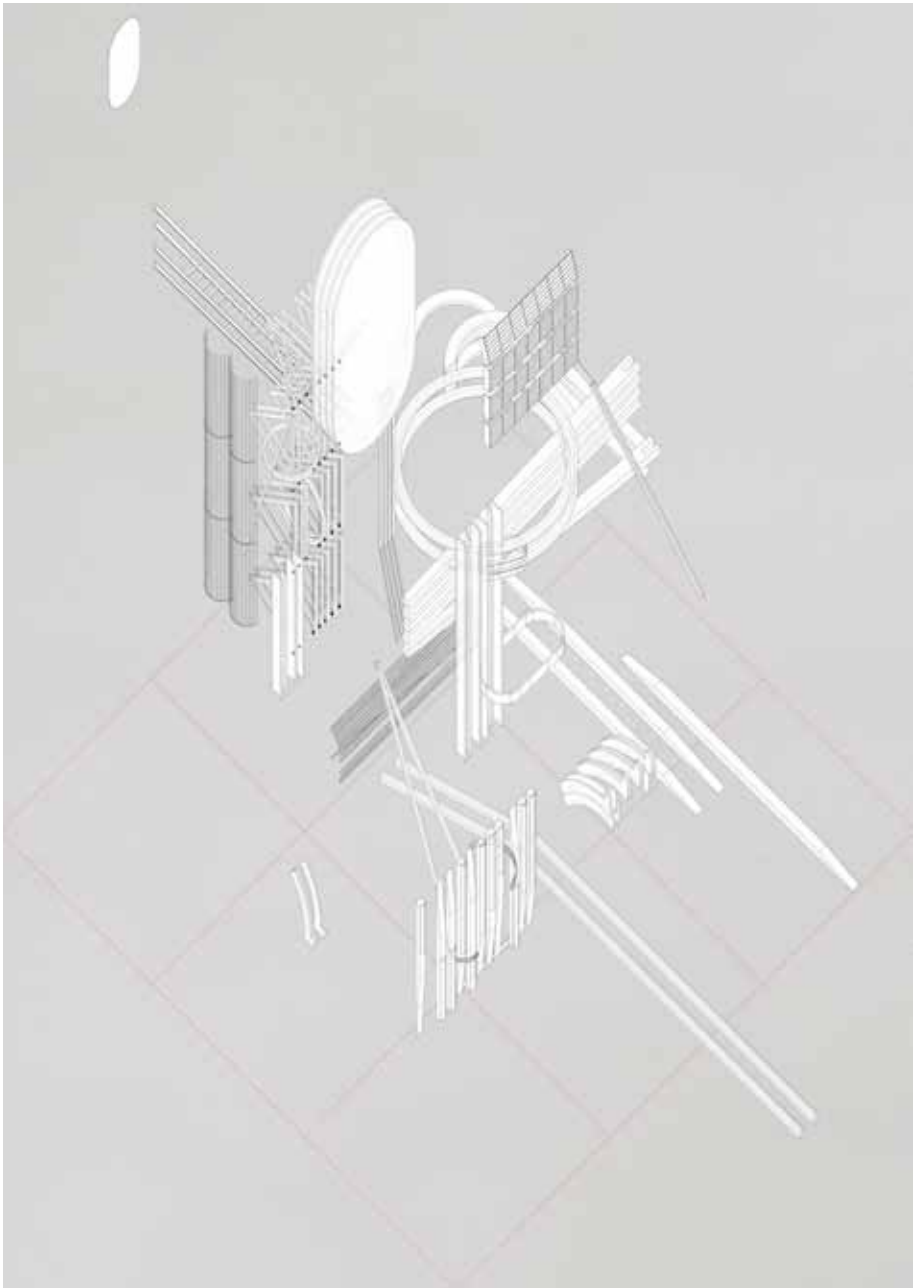


fig. 1.8

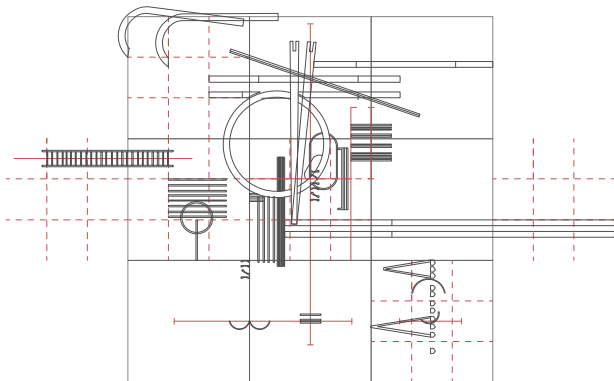


fig 1.9 *Composition within nine square grid and aspects of symmetry*

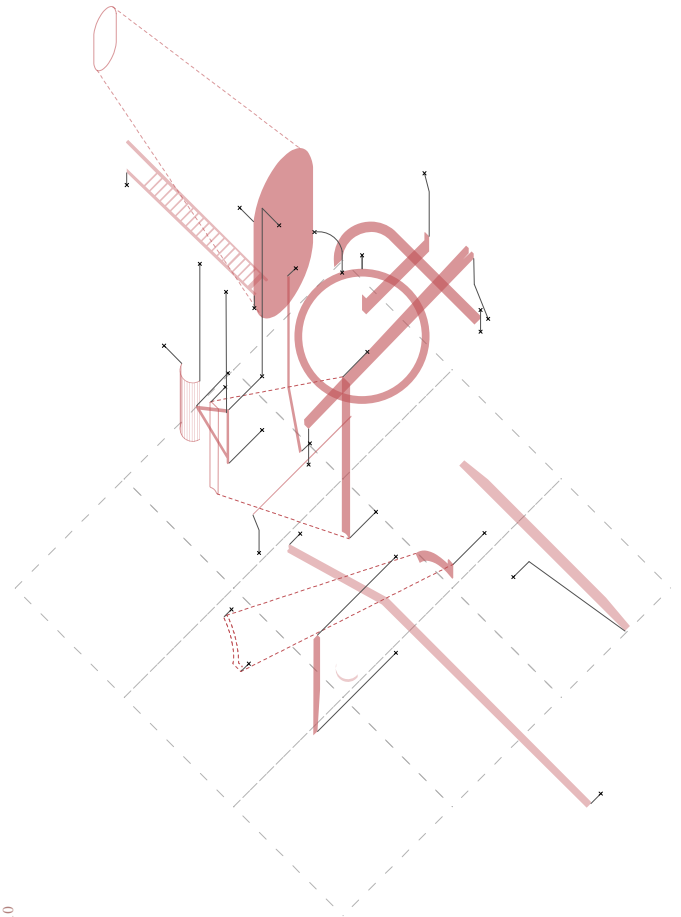


fig 1.10 *Translations from anchor object to their counterparts*

The exploration of architecture as a system of elements was referred to by Durand who asserted 'the relationship of the units to one another is determined by a rational hierarchy'.⁷ Here, inevitable hierarchy in elements faces notions of equality in compositional order - resulting in an architectural behaviour of conflicted status.

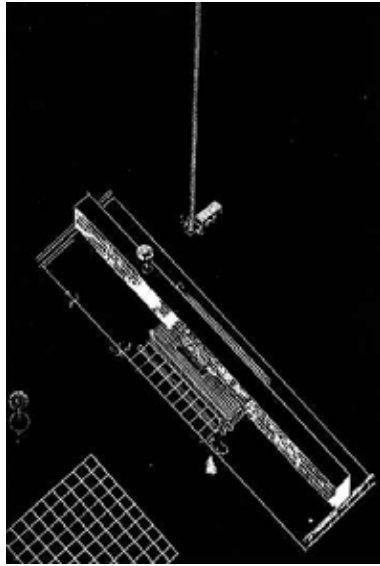


fig1.8

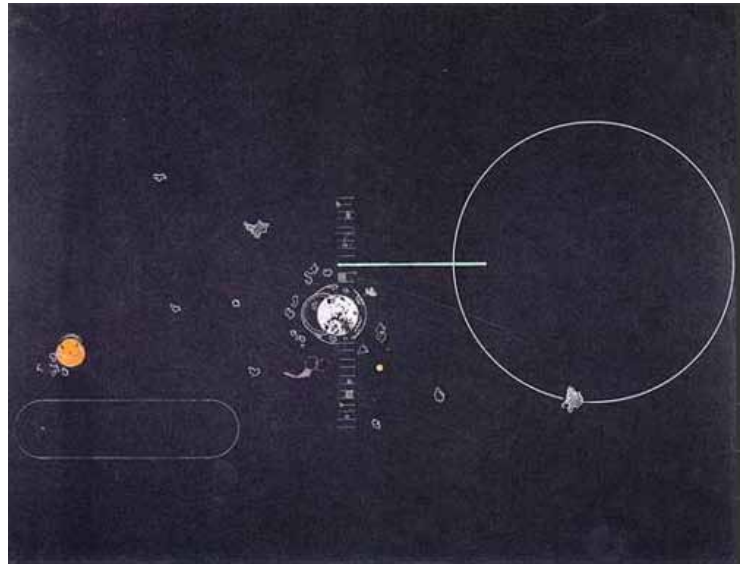


fig1.9

Leonidov's designs developed into larger spaces, cities and the way in which people operate within them. In his proposal for the 'Palace of Culture' (fig1.8-9) he intended 'to carry it out beyond the boundaries of the site, and by that means to make it flow organically into the productive life of the district'.⁹ Clearly, Leonidov was interested in tackling the organisational role of the city, blurring boundaries and territories of his projects - often adding or changing programs suggested by the brief.¹⁰ The project for the 'socialist settlement' of Magnitogorsk (fig1.10-11), fused his organisational and compositional sensibility with the political take on designing a new industrial city as a Stalin initiative. Here, Leonidov outlines an emphasis on change and formulation of the city as opposed to a static, finite 'complete' depiction. He states his proposal is about : 'how the city develops... how it can grow from one industrial node to another'¹¹

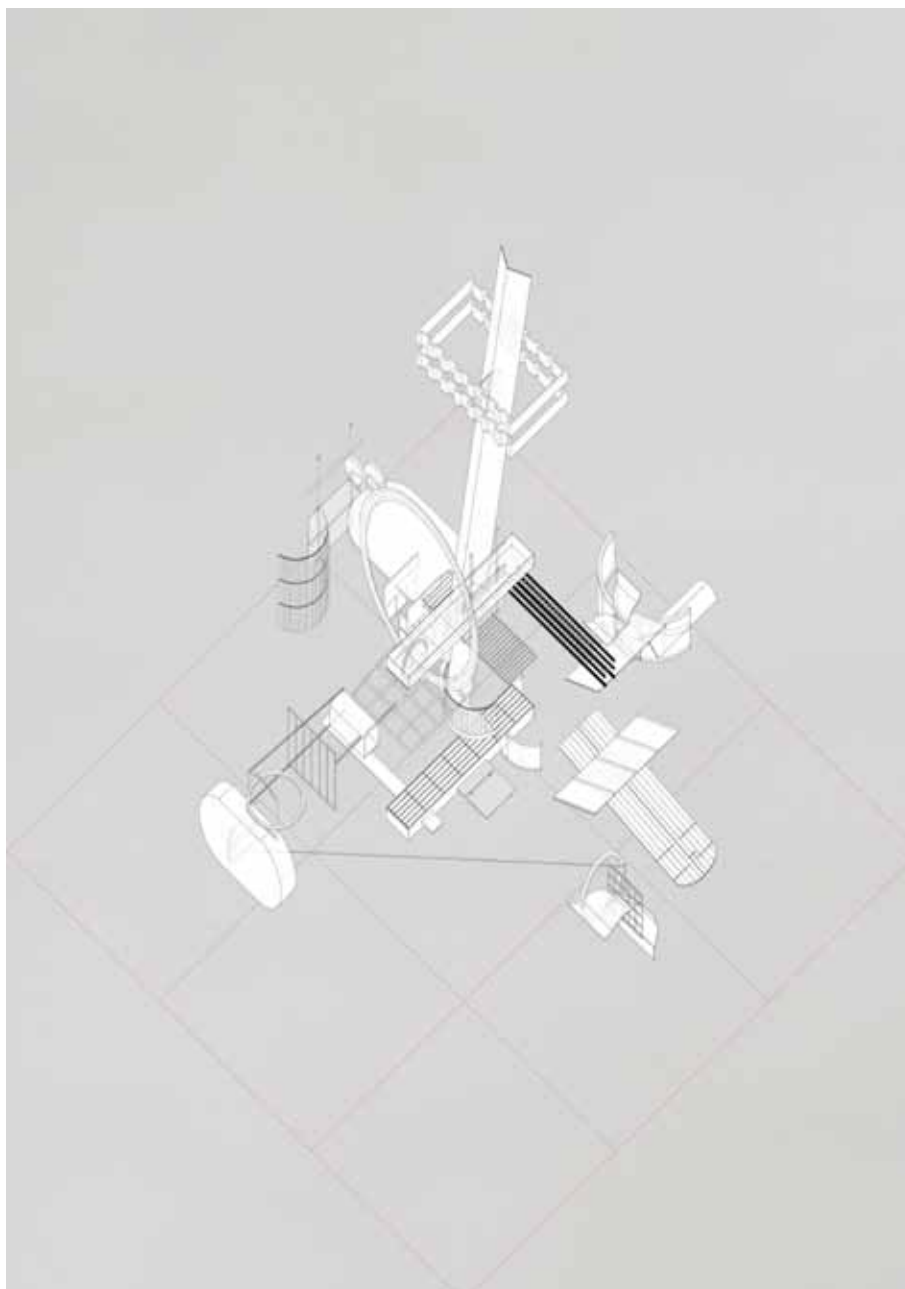


fig.1.11

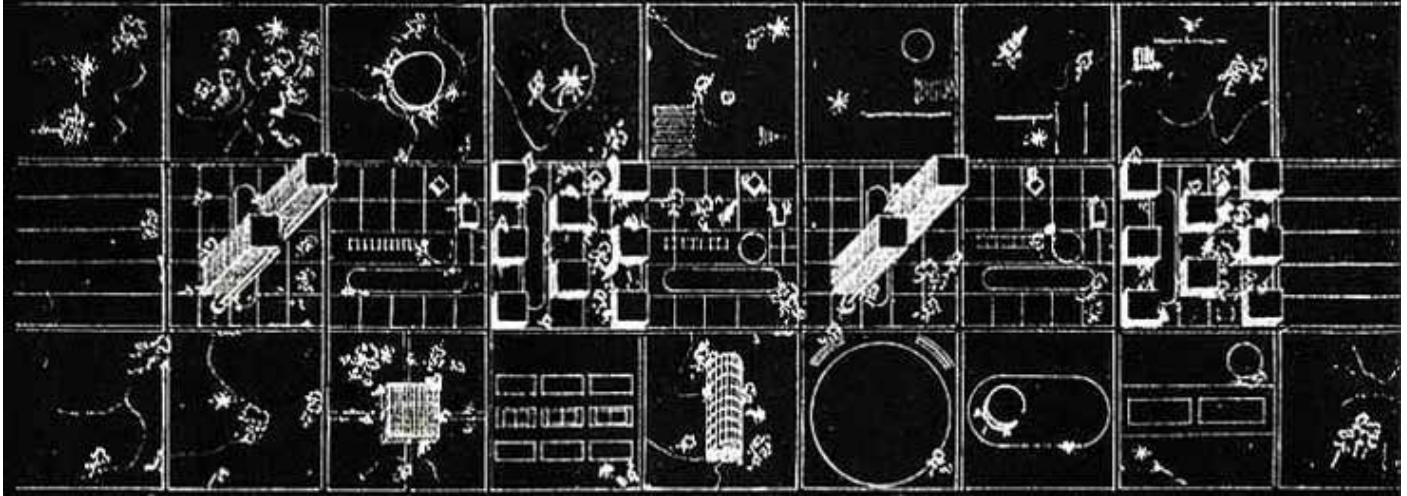
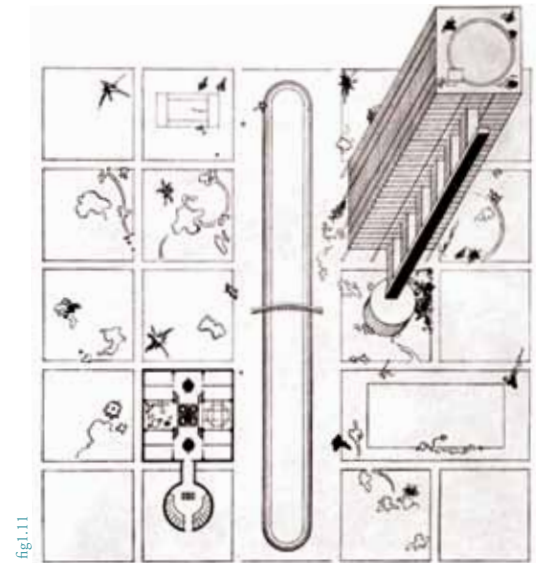


fig1.10

By emphasising linearity, extension and orthogonality, Leonidov uses axonometry to depict an organisation of a city that is shifting and the impermanence and urgency of the project is communicated by stark variation in building height. By using plan projection, Leonidov manages to maintain the compositional and organisational nuances, whilst also suggesting depth and volume consistently. Gozak goes further to suggest that 'In the volumetric composition, the three dimensional dynamic and centrifugal movement are even stronger'.¹² Here the political intent of Leonidov's work is clear, as the context of socialism in Russia and the proposition of building in such a context meant that such projects are inevitably influenced by the author's attitude towards it.

Gozak explains that 'these broader changes in soviet architecture forced Leonidov too to address the historical heritage of both his own country and the rest of the world'¹³ and Leonidov had been described by the editors of SA magazine as 'an architect who is a social activist, as an architect who is a thinker, who does not slavishly execute the architectural task posed to him, but socially redirects it'.¹⁴ The social and propositional intent of Leonidov's work further clarify how such representational techniques - something that he relied heavily upon, acted as political vehicles for constructing the image of the city.



Leonidov did not receive universal praise for his work, as he was often criticised by his peers for being ‘principally dictated by the desire for certain graphic effects on the drawing... rather than by considerations of convenience and rationality’.¹⁵ The aesthetically driven work, drawing on the artistic principles of Suprematism lead to many to dismiss Leonidov’s work as being purely graphical, ignorant of financial and constructional reality (featuring seemingly floating building elements). However it is within the very criticism of his work that the true overlooked value of his work lies. A. Karra and V. Simbirtsev state that his work ‘organises the visual perception of the drawings, but does nothing to organise the palace of culture’.¹⁶

This criticism fails to see the significance of his work and its focus on visual perception. The fact that Leonidov’s work forces us to perceive drawings in a specific way, means he is also forcing us to perceive the city in a specific way and hence changes our understanding and attitude towards it. His tendency towards symmetry, motion and more importantly spaces in flux meant that the particular use of axonometry facilitated the development of not only his ideas but the medium of representation itself.



Notes

1. Bois,op.cit:42.
2. Allen,op.cit:16.
3. Allen,op.cit:19.
4. Lissitzky, E. [1970] *Russia : an architecture for world revolution* Cambridge: MIT:144.
5. Allen,op.cit:22.
6. Gozak, A. Leonidov, A. Cooke, C. and Anatolevich, I. [1988] *Ivan Leonidov: The Complete Works*, New York: Rizzoli:94.
7. ibid:50.
8. ibid:17.
9. Ivan Leonidov, ibid:73-74.
10. ibid:17.
11. ibid:87
12. ibid:9.
13. ibid:12.
14. Editors of SA 1930, ibid:75
15. Article by Nikolai Dokuchaev, ibid:92
16. Article by A Karra and V Simbirtsev, 'The outpost of proletarian culture'[1930], ibid:77.

Illustrations

- 1.1-3 Lissitzky, E. and Nisbet, P. [1987] *El Lissitzky, 1890-1941*, Cambridge: Harvard U Art Museums
- 1.4 <http://im-possible.info/english/articles/animation/animation.html> (accessed 07/04/14)
- 1.5 El Lissitzky, 'Proun', from Lissitzky, E. and Nisbet, P. [1987]
- 1.6 - 11 From Gozak, A. Leonidov, A. Cooke, C. and Anatolevich, I. [1988]



Notes

1. Clark, D. [2012] 'Egalitarian Territories', The University of Edinburgh, Unpublished dissertation.
2. *ibid.*
3. Ungers, O. M. [1990] 'Wrapping for Imagination, Cubic thoughts', *DAIDALOS*, n.35:110.
4. Schneider, *op.cit.*:81.
5. Aureli [2013], *op.cit.*:22.
6. Clark, *op.cit.*:Chapter 2.
7. Szambien, W. [1990] 'The standardisation of the architectural mode of composition' *DAIDALOS*, n.35:42.

Illustrations

- | | |
|--------|--|
| 1.1-4 | Drawings by author. |
| 1.5 | Photograph by author, 'Mastekranen', Copenhagen. |
| 1.6-11 | Drawings by author. |

CHAPTER TWO

The Autonomous, Territorial City



fig.2.1

The city's 'political image' was an idea explored by Oswald Mathias Ungers, who developed the notion of the 'city within a city', what Vittorio Aureli describes 'the enclave'.¹ This interpretation for city development to occur within a territory embedded into the city is one that Ungers used in 'Berlin as a green archipelago' (fig.2.1), a project that reflected the city's 'idiosyncratic character as a politically divided city in economic difficulty into a laboratory for a project'.² Ungers draws on the political relevance of territory in the city and proposed the basis of 'the shrinking city'³ as a potential future.

West Berlin was the site for establishing a formal language that was 'based on a systematic reading of the city'.⁴ Forming an 'enclave' represents a different approach to addressing urban issues, emphasising the 'encounter' between the individual and the artefact and the tensions of boundary and city extent. Aureli discusses in depth the possibility of an 'absolute' architecture,⁵ that is an architecture as an individual intervention containing the 'essence' of the city at large. This is manifest in Ungers' notion of the 'archipelago'⁶ that allow for the identity of the city to be reinforced in smaller 'islands' connected infrastructurally.



fig2.1 *The Proposed enclave sited on a superimposed nine square grid in the city*



fig2.2 *The location of the original city moat on the site, appearing in remnants as isolate lakes*

The project proposes a new municipal enclave at the site of the initial archeological threshold of the city (fig2.1). The proposal reveals and critiques issues surrounding both what it is to build and change within the city and what it means to have an architecture that is ‘exclusive’ to a territory within an egalitarian, non-hierarchical context. Thus this enclave provides an autonomous fiscal and operational infrastructure whilst being an embodiment of the identity of Copenhagen and its egalitarian dilemma.

The design is informed by a nine square grid - framing the enclave as a test bed of the city of Copenhagen. The grid, although contained, inevitably creates a relationship of superimposition to the rest of the city, as well as within its own territory. This means that this enclave becomes a ‘laboratory’¹ for spatial exploration of a relative organisational principle that operates at multiple scales. In *On Order and Disorder* Peter Rumpf suggests the architect ‘finds himself in conflict with a sociological-ideological imperative which regards order as highly suspect... incompatible with democracy and individual fulfilment’.² This domination of established order in the grid, conflicts with the associated notions of equilibrium and equal distribution that it potentially offers, evident in Cerdà’s Barcelona grid, which uses the block system to equally distribute services,³ roads and infrastructure.

The role of infrastructure and amenity is highlighted by Ungers, referencing the Viennese superblocks, known for its 'radical redistribution of collective facilities within a recognizable architectural form'.⁷ This attitude reinforced the enclave's status as a fully formed identity and capacity to function as a 'city' - constituting its 'political image'.⁸ In 'Berlin a Green Archipelago' Ungers and his students heavily analysed the city by its systems, infrastructures and geography, forming 'layers' of the city then translated into 'their architectural consequences: as disruptive forms that divided the city into parts'.⁹

Ungers also developed a typological, formal language that referenced the city by being 'rooted in the analysis of the collective nature of the city'.¹⁰ This formal language stems from observing behavioural aspects of the city such as the archetypal courtyard reinforcing the 'communitarian life'(fig2.3). While this language is that of a generalised autonomy, Peter Rumpf argues that a 'rigid scaffolding' allows for a 'framework which in its very formal constraints provides the user with the necessary margin of freedom'.¹¹ This consistency adds to the uniformity of the enclave as a coherent collection of spaces, distinguishing itself from the surrounding city in hierarchical fashion.



fig.2.2

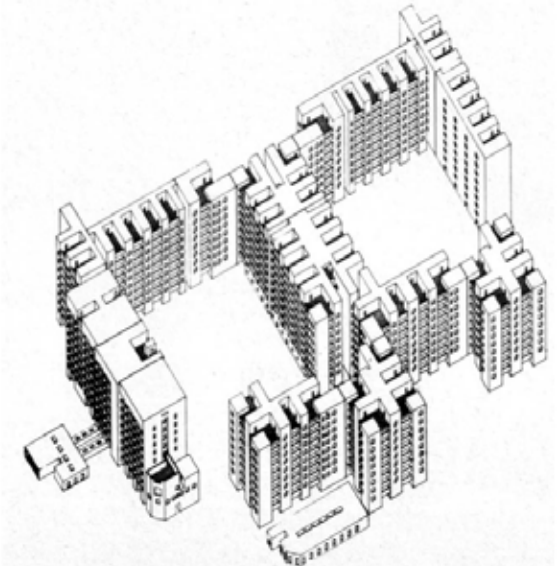
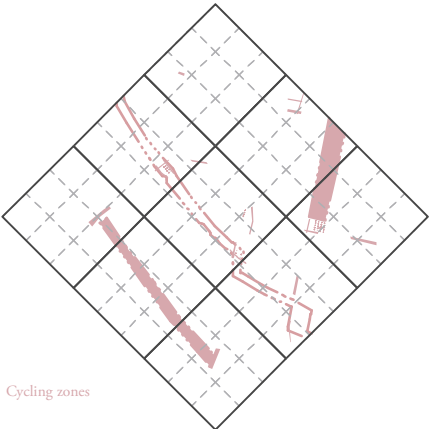
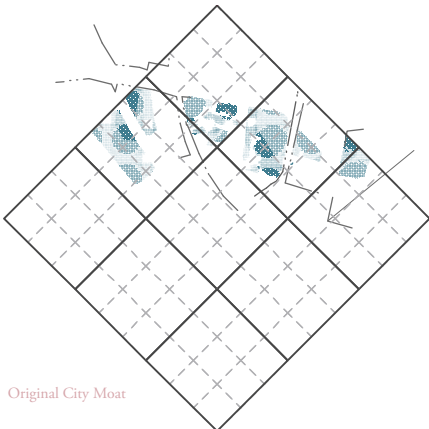


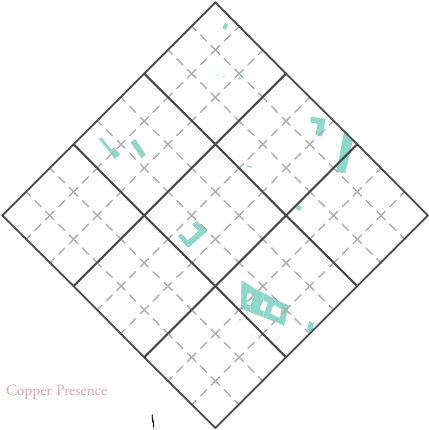
fig.2.3



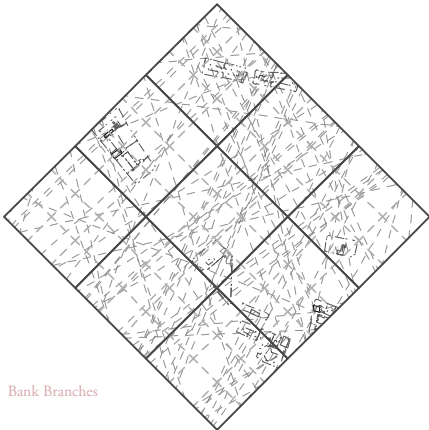
Cycling zones



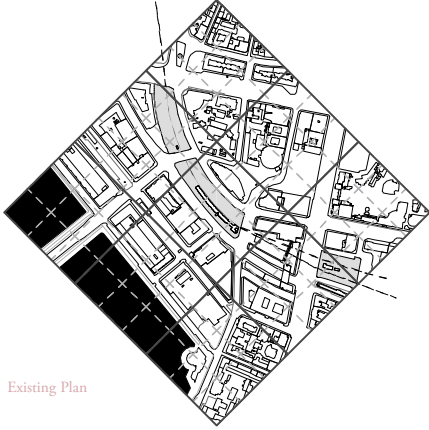
Original City Moat



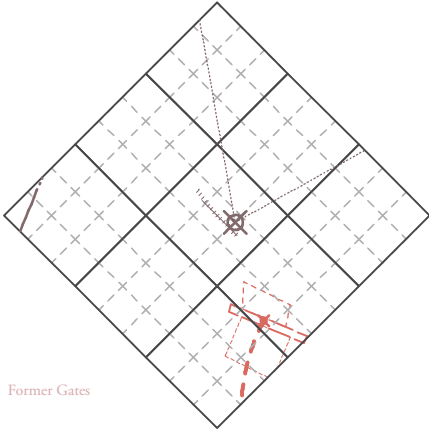
Copper Presence



Bank Branches



Existing Plan

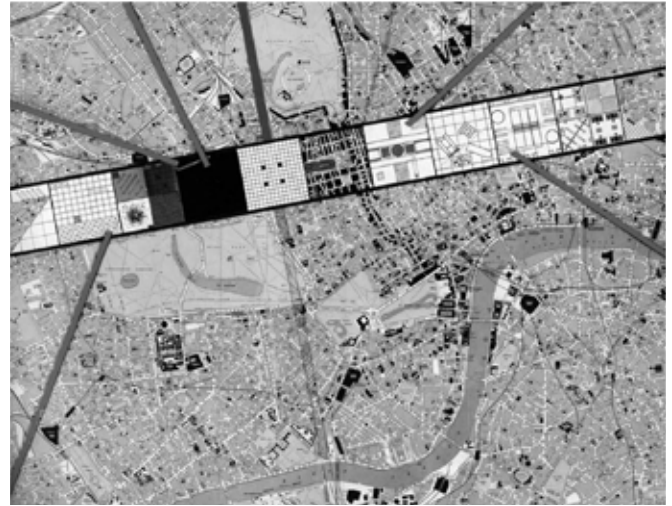


Former Gates

As a student of Ungers, Rem Koolhaas incorporated this political reading of the territorial city, most noticeably in the ‘fictional conclusion’¹² of *Delirious New York*. These projects looked closely at the inert characteristics of New York and used Manhattan as a ‘laboratory’ for an urban composition that would ‘contain the complexity of the city as a whole’.¹³ ‘The City of the Captive Globe’ (fig2.5), represented an ‘archipelago’ that acts as an urban composition of subdivided territories, as ‘change is contained on the component islands’.¹⁴ This notion of simultaneity between both ‘change’ and ‘containment’ is facilitated by use of axonometry, allowing the depiction of the ‘city’ to be potentially infinite and regulated to a superimposed grid, in a ‘state of perpetual animation’.¹⁵

The project hence becomes a ‘legible sequence of various permanences’¹⁶ and is presented as a staging of curated events that present a “dialectical city of contrasting singular forms”.¹⁷ Aureli states that “city form is not one particular image of the city but the possibility of forming moments within the city”.¹⁸ Axonometry here has facilitated a view of the city that is not static but somehow a ‘perpetual’, allowing these moments to take place, whilst suggesting indefinite continuity.

Teresa Stoppani’s analysis of Manhattan as ‘a virtually unlimited grid, a centrifugal grid without a centre’¹⁹ draws parallels with these notions of axonometry. This alludes to the superimposition of the grid over reality and the tensions that the city as a drawing presents. Koolhaas however uses this as an instrument for the city, noting its “indifference to topography, to what exists, it claims superiority of mental construction over reality”,²⁰ outlining the hierarchical dominance of drawing over geography. This is highlighted in *The New Welfare Hotel* (fig2.6) where one of the towers is built upon water as its position is determined by the imposed grid and not by the physical terrain of the city.²¹ This materialises the abstract notion of the grid, as the city loses its concern with existing terrain in favour of the superimposed one.



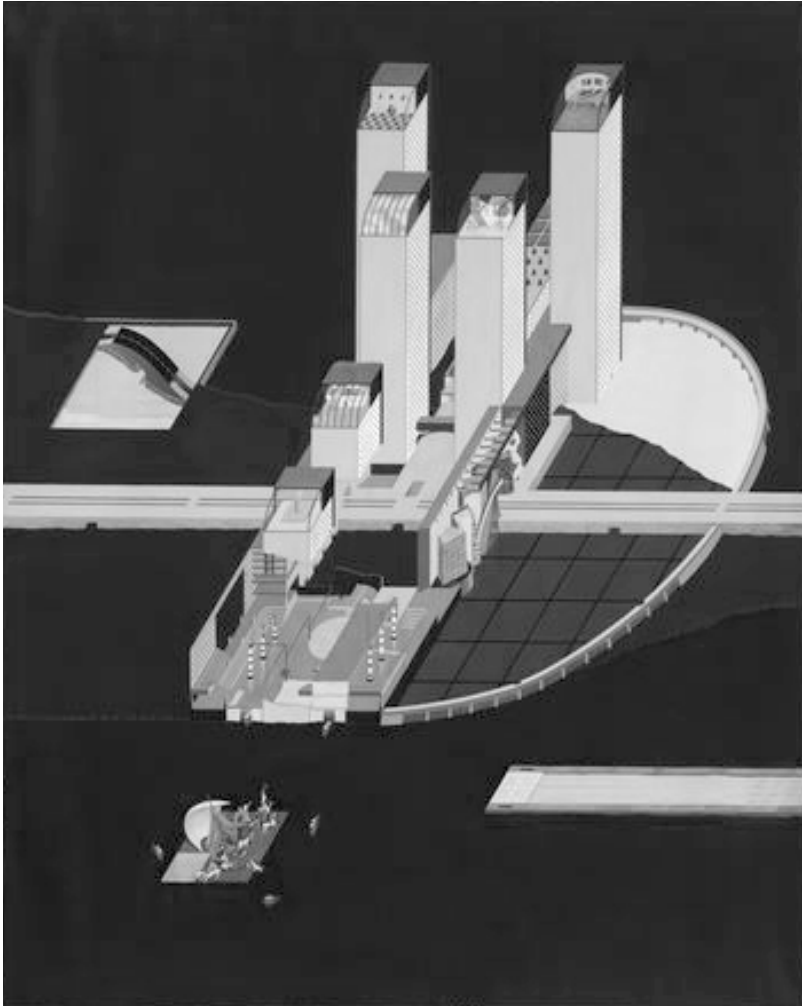
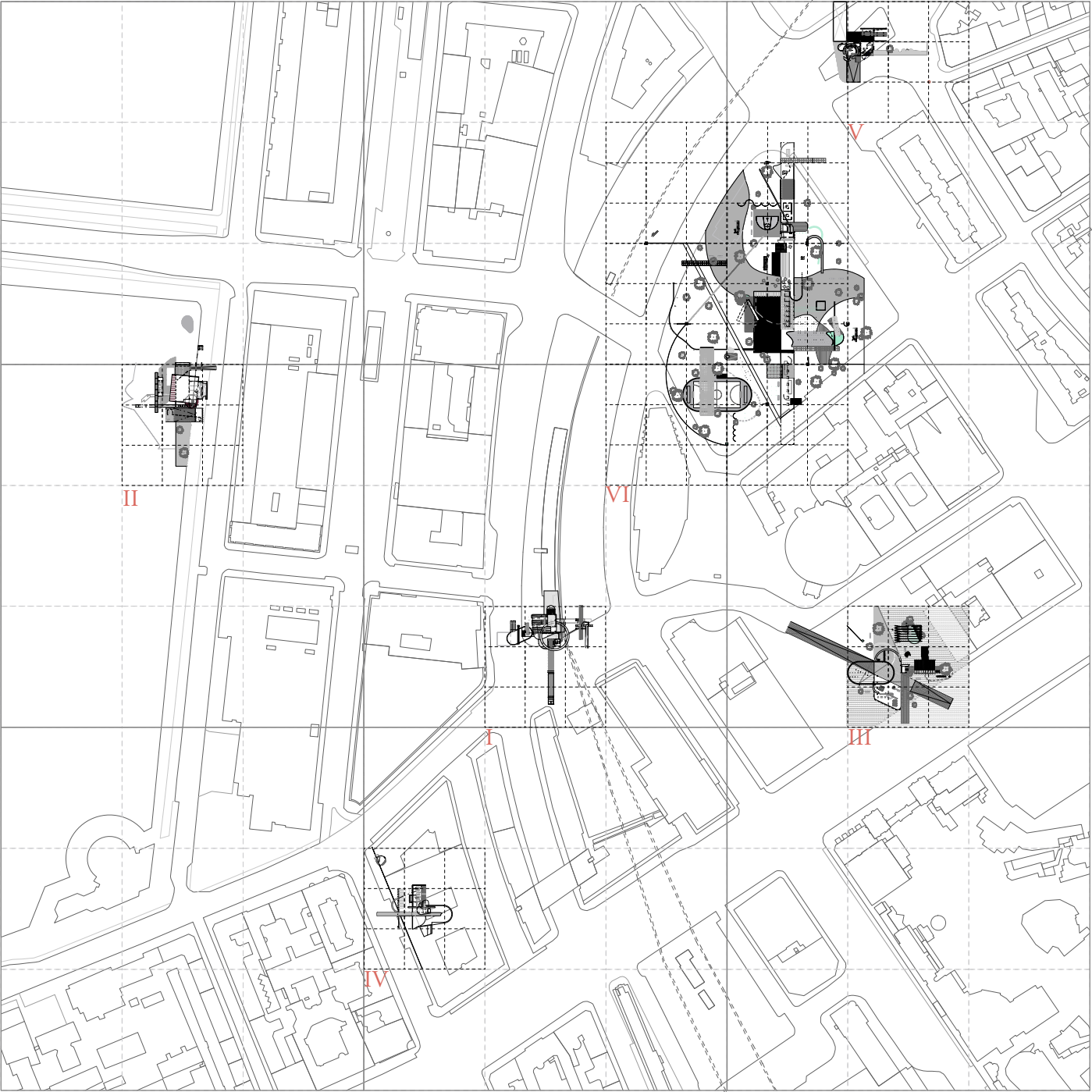


fig.2.6





Six architectural interventions are proposed, informing an infrastructural role in the enclave:

- I ~ Enclave Gate
- II ~ Banknote Print works
- III ~ Bicycle centre
- IV ~ Postal centre
- V ~ Observatory
- VI ~ Urban park

The alignment of these proposals is dictated by a relationship between the existing landscape and the superimposition of the nine square grid. This dialogue between physical context and abstract Cartesian organisation forms tensions between conflicting grains of old and new fabric.

The architecture mediates between these conflicting grains, it its alignment with the superimposed grid. In one instance, the Post Office entirely shifts the facade of an existing building in order to align with the grid. Whilst these gestures seem bold, the history of Copenhagen continually changing to new notions of city boundary mean that this realignment of the city is by no means an alien concept. The propositional work undertaken by Pier Vittorio Aureli and Martina Tatarra as *Dogma* also deal with the ‘superimposition’⁴ of architectural logics that conflict with urban environments in order to instill a political framework,

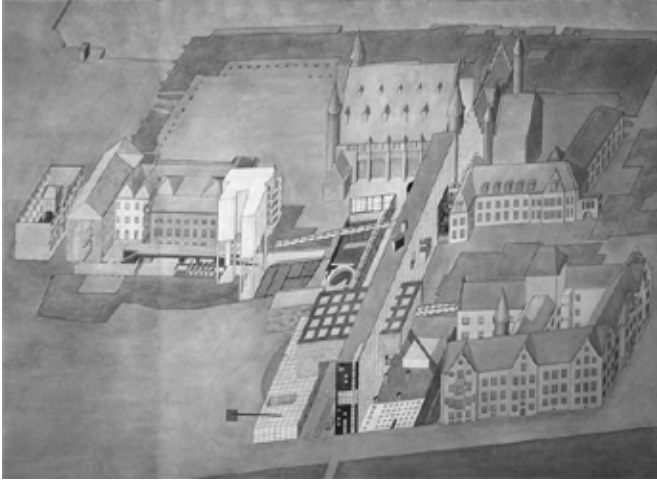


fig2.7

The emphasis on ‘retroaction’ within an archaeological backdrop is heavily explored by Koolhaas, being a significant part of the ‘Extension of the Dutch Parliament’ (fig2.7-10), that saw Koolhaas’ and his collaborators Elia Zenghelis and Zaha Hadid [collectively as OMA], design three interlocking forms. In this project OMA recognises the significance of the archaeological backdrop of the historical site and use the ‘exquisite corpse’²² design tool to reflect it. The description of this ‘flux’ are as follows;

“Over the centuries it has acted as a royal palace, archives, Republican headquarters... eventually by the parliament”.²³

Roberto Gargiani asserts that this attitude allowed for an ‘architecture that continued to interpret the image and the meaning of the historical city according to the parameter of the modernity of the avant garde’.²⁴

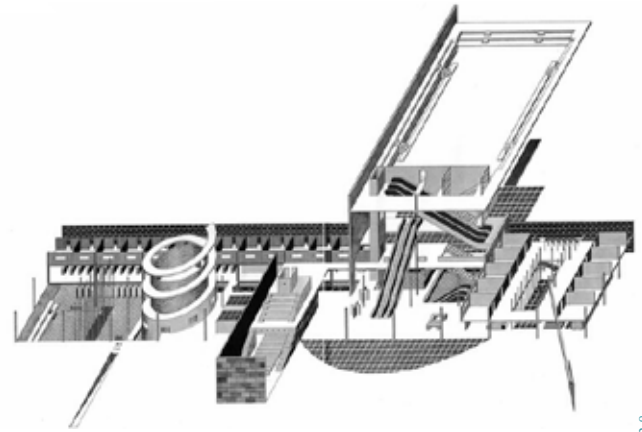


fig2.8

The formation of the proposal therefore continued this ‘slow-motion process of transformation’²⁵ instead of any attempt to ‘restore’ or ‘preserve’ as the project was a ‘demonstration of the impossibility, according to OMA’s theories, of any return to its original state’.²⁶ This attitude introduces not only a juxtaposition between the old and the new (modernity) but also a way of thinking that treated ‘new’ as being an ‘extension’ of the old. The political status of this building, as a parliament, draws parallels with the ‘enclave’ as it is inevitably a reflection of the political status of the city as a whole.

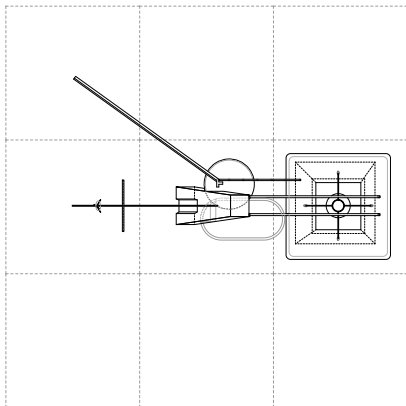
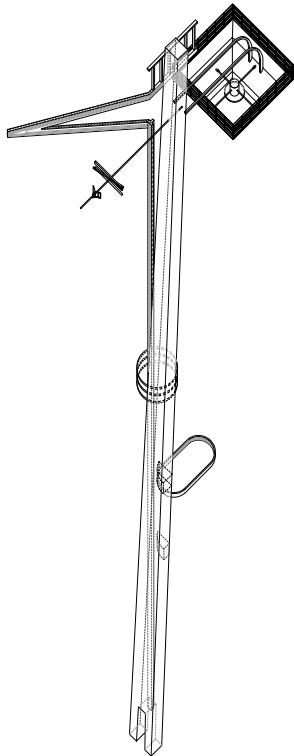


fig 2.5 *The design of a street lamp and other street objects is rooted in a coherent formal language within the enclave*



fig 2.6 *The design and identity of London's bollards are unique to each Borough*

The notion of sustained identity within the enclave is embedded into both its formal language and the coherence of composition in accordance to the superimposed grid. Rancière suggests that it is within the 'everyday' perception of the 'aesthetic'⁵ that might embody its identity or political significance. For example, the perception of street objects such as a postbox, whose presence in the city not only is part of an underlying infrastructure, but also of a uniform design, reiterates its place in the city as a distinct identity.

The design of these objects therefore become exclusive to the perimeter of the enclave, and their coherence with the overall architectural language of the enclave establish a common identity. Each object and building therefore become a 'working plane', suggesting that the logic of the enclave at large scale becomes evident in the logic of a small intervention such as a street lamp.

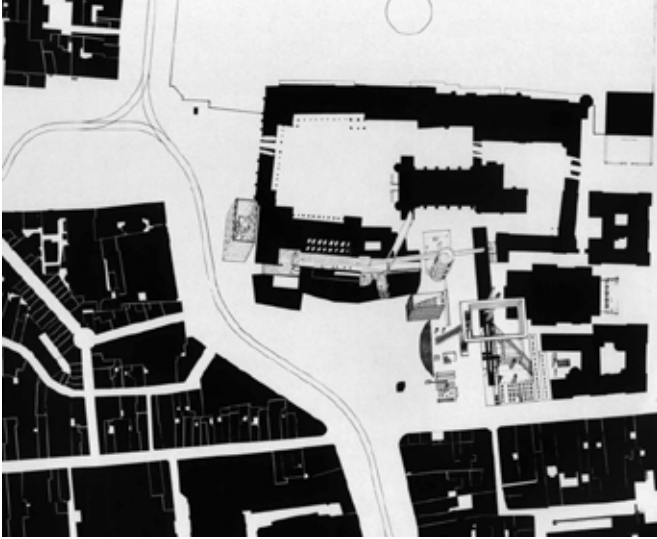


fig2.9

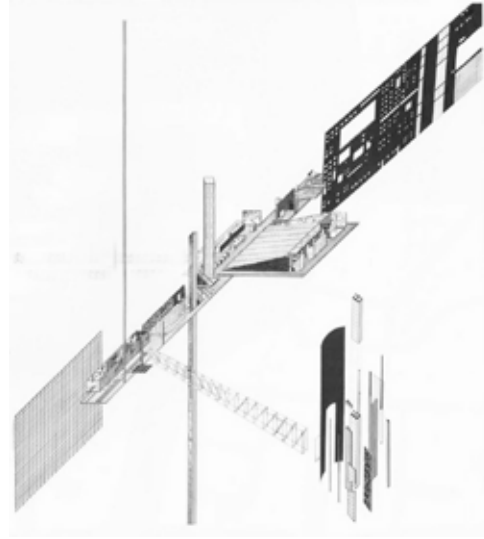


fig2.10

The drawing 'The Ambulatory and its connections' (fig2.10) particularly expresses the compositional aspect of the project as Gargiani describes 'puts the accent on the elements of the spatial configuration and their assembly according to the logic of the Proun, not the structural system'.²⁷ As previously discussed, the 'logic of the Proun' is rooted in a sense of ambiguity and it becomes clear why Koolhaas and OMA are heavily influenced by the Constructivists. This influence is shown in other OMA projects such as Boompjes; a project for the development of a part of Rotterdam. Not only does the project outline a Leonidovian tower - referencing the constructivist obsession with abstraction, but the 'isometric triptych' entitled 'Rotterdam Summation' (fig2.11) uses representation and composition to reflect upon 'urban appearances' and the 'self-image of the city'.²⁸

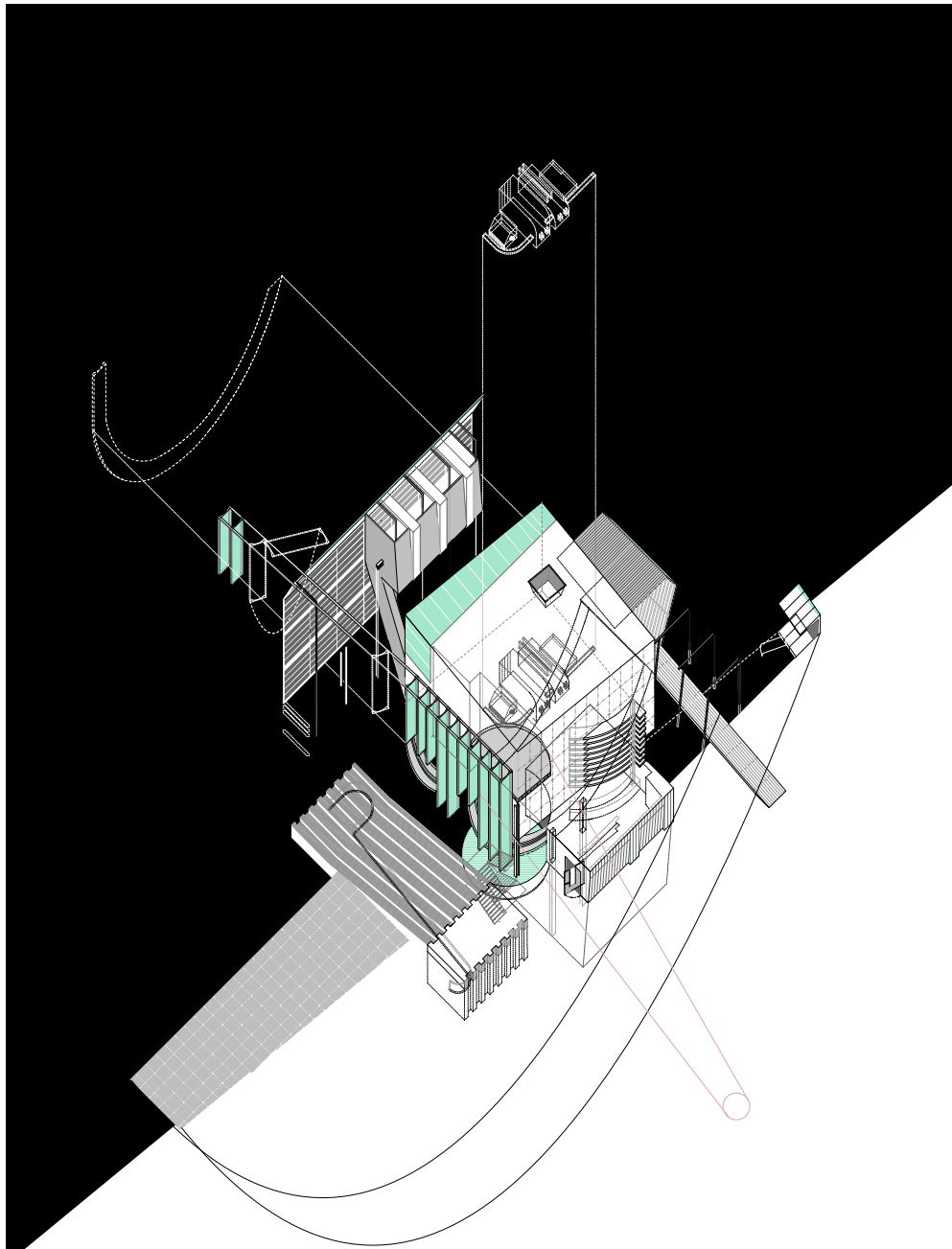


fig.2.7 *The Banknote Printworks as an operational infrastructure within the city*

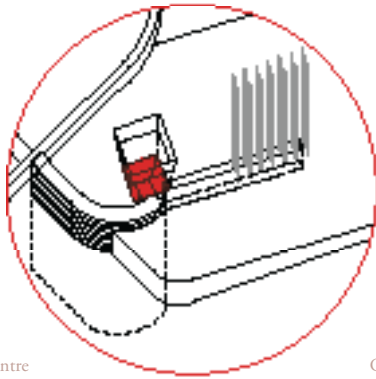


fig2.11

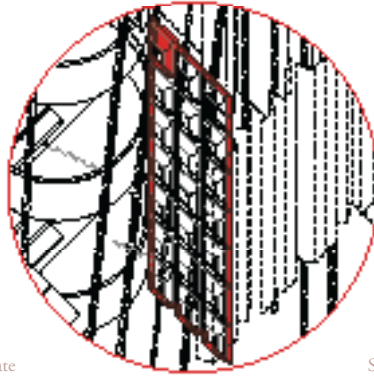


fig. 2.8 *The Enclave as a system*
All proposals within the 'test-bed' of axonometry

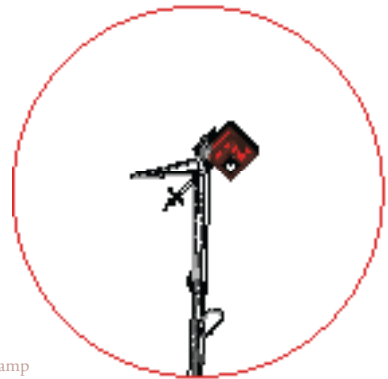
SET_A



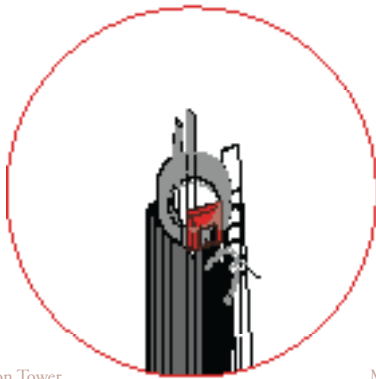
Bicycle Centre
Roof light



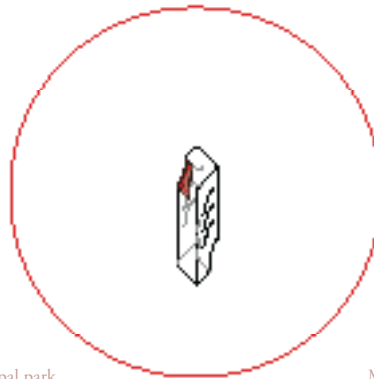
City Gate
Window



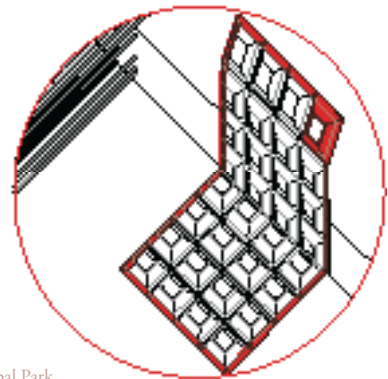
Street Lamp
Lampshade



Observation Tower
Viewfinder



Municipal park
Column ornament

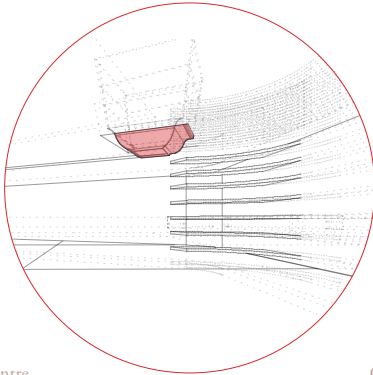


Municipal Park
Cladding

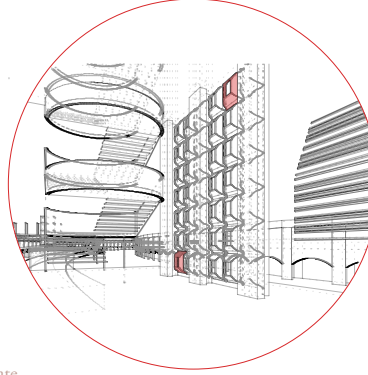
fig2.9

The ability for the architecture to share formal behaviours is facilitated by axonometry, as the retention of scale and measurability, allow common elements across the design to maintain their connection. The diagram set A (fig2.9) illustrates this, as an architectural component reappears across several parts of the design in different scales, and contexts. Despite these deviations, their relationship to each other as connected elements is kept consistently equal through use of representation, emphasising the component's uniformity in face of its re-appropriation.

SET_B



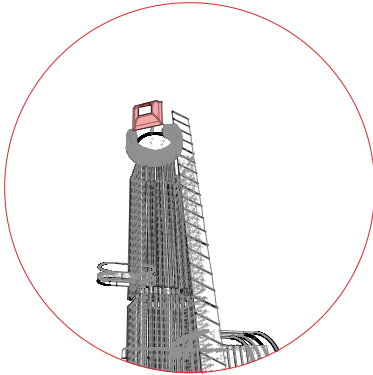
Bicycle Centre
Roof light



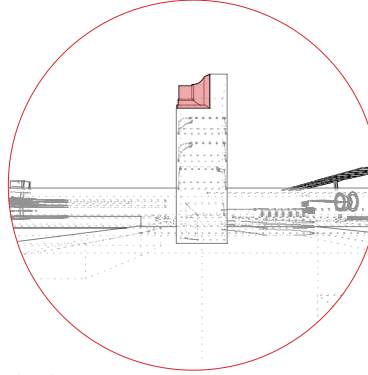
City Gate
Window



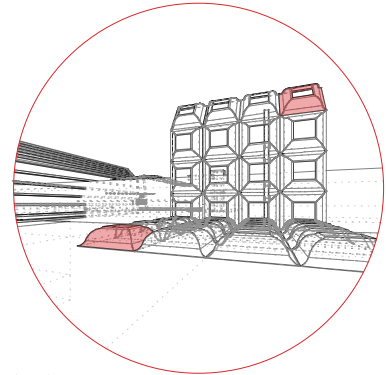
Street Lamp
Lampshade



Observation Tower
Viewfinder



Municipal park
Column ornament



Municipal Park
Cladding

fig.2.10

Diagram set B (2.10) places set A in the perspective. Although the elements are still recognisable as common, representation has localised them into their contexts, rendering them fixed and permanent. Each component has a unique and inconsistent representation, governed by the position and stance of the viewer. Here, the opportunity to represent elements in flux, submitting to an 'egalitarian' logic of equality is lost as elements adopt the hierarchies of scale, position and context.

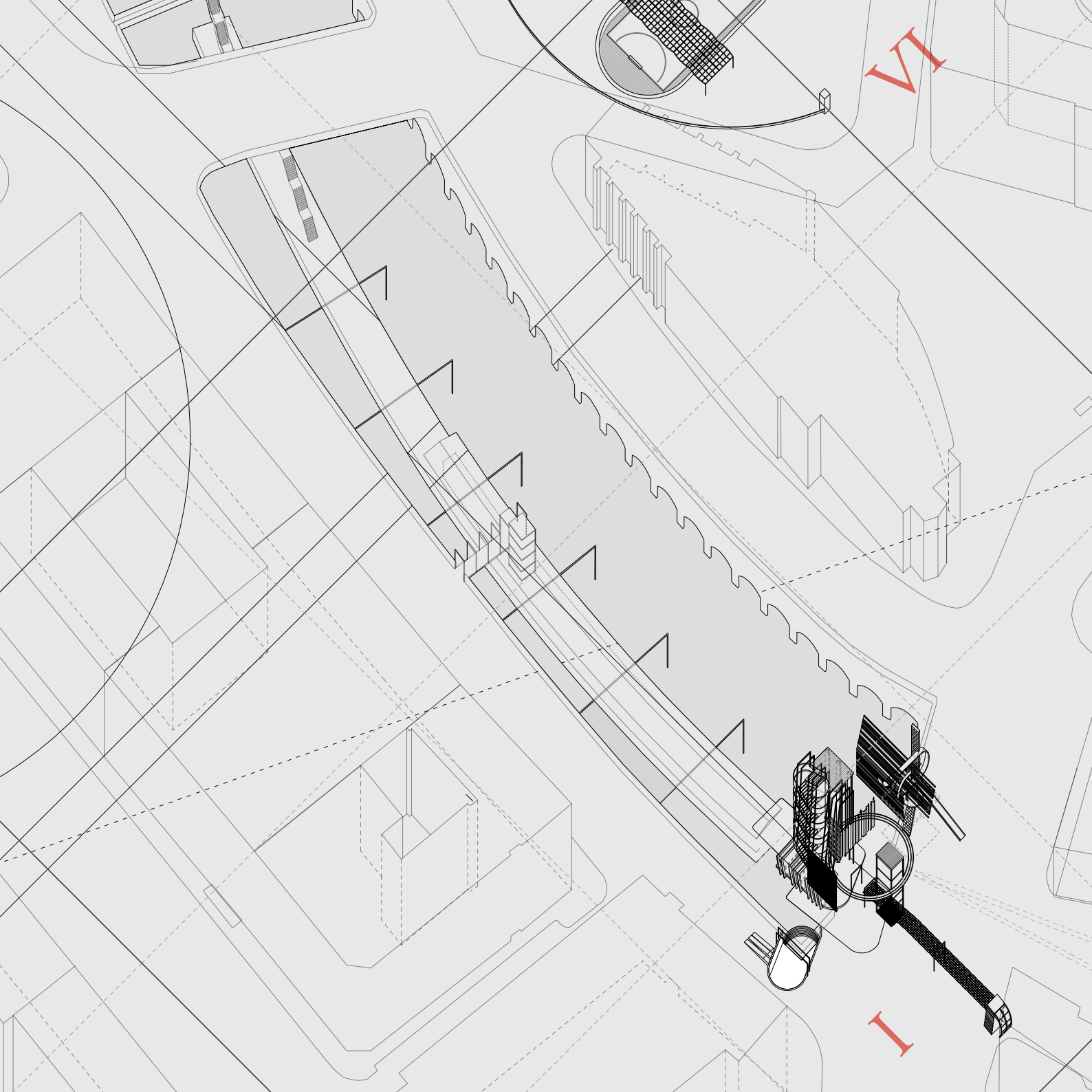


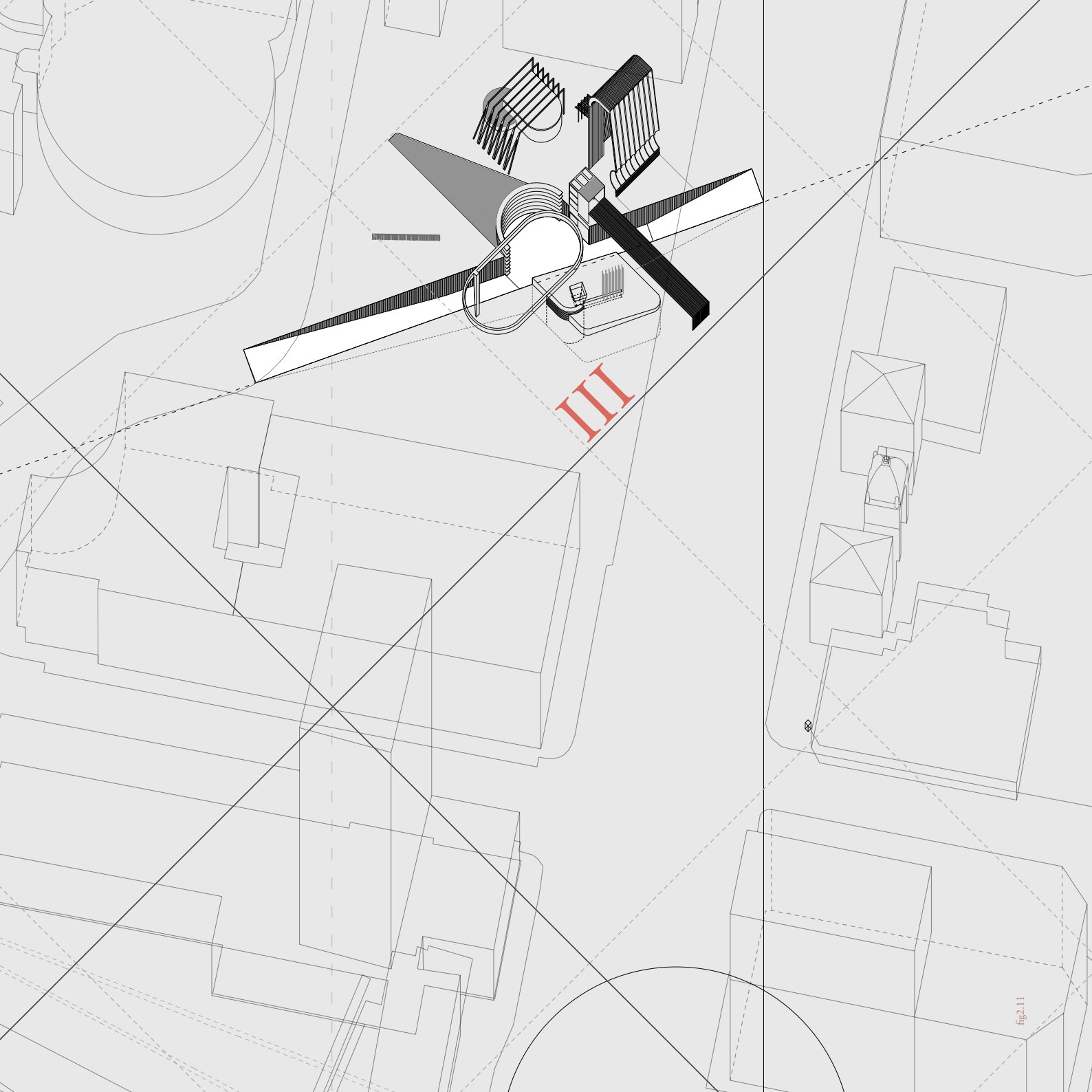
fig.2.12



fig.2.13

Koolhaas borrows perceptive ambiguity, most noticeably in the worm's eye view of the observation tower of the Boompjes project (fig.2.12). This view forces the reader to occupy even more impossible a position, as we are looking up at the tower from the ground itself. However, this sense of ambiguity is only one aspect that Koolhaas adopts from the Constructivists, as the formal gesture of the tower is obviously inspired by Lissitzky's Lenin Tribune design (fig.2.13). With this connection Koolhaas adopts more than just the form of El Lissitzky's design, but the political subtext as well, due its specific socialist agenda in tribute to Lenin.²⁹ Whilst the Russian influence on Koolhaas was clear, the political status of the axonometric in both cases had shifted dramatically. This demonstrates how these ideologies become embedded into architectural representation, and how the axonometric will always bear traces of its political dimension.





Notes

1. Aureli, P V. [2011] *The Possibility of an Absolute Architecture*, Cambridge, MA: MIT:176.
2. *ibid*:176.
3. *ibid*:179.
4. *ibid*:191.
5. *ibid*:IX.
6. *ibid*:178.
7. *ibid*:201.
8. *ibid*:201.
9. *ibid*:193.
10. *ibid*:210.
11. Rumpf, P. [1983] 'On order and disorder', *DAIDALOS*, n.7:9.
12. Koolhaas, R. [1994] *Delirious New York: A Retroactive Manifesto for Manhattan*, New York: Monacelli (Original work published 1978):293.
13. Aureli, op.cit:224.
14. Koolhaas, op.cit:296.
15. *ibid*:296
16. *ibid*:296
17. Aureli, op.cit:220.
18. *ibid*:224.
19. Stoppani, T. [2011] *Paradigm Islands: Manhattan and Venice: Discourses on Architecture and the City*. London: Routledge:57.
20. Koolhaas, op.cit:20.
21. *ibid*:304.
22. Gargiani, R. [2008] *Rem Koolhaas, OMA: The Construction of Merveilles*, Lausanne: EPFL:77.
23. OMA [1981]:*Projects 1978-1981*, London: Architectural Association:15.
24. Gargiani, op.cit:78
25. <http://socks-studio.com/2013/11/22/applying-the-cadavre-exquis-the-competition-for-the-dutch-parliament-extension-oma-koolhaas-zenghelis-zaha-hadid-1978/> (accessed 06/02/2014)
26. Gargiani, op.cit:78
27. *ibid*
28. OMA, op.cit:15
29. <http://newsfeed.kosmograd.com/kosmograd/2011/11/boompjes-2.html> (accessed 12/02/2014)

Illustrations

- 2.1 From Aureli [2011].
- 2.2 OM Ungers, Map of Vienna Superblocks, Aureli [2011].
- 2.3 OM Ungers, 'Märkisches Viertel Housing Complex, Berlin', *ibid*.
- 2.4 Rem Koolhaas and Elia Zenghelis, 'Exodus', from Aureli [2011].
- 2.5-6 From Koolhaas [1994].
- 2.7-10 OMA, Extension to the Dutch Parliament, <http://socks-studio.com/2013/11/22/applying-the-cadavre-exquis-the-competition-for-the-dutch-parliament-extension-oma-koolhaas-zenghelis-zaha-hadid-1978/> (accessed 06/02/2014)
- 2.11-12 <http://newsfeed.kosmograd.com/kosmograd/2011/11/boompjes-2.html> (accessed 12/02/2014)
- 2.13 *ibid*



Notes

1. Koolhaas, op.cit:9.
2. Rumpf, P. [1983] 'On order and disorder', *DAIDALOS*, n.7:9.
3. Aureli [2011], op.cit:11.
4. Aureli [2013], op.cit:4
5. Rancière, op.cit:104

Illustrations

- 2.1-2 Drawings by author, edited aerial views of Copenhagen.
- 2.3-5 Drawings by author.
- 2.6 <http://londonist.com/2013/04/sunday-seasoning-153.php> (accessed 26/01/14)
- 2.7-11 Drawings by Author

CHAPTER FOUR

Omnitemporality In Chinese Painting



fig3.1

The notion of architecture being in flux, motion and perpetually changing are all properties of axonometry that had been instrumental to its adoption by both Koolhaas and the Constructivists. This sense of temporality [or lack thereof] is an ideology that became associated with axonometry in some of its earliest known examples: Chinese painting. This form of representing architectural elements have existed in China throughout its history, as in even some of the very earliest examples 'the perspective already evinces the oblique orthographic construction of the Chinese tradition'¹ during the Eastern Han dynasty (250 - 220), extending back two thousand years.

Whilst parallel projection appeared in the west in some early cases such as in Byzantine art, it is clear that Chinese art had been consistent in their depiction of space in this way. Although this form of spatial representation was predominantly an art form, the fundamental characteristics of Chinese culture and philosophy reveal how these ideologies become inevitably embedded into axonometry. By examining what these ideologies were and what geopolitical implications they had in the depiction of cities - underlying connotations of change, duration and sovereign power begin to emerge.

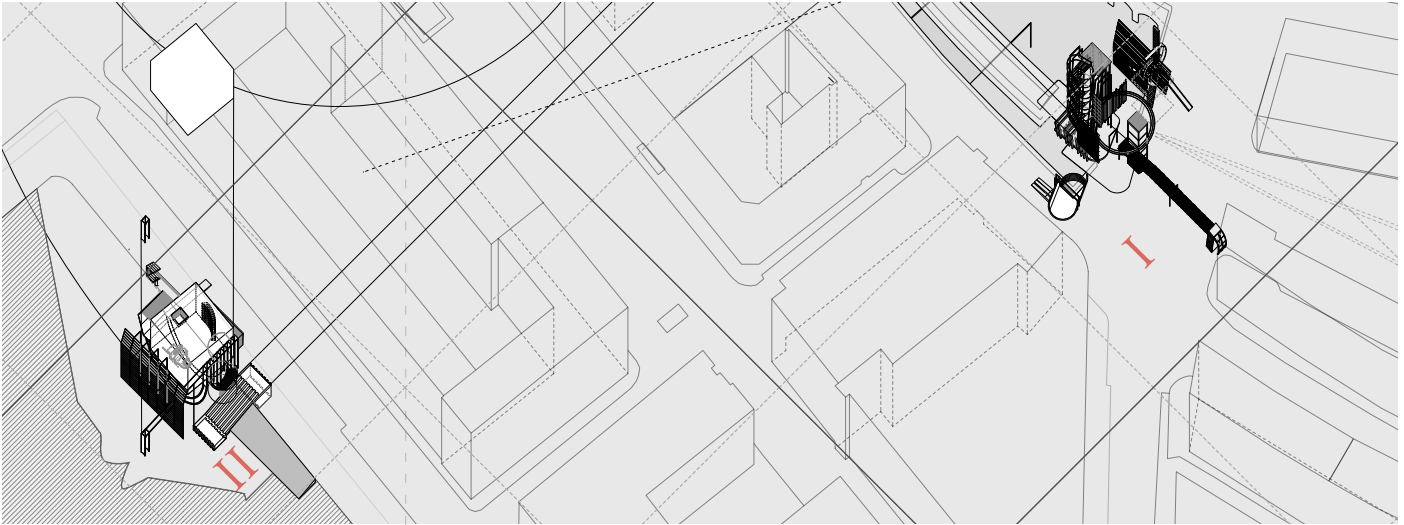


fig.3.1
Enclave axonometric [detail]

The temporal dimension of the project allows the proposed enclave to be read as a series of incremental transformations that gradually establishes its identity and architectural infrastructure. The role of representation becomes about facilitating such a view of the city and not as a static and finished set of objects that appeared instantaneously. Bruno Latour talks about this tension in architectural representation, asserting that architecture is a ‘moving project’¹ and that

‘Even once it is has been built, it ages, it is transformed by its users...’²

This life that Latour outlines is an important element of Copenhagen’s trajectory of destruction, relocation, reconstruction and redefinition. Using the properties of axonometry and other combined representational techniques, this aspect of the project will be emphasised.



fig3.2

Whilst there are many fundamental differences between western and eastern civilisations, perhaps one of the clearest distinctions is their attitude towards time. In *Time and Temporality: The Chinese Perspective*, Shu-Hsien Liu asserts that 'The Chinese lacked the concept of absolute time such as that held by Newton'.² The distinction naturally lead to a depiction of space that reflected this. The emphasis on duration in Chinese culture lead to this specific form of representation, as spatial depiction became less about recording a fixed view and more about presenting a space in midst of narrative. According to Chang Tzu, 'their physical form is not fixed in one place. The years cannot be retained. Time cannot be arrested.'³ It is clear that this philosophical emphasis on change and perpetuality invalidated the use of perspective, with its very focus on space from a specific point in space and time, described by Yve Allain Bois as 'the petrification of the spectator'.⁴

Instead, spatial representation is presented as continuous and often regarded as a stage or composition for multiple time states to be recorded as a narrative. Wu Hang talks extensively about this in the famous painting 'Night revels for Han Xihai' (fig3.1) and how architectural elements such as screens and furniture 'help structure a synchronic pictorial representation...and punctuate a diachronic reading sequence'.⁵ as oblique architectural elements stage and divide narrative scenes in the stride of the scroll format. This use of axonometry to portray sequential scenes as part of a narrative highlight the 'unbound' nature of this type of representation, which would also be adopted by the Chinese in their depictions of entire towns and cities.



61

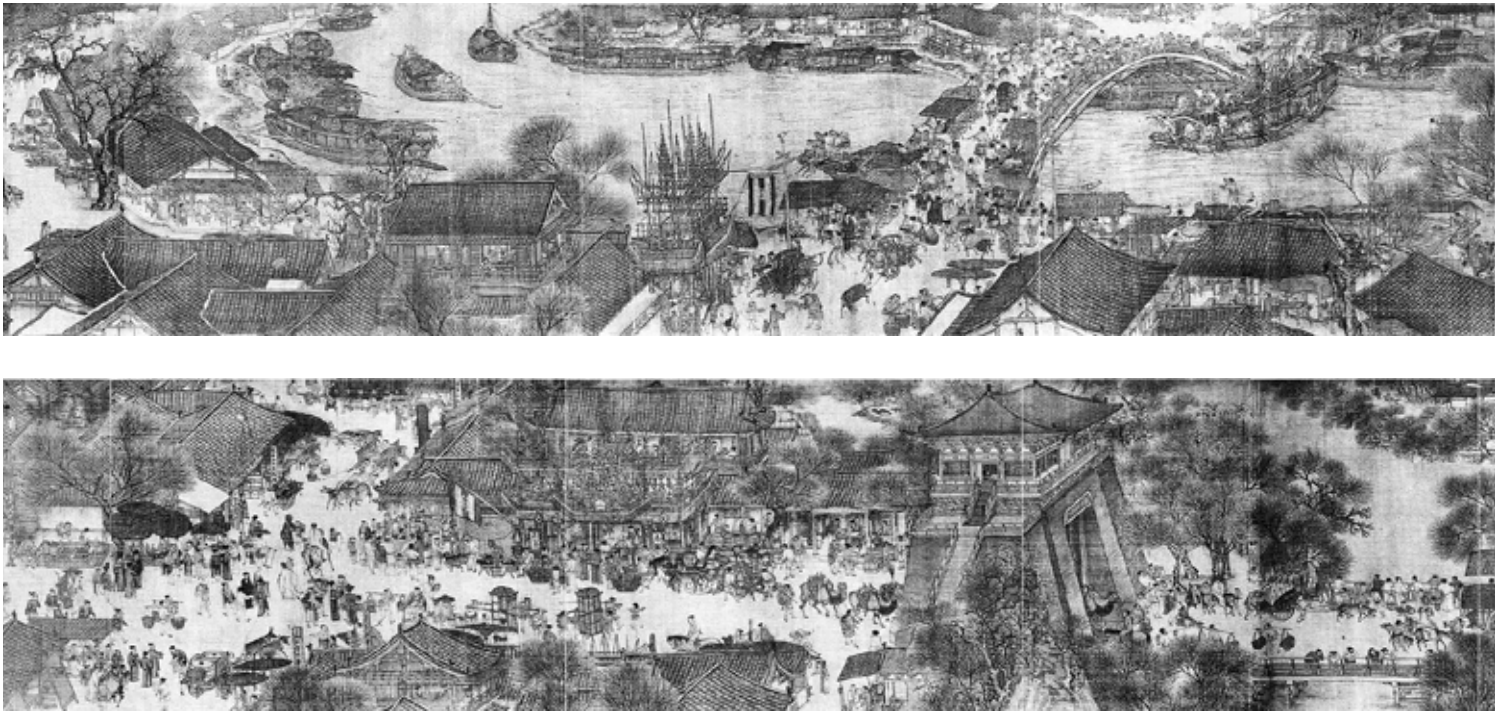
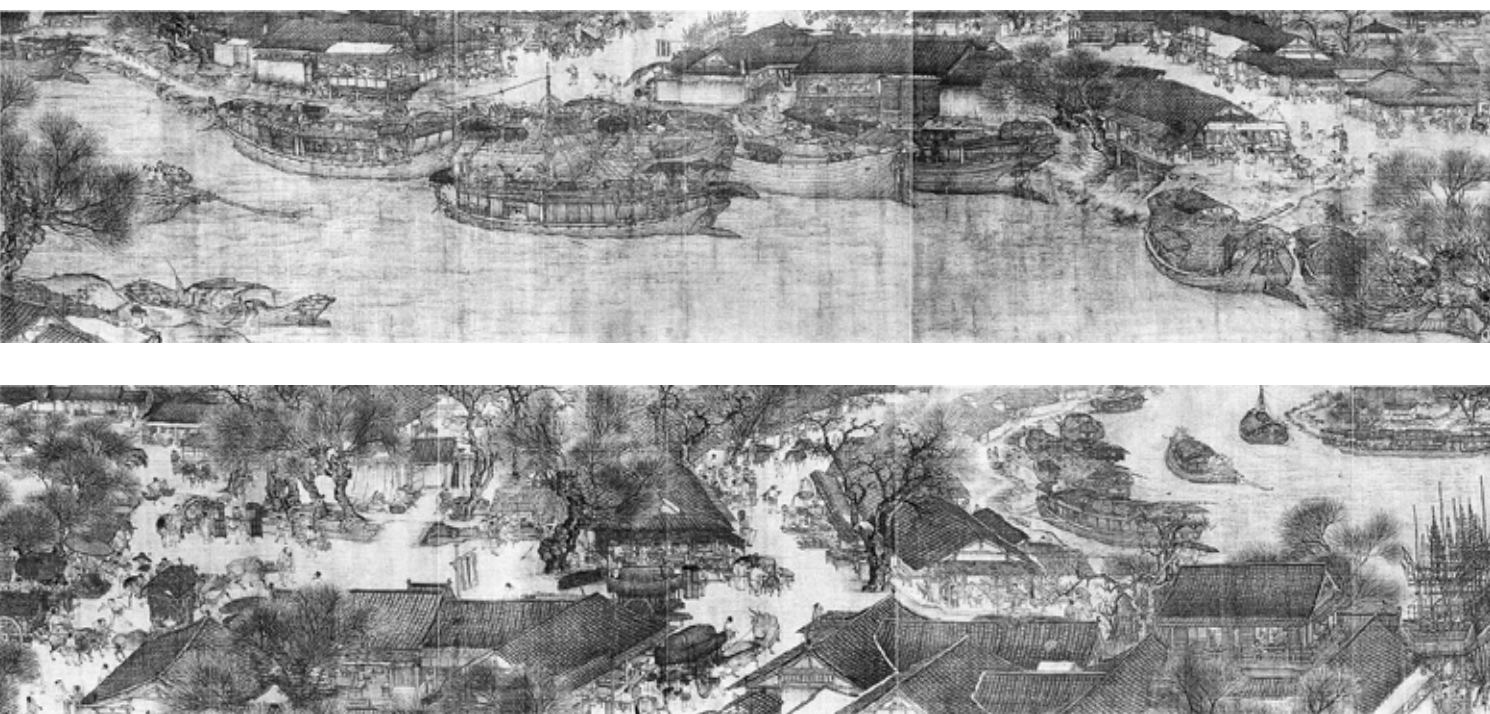


fig. 3

Hand scrolls of the city were not meant to be viewed in their entirety, but as Hung describes, were meant to be unrolled gradually - revealing an arms length of the image at a time.⁶ This implied that the painting must work not only as a continuation of the sequence of buildings and spaces, but also in moments in isolation forming a complete image in its own right. Hung describes that 'the hand scroll is literally a moving picture, with shifting moments and loci'⁷ and is also referenced by Scolari as a 'filmic sequence'⁸ that oblique spaces in these scrolls created. It becomes clear that this 'shifting perspective' that is required to both draw and read these scrolls will only work with the principles of axonometry, as the abandonment of a singular frame or viewpoint in favour of motion and the 'filmic' means that consistency can't be achieved by perspective. The use of the oblique in these elements allow the continuity of time to take place without freezing the composition of the painting, as the viewpoint is not directed to a singular vanishing point, allowing

continuity with other objects further along the composition. The fundamental principle of omnipresent viewpoint and the retention of the parallel make these city paintings prominent for their associations with the ideologies of axonometry.

The use and implications of the scrolls reveal the political intent of such representation as Wen Fong states in *Beyond Representation: Chinese Painting and Calligraphy* 'the scrolls were a form of pictorial historiography that showed how rulers employed ritual, symbol and history to legitimise their rule'.⁹ The fact that these paintings were a way of depicting specific events in history and were commissioned by the Emperor himself make these forms of representation tainted with a political bias. In fact the nature of politically commissioned art was so rife in China that many Emperors themselves were accomplished painters.¹⁰ The fact that the hand scroll format means that 'only a single spectator can manipulate the painting's movement and



control the pace of reading'¹¹ emphasising the fact that the reader - the Emperor - is 'master' over the space.

This raises issues of exerted Sovereign power, territory and connotations of voyeurism. John Ellis discusses this phenomena as 'Voyeurism implies the power of the spectator over what is seen... the knowledge that the actions being undertaken are played out for the spectator'.¹² Both the fact that these scrolls were authorised by the body that ruled the depicted space and the fact that the medium allowed an exclusive viewing of the space makes the axonometric intrinsically tied to connotations of power and politics, in regards to its underlying sovereignty. In fact, Christopher Tyler suggests that it was the 'desire of the Emperors and the court to take a long view of the populace over which they ruled, with the use of orthographic perspective designed to promote that sense of distance'.¹³

Despite this, a form of egalitarianism continues to prevail *within* the representation itself. Whilst there is an established hierarchy between the viewer and the subject, the scope of the scrolls present each part of the city with equal weighting, as the view is unselective and to scale. The political implication of this is enhanced by the fact that as buildings are equally drawn, the people occupying the city spaces are by default also equally sized, regardless of their position within the city. This depiction of citizenry as all equal and evenly distributed alludes to such Egalitarian tendencies, albeit a notion that only exists within the depiction itself.



fig 3.4 *The Kangxi Emperor's Southern Inspection Tour (1691-1698), scroll seven*



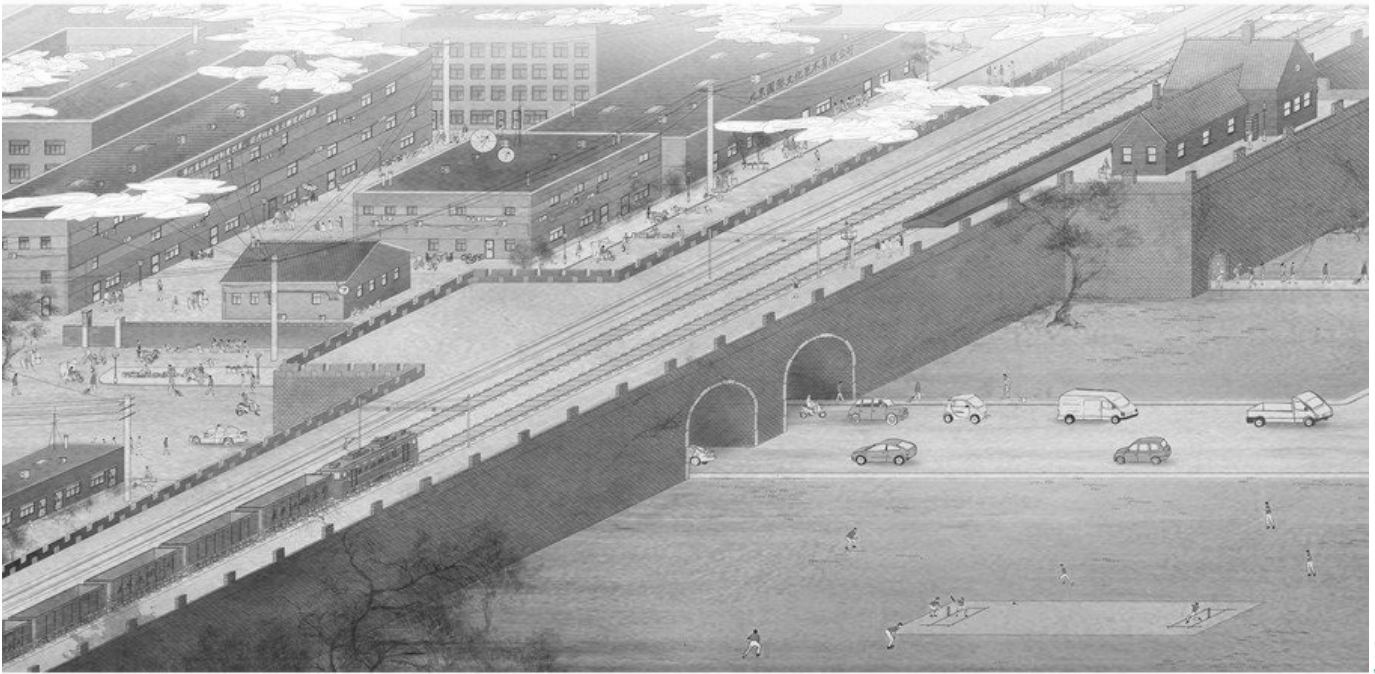


fig.3.5

Furthermore, these drawings are tied to a particular attitude towards change in the city with regards to time and progression. According to Chuang Tzu “everything was in the process of destruction, everything was in the process of perfection”¹⁴ and “The natural course of things is to create and further create without a moment of cessation”¹⁵. This goes hand in hand with what Wen Fong describes as a ‘cyclical’ view of history and ‘the possibility of restoring the harmonious unity of the past and of forging continuity beyond change’.¹⁶ Herein lies axonometry’s underlying relationship between flux and duration. This is perhaps evident in a recent project by Darryl Chen entitled *New Socialist Village* which adopts the Chinese scroll format to present a political project merging depictions of two separate cities in one image. The project is described as a ‘translation’¹⁷ of planning policy between China and the UK and uses the axonometric scroll to facilitate this translation spatially - outlining how even today, these techniques have a way asserting political messages about the identity of the city.



fig.3.6

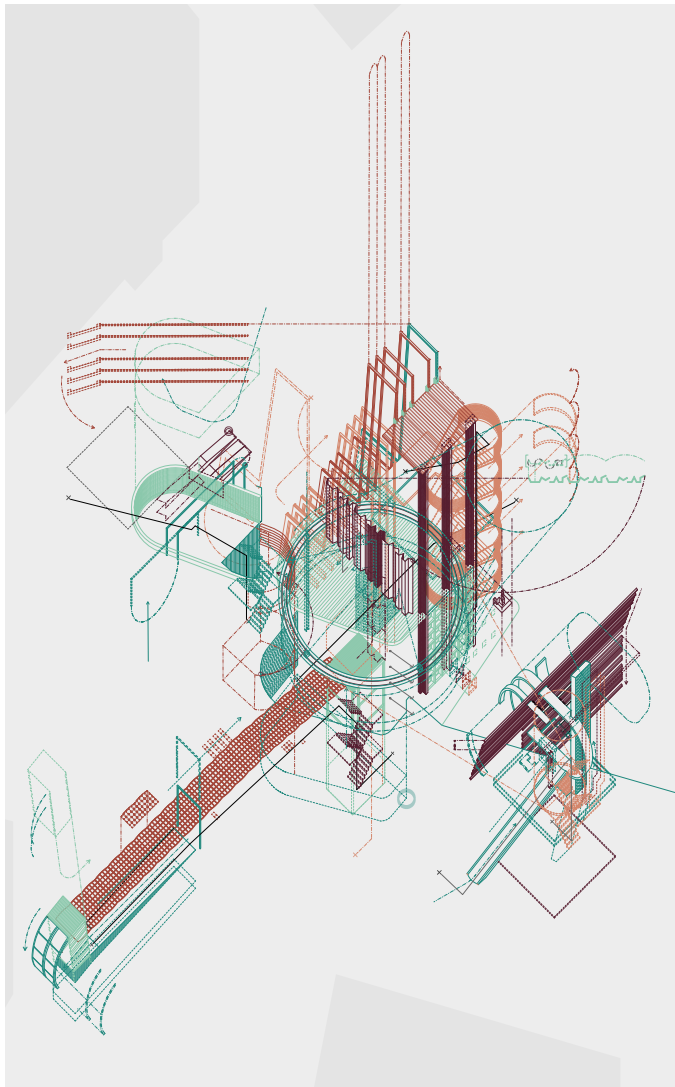


fig 3.3 The new city gate drawn in multiple states of time

Copper reaction timescale



The use of axonometry to represent the incremental build up and transformation of each architectural proposal allows for aspects of timelessness to be subverted into showing precise time based gestures. It allows representation to simultaneously outline multiple stages in time within the same image. This is facilitated in the drawings by colour, reflecting the decay of copper over time from brown to green, as a material register of time. The colour is thus used to stage the incremental sequences of the building 'project' as an 'X-ray through time', reflecting an attitude of continuous change and development. All processes of the project are shown in simultaneity, alluding to a completeness of the building whilst asserting that it lies in flux.

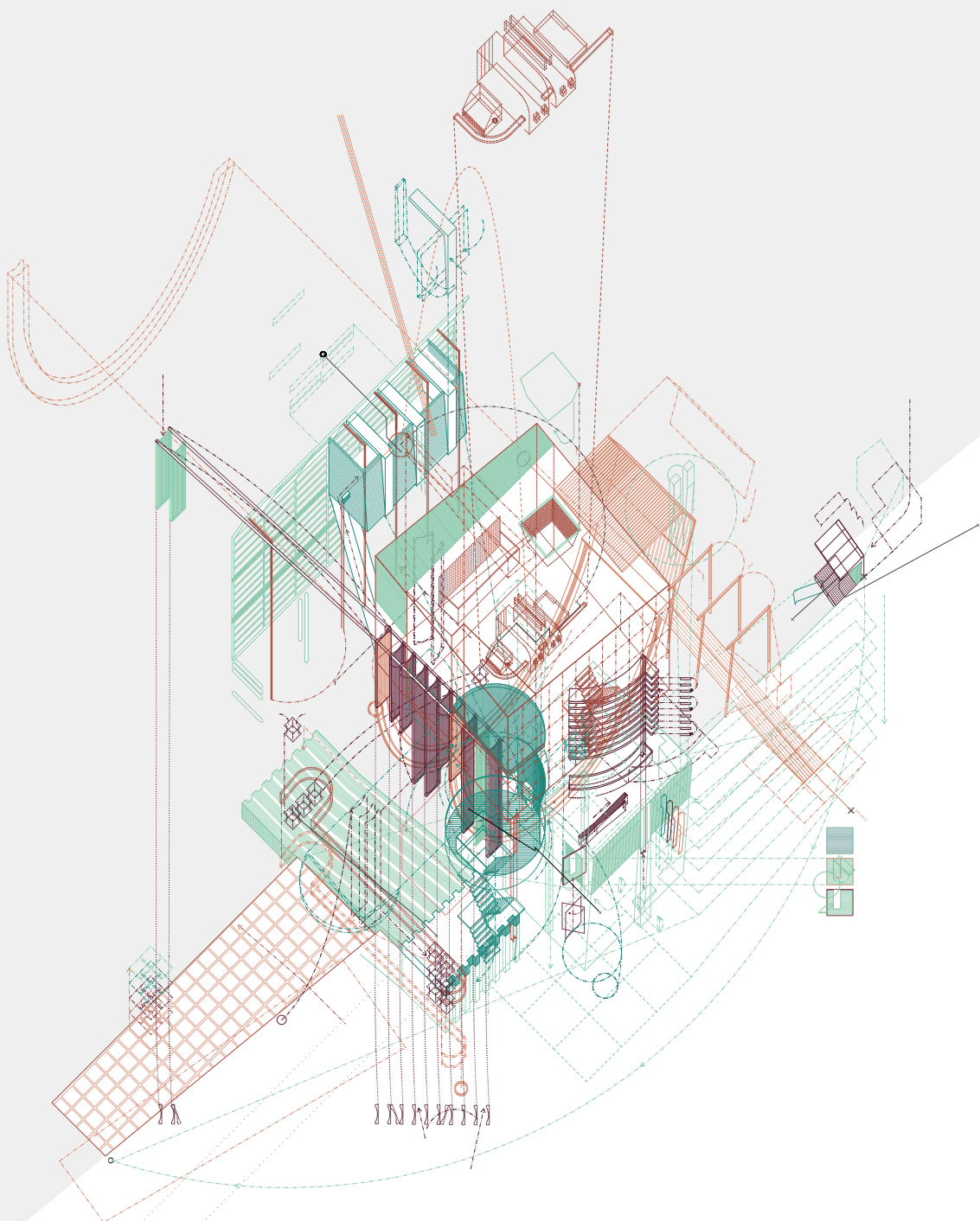
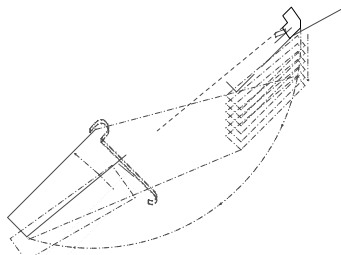
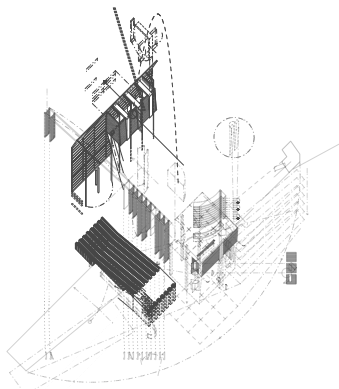


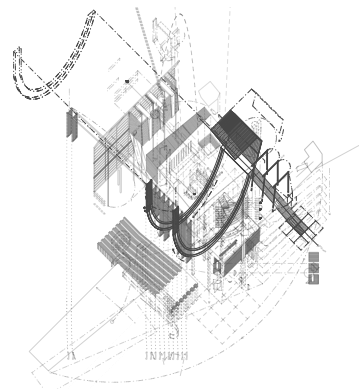
fig.3.4



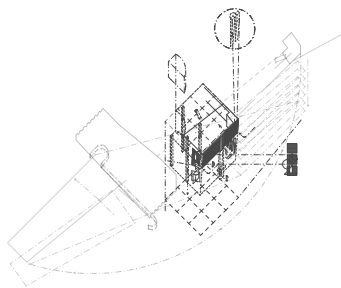
I - Land redistribution on shoreline



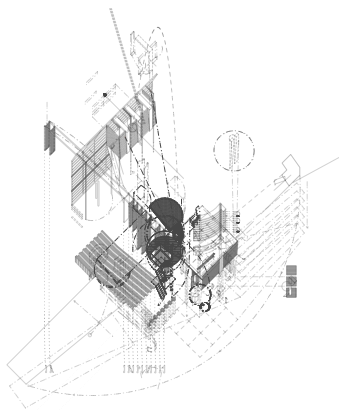
IV - Engraving studio and vault erected



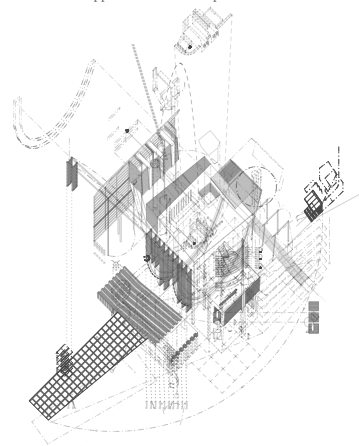
VII - Supports + Platform in place



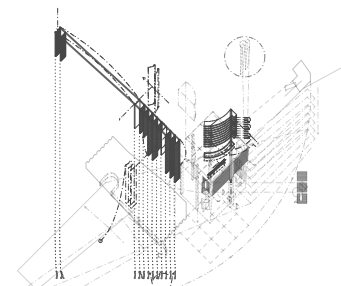
II - Municipal Bank built



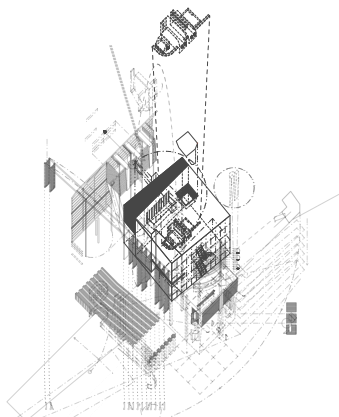
V - Building partially destroyed for new entrance



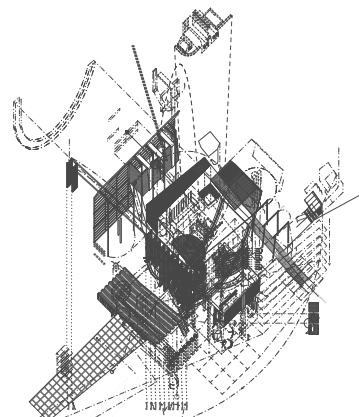
VIII - Landscaping



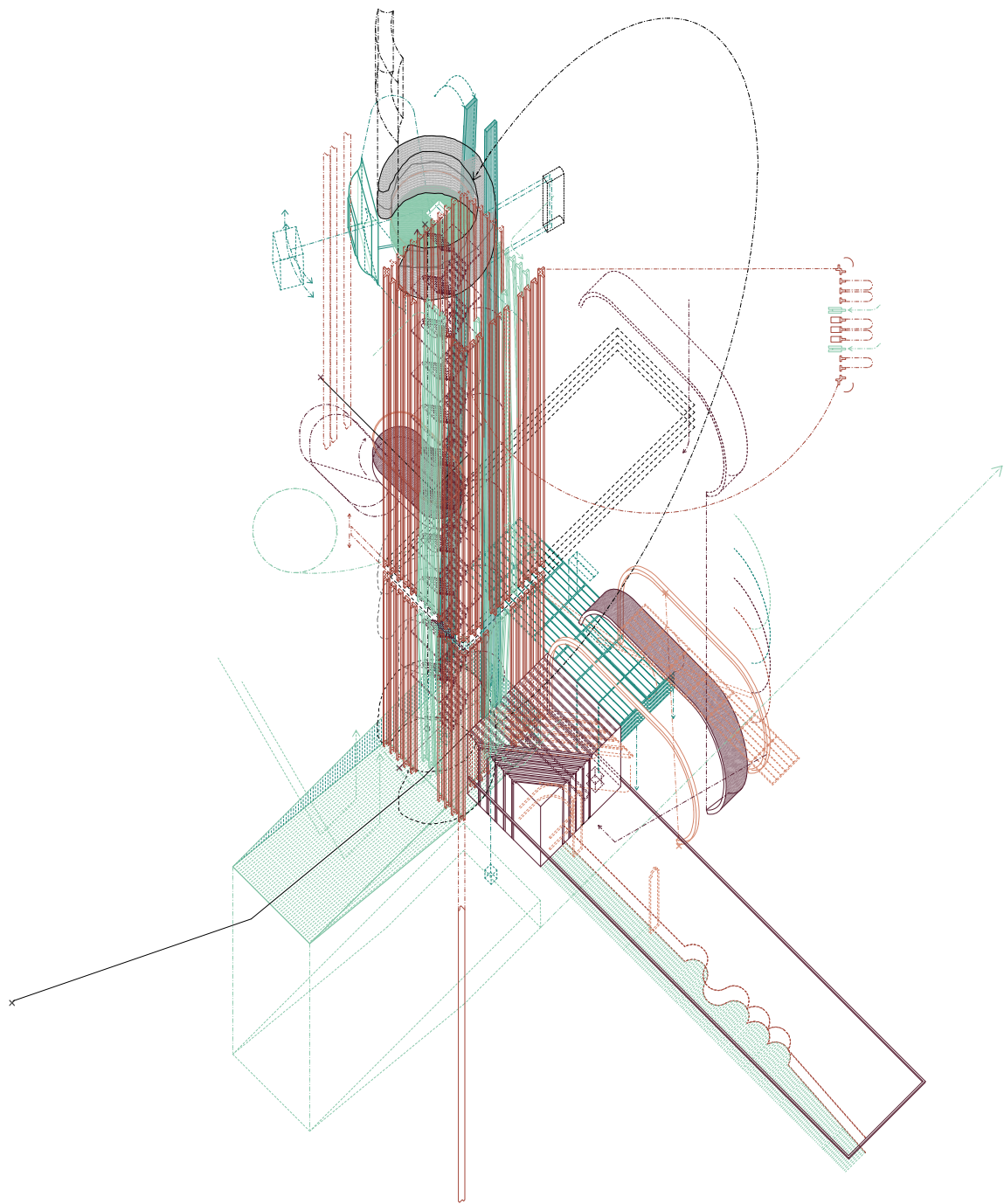
III - Timepiece framework installed



VI - Printworks hall installed



IX - Procedures simultaneous



Notes

1. Tyler, C. W. [2011] 'Chinese perspective as a rational system and its relationship to Panofsky's symbolic form' *Chinese Journal of Psychology* 4
2. Liu, S. [1974] 'Time and temporality: The Chinese perspective', *Philosophy East and West*, n.24:145.
3. *ibid*:147.
4. Bois, *op.cit*:46.
5. Hung, W. [1996] *The Double Screen: Medium and Representation in Chinese Painting*, Chicago: U of Chicago:55.
6. *ibid*:59.
7. *ibid*:59.
8. Scolari, *op.cit*:27.
9. Fong, W. [1992] *Beyond Representation: Chinese Painting and Calligraphy, 8th-14th Century*, New York: Metropolitan Museum of Art:14.
10. *ibid*:3.
11. Hung, *op.cit*:61.
12. Ellis, J. [1982] *Visible Fictions: Cinema, Television, Video*, London: Routledge & Kegan Paul:45.
13. Tyler, *op.cit*:17.
14. Liu, *op.cit*:148.
15. *ibid*:148.
16. Fong, *op.cit*:9
17. Chen, D (2013) New [Socialist] Village <http://vimeo.com/60123088>

Illustrations

- 3.1 Hung, W. [1996]
- 3.2 *ibid*
- 3.3 Zhang Zeduan, 'Along the River During the Qingming Festival', <http://www.chinaonlinemuseum.com/painting-along-the-river.php> (accessed 07/02/14)
- 3.4 <http://mactaggart.museums.ualberta.ca/mac/details.aspx?key=20555&r=0&t=1> (accessed 02/03/14)
- 3.5-6 Daryll Chen, (2013) New [Socialist] Village. <http://vimeo.com/60123088> (accessed 9/01/14)



Notes

1. Latour, B. [2008] ‘An Ant’s view of Architecture’, *Explorations in Architecture*, Switzerland, : Birkhauser:80.
2. ibid:80.
3. Lefebvre,op.cit:13.
4. Lefebvre, H. [1967] “L’Urbanisme aujourd’hui. Mythes et réalités,” Les Chiers du Centre d’Études Socialistes, ns. 72-3, (1967), p. 10, quoted in Kofman and Lebas, “Lost in Transposition,”:16-17.

Illustrations

3.1-9 Drawings by author.

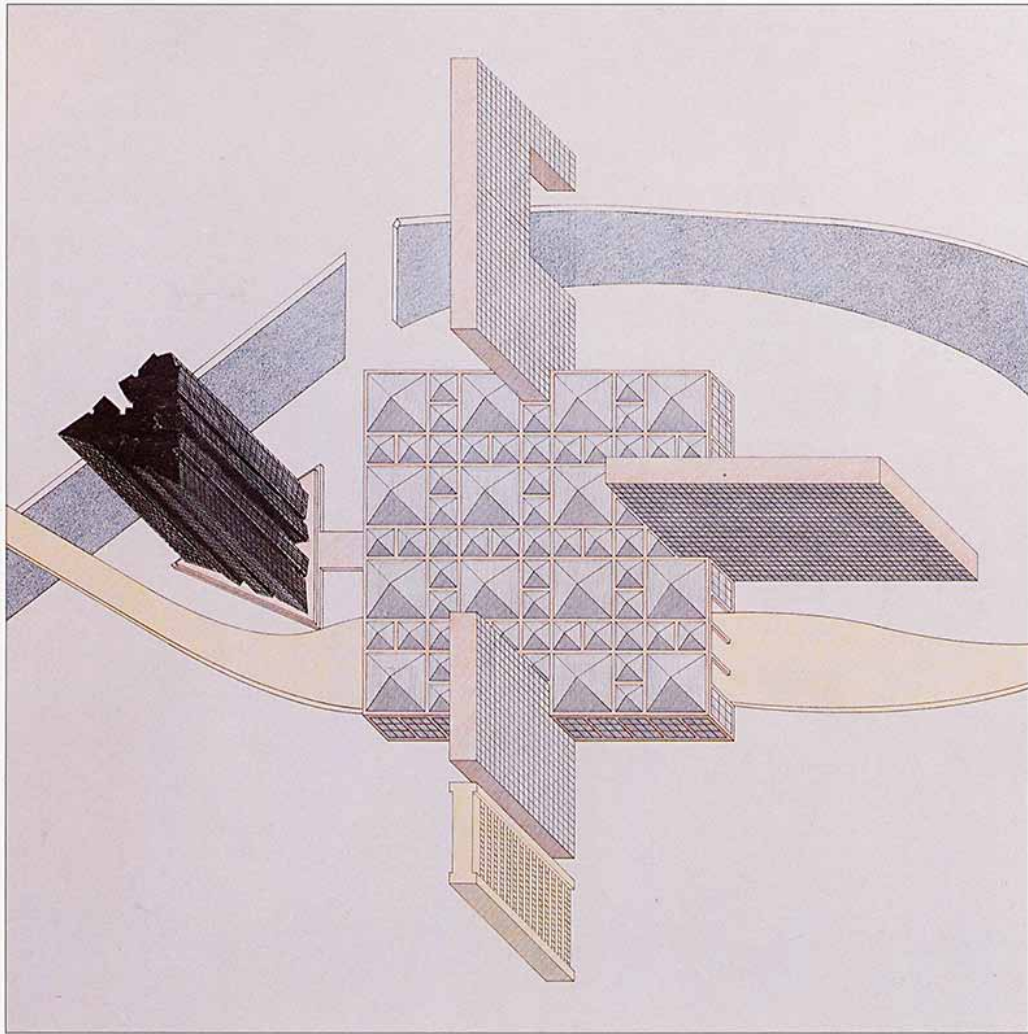


fig.C.1



The methodology of this argument is structured upon two parallel 'voices', being both a theoretical analysis of axonometry through history and the documentation of its implementation by design. The structuring of these voices as parallel discussions evokes the 'simultaneity' that axonometry affords, drawing parallels between the logic of the format and the logic of the subject, as each voice competes for its own 'territory' in the argument. Through this simultaneity, the thesis discovers how certain archi-political¹ ideologies become embedded into representation and how these inevitably become adopted and re-appropriated through its introduction to new contexts. By juxtaposition, the underlying principles of ambiguity, autonomy and temporality within the axonometric, are both outlined within their founding contexts and exercised through design work that seeks to use such notions as tools.

Thus, certain aspects of design work are revealed only through a critical examination of an historical example and the potential for ideas initiated in these references are extrapolated upon through design. The discussion hence becomes a dialogue between these two voices, as their own trajectories as individual argumentation become entwined in their theoretical subtext and inevitably each have an effect on the significance and status of the other. The opportunity, therefore, for current design work to become an instrument of interpretation, analysis and subversion of the role of representation throughout history, is an emergent result of this thesis that had not previously been anticipated.

The relationship between the draftsman and the assembler had traditionally been facilitated by axonometry, due to its status as a 'constructional diagram' and ease of interpretation and production by the layman. It was these qualities that were subverted by the Constructivists, who celebrated this connection to the 'proletariat' as well as the opportunity for perceptual ambiguity. Thus the very same representation technique that was rooted in objective clarity was pushed into a realm of impossibility, emphasising elements that were 'unbound' and in motion, reflecting an ideology of the political context of the time. The design project exploits these abstract traits of representation and its political status, to explore behavioural transformations of the city in composition, as no building element is considered 'fixed' or static. These borrowed

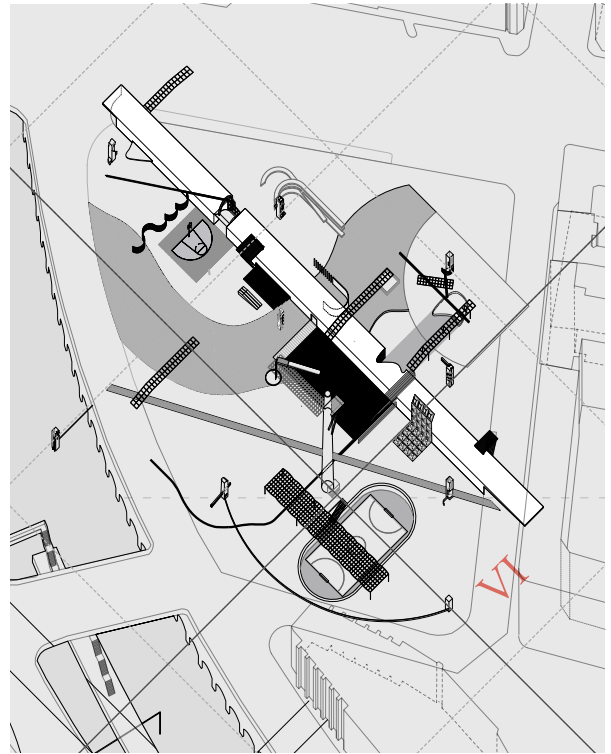
compositional techniques are however refined, using the logic of symmetry and balance as spatial cues and the nine square grid as framework, in an attempt to curate an egalitarian sense of space.

The omniscient yet undetermined view of the city that axonometry affords thus refers to a 'mental viewpoint of the architect-demiurge',² establishing the notion of mastery and power the designer has over spaces and indeed cities. Conversely, the removed emphasis of the 'individual' that prevails in perspective, affords a shared, collective and fundamentally egalitarian perception of space, that makes all viewpoints of all spaces equal. Axonometry is thus a vehicle of these conflicting archi-political ideologies that can be used to examine and construct a notion of autonomy, territory and identity in the city. This was examined by Koolhaas and Ungers who sought to curate the new political 'archipelago', using axonometry as a means of depicting city space as an ideological 'test-bed'. The proposal for Copenhagen builds on this interpretation by suggesting an architecture that is conceived through egalitarian principles but is placed in a hierarchical position as a superimposed municipal territory. Given the geopolitical context of Denmark and the inherent exclusivity that dominates a society based upon equality, parallels are here drawn between qualities of society and qualities of drawing.

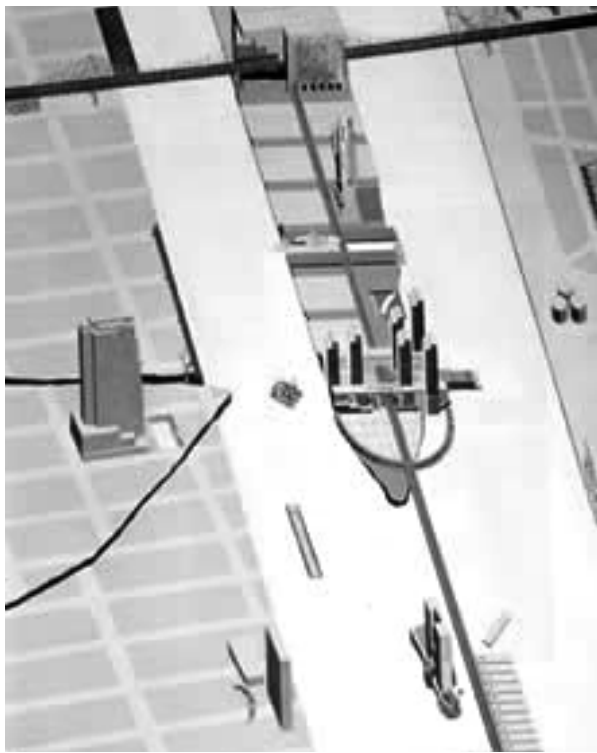
Ranciere alludes to the impact of time and duration in the city by defining what is deemed political as 'a delimitation of spaces and times, of the visible and the invisible... that simultaneously determines the place and the stakes of politics as a form of experience'.³ This notion of 'simultaneity' therefore becomes indicative of space that has the capacity to change and has been changed from its original state, which affects its political status. This sense of omnitemporality and duration became embedded into the axonometric due to its removal from any particular moment in time (such as that with the perspective), which is why it was the *modus operandi* in Chinese scroll paintings, where time is instead honed by the reader. This concern with duration and change is instrumental to the role of representation in the design project, where the drawings seek to illustrate an architecture of impermanence and flux, using colour as a material register of time.

◇

This thesis has established that architectural drawing and - more specifically - axonometry, has an underlying relationship to power. The connection between the 'layman', the 'draftsman' and the 'assembler' is afforded through architectural representation, where a common ground is founded, yet is one from which hierarchies emerge. The traits of axonometry that allude to irrationality and impossibility whilst being perfectly measurable and inherently 'true' reveal the tensions between dominance and empowerment. As representation is essentially a means of communication, and axonometry is oft used to depict the city, these tensions become political in nature, as they shape and define the city's identity to those who have the capacity to change it. By using two 'voices' to explore separate strands of this discussion, aspects of ambiguity, autonomy, and temporality as part of the architectural rhetoric of axonometry all become instrumental to the curation of an 'Egalitarian Territory'.



figC.2
The Municipal Park superimposed in the city



figC.3

Notes

1. Rancière, op.cit:71.
2. Reichlin, op.cit:72.
3. Rancière, op.cit:13.

Illustrations

- C.1 OM Ungers, Architectural Design v.61 n.92 1991: 98.
- C.2 Drawing by author.
- C.3 Rem Koolhaas, New Welfare Island, from Koolhaas (1994).



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