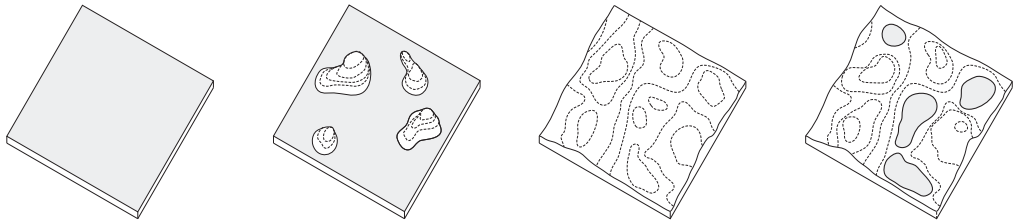
BEHEMOTH AND LEVIATHAN

Tellurocratic And Thalassocratic Spatial Organisation and Their Respective Territorialisation of Social and Spatial Constructs



BENV GA05 Year 5 Thesis

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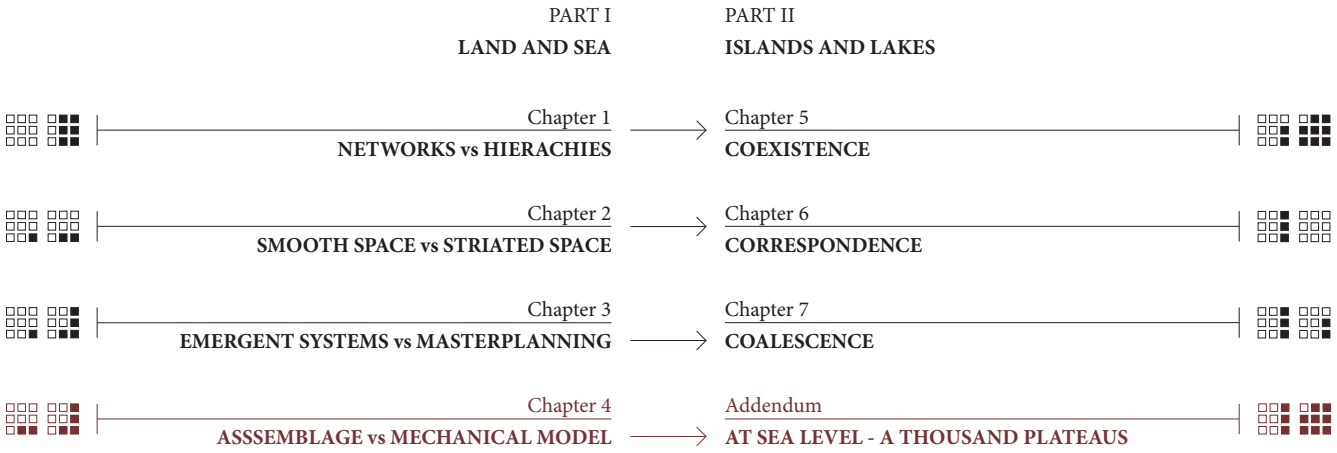
‘Behemoth and Leviathan’

William Blake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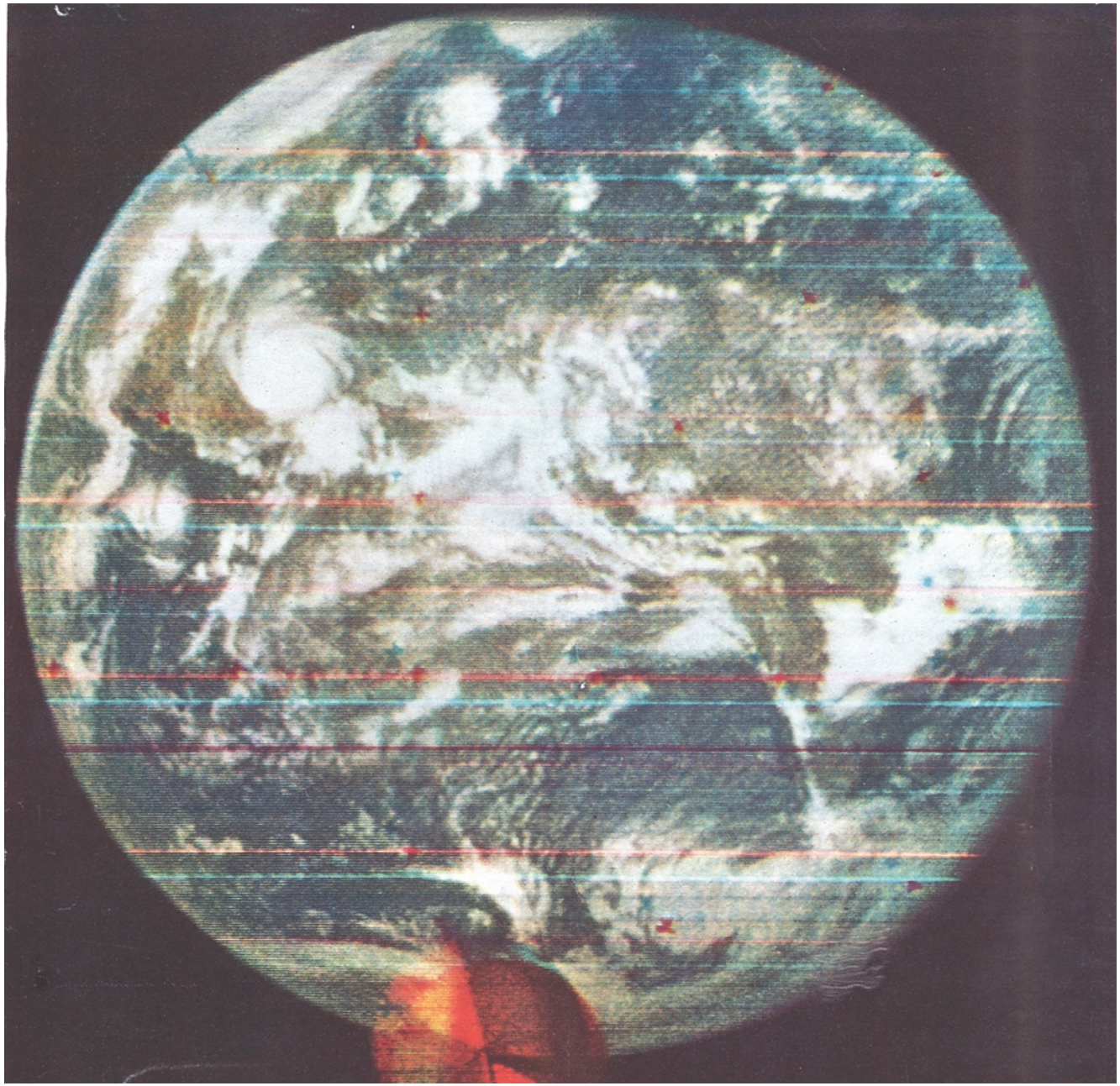


First colour image of the earth from outer space

BEHEMOTH AND LEVIATHAN

TELLUROCRATIC AND THALASSOCRATIC SPATIAL ORGANISATION AND THEIR RESPECTIVE TERRITORIALISATION OF SOCIAL AND SPATIAL CONSTRUCTS.

ABSTRACT

"World history is the history of the wars waged by maritime powers against land or continental powers and by land powers against sea or maritime powers ... All important changes in history imply a new perception of space"
Karl Schmitt

All land is divided by sea, and all sea by land; the earth is a duality formed by two distinct spatial systems. Land is situated, rugged and shaped by boundaries. Sea is formless, smooth and chaotic. Tellurocracies (land empires) and Thalassocracies (sea empires) have differing spatial organizations. I posit that a continental model characterized by hierarchical structures, and a maritime model concerned with networked conceptions of space, together interlock in a struggle for dominance. The interchange between continental and maritime organization forms a meta-narrative by which the social and spatial can be understood at all scales. Stockholm, *the city between the bridges*, simultaneously occupies both spatial realms and so provides an ideal backdrop by which to explore the dialogue between land and sea.

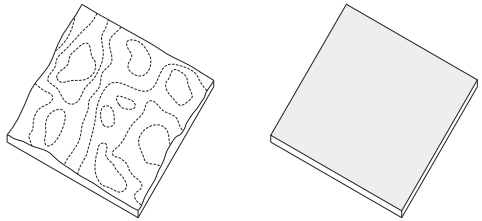
Part I will act reflectively, introducing and examining the ongoing dialogue between land and sea by observing the historical changes throughout Stockholm's growth. This will be examined initially by investigating the traits of the power systems throughout the late medieval and early modern period; namely the Hanseatic League's networked structure of maritime traders, and its subsequent usurpation by the European nation-state model of organization. This will help develop a theoretical framework to investigate, not just the social but also Stockholms spatial form, focusing in particular on emergent processes of development in contrast to top-down methods exemplified through the master-plan.

Part II will act propositionally, analyzing the implications of these warring spatial constructs in the contemporary city. Of key significance will be the relative potency of top-down and bottom-up methods of planning as well as the changing relationship between the designer (operating in late capitalism) and urban form. The narrative introduced in Part I will be challenged given that the interaction between these structures of organization is actually very complex. New models of space are therefore proposed containing mixtures of thalassocratic and tellurocratic constructs which produce an allegorical landscape, punctuated with islands and lakes.

The final section will introduce an architectural project - ***at sea level: a thousand plateaus***, which will encompass the spatial conflict introduced and proposes a physical manifestation of Rhizomic structures acting as a Deleuzian assemblages occupying the Stockholm Archipelago. This will give physical representation of some of the concepts introduced and attempt the paradoxical condition of master-planning through a bottom-up methodology.

PART I

LAND AND SEA



Part I establishes the dialogue between land and sea; drawing parallels between rival pairs of organization, network vs hierarchy, smooth space vs striated space, emergence vs master-planning and mechanical vs assemblage models. Developing these similarities across pairs, and differences within pairs, helps lay a foundation to recognize thalassocratic and tellurocratic territorialisation, and therefore develop a critical understanding of these forces in contemporary society.

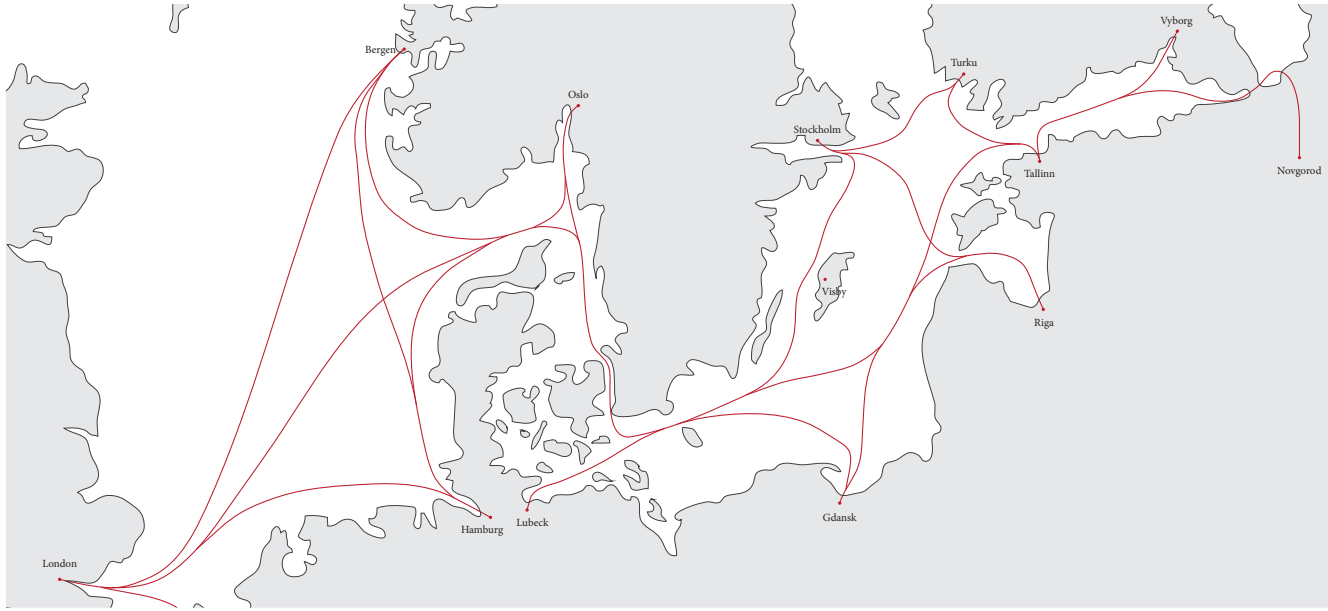


Fig 1 Structure of Hanseatic League

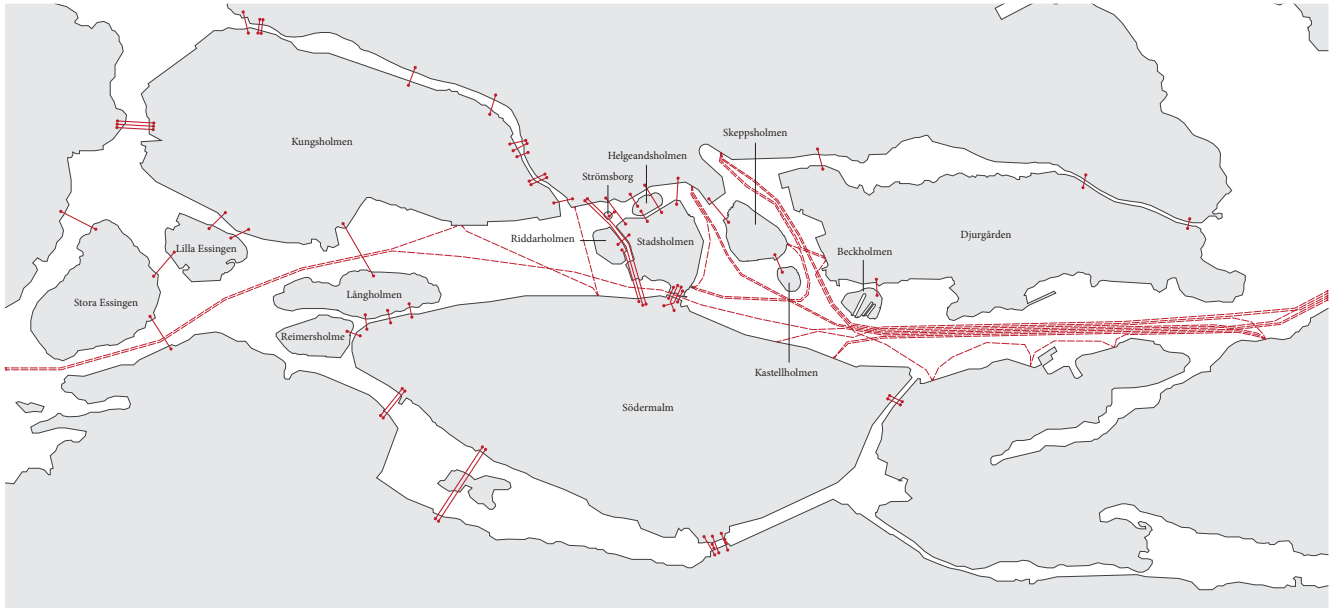


Fig 2 Structure of Stockholm

Chapter 1

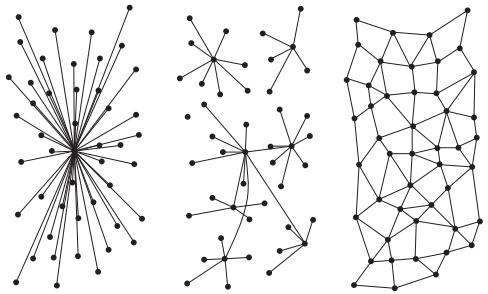
NETWORKS vs HIERACHIES

1

Stockholm has historically been known as the 'Staden mellan broarna' – the city between the bridges, a name which recognizes the cities occupation of both continental and maritime space. Situated within an extensive archipelago, the city finds itself spatially decentralized. Due to this unique topography its urbanism is formed of multiple connections linking centre's of urban space; diagramically resembling a network. The bridge therefore becomes a symbol of the city, acting as a necessity for growth and retroactively framing the cities islands as a collection of moments.

Stockholm is a global city boasting a total population of around 2.3 million in the metropolitan area. It acts as an economic, cultural and political centre of northern Europe and houses many corporate headquarters. The city is spread upon 14 islands where the Baltic Sea meets Lake Mälaren in the southeast of Sweden. It has a rich and complex history being originally founded in 1252 on Stadsholmen and slowly spreading to occupy the surrounding islands. Stockholm's geographic position on the Baltic provided multiple links to port towns and trading outposts across the sea, cementing it as a key nodal point in a network of maritime trade. Furthermore the abundance of arterial waterways running throughout the city generated widespread growth and vitality. This was particularly evident during the period of the Hanseatic League in which the city first began to flourish.

The Hanseatic League was a network of independent trade merchants and city-states operating throughout the Baltic region during the 13th to 17th century . During this period Stockholm developed strong trade links with Lübeck, Hamburg, Gdańsk, Visby, Reval, and Riga and collectively these alliances together with other Hanse cities forged a political force rivaling even the strongest of European state powers. It is particularly difficult to understand the League's activity and physical presence since it was formed of a complex and shifting structure, incorporating reciprocal trade relations based on reputation and trust. The Hanseatic League was less formally established in terms of physical territory and did not necessarily 'possess' land or cities. Described as an 'inorganic entity with an almost intangible structure'[1] by Dollinger it is perhaps best understood as a collection of vectors than of regions in space. This alternative definition of spatial territory shows itself as a Thalassocratic trait. The Bruneian empire at its peak never ventured inland beyond coastal regions, instead choosing to control the seas and connect thin ribbons of land. The Phoenician empire, which surrounded the Mediterranean, lacked a centre or core-periphery relationship. Indeed a geometric mapping of such empires misrepresents their power. In regard to the League there were pockets of possession scattered almost cloud-like throughout northern Europe, of which Stockholm was one. Stockholm could be classified as being 'Hanse' but this less so defined in terms of physical possession, but rather acquiescence to a political and economic framework, this is exemplified through Jenk's description of Lubeck as a 'capital without a state'[2]. Territory was claimed in a physical sense and indeed there were outposts within Stockholm, but this fails to capture the true mechanics of power. Current ownership; an innately static force was less critical than the dynamic force of continued reciprocal trade. Consequently the structure of the league would be derived more from within the minds of merchants rather than the geography of Northern Europe, and therefore penetrated established delineation of states and cities, a virtual territory within a networked collective brain. While Hanse activity dominated, the Baltic Sea became the premier spatial construct by which power was distributed. Merchants circumnavigated borders and formal enclosure of continental space became subservient to the vectors of maritime trade. The Baltic Sea essentially became an inverse state, containing multiple centre's located on its periphery, which were connected by a fluid, warping structure of trade connections, mirroring the rolling water.



Centralised Structure | De-centralised Structure | Networked Structure

The power structure within the League emerged gradually and displayed traits of a network. Merchants operating within Stockholm and across the Baltic were predominantly formed of horizontal internal relationships and displayed little hierarchical dominance[3]. This formed a structural high edge-to-node ratio, which contrasts with centralized models of organization. Each merchant in the League had the potential to be directly connected to every other, resulting in a complex system with multiple routes for capital mobility. Additionally they displayed high degrees of plasticity, this manifest in rapid adaptation given a local shock, but crucially demonstrating the ability to gradually evolve, reshaping themselves according to imposed

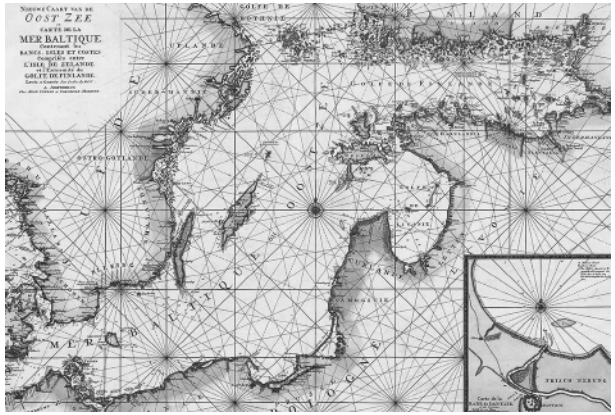
1 Dollinger, P. The German Hansa, Stanford University Press (1970). Pg 13

2 Jenks, S. Capital Without a State: Lubeck, Historical Research, Volume 65, Issue 157 (June 1992). Pg 134–149

3 Beerbühl, M.S. Networks of the Hanseatic League European History Online (EGO), published by the Leibniz Institute of European History (IEG), Mainz (2012).

The 14 islands that make up the city of Stockholm, territory is roughly divided in equal parts between the urban realm, wilderness and water.

Historical illustration showing the elevation of Skeppsbron and maritime trading ships.



Maritime chart of the baltic sea - maritime space is vectorial.

17th century Coat of Arms of Sweden on Lützen Town Hall in central Germany, showing the extent of Swedish influence into continental Europe.

Fig 3
Map of Baltic region showing Baltic Sea as the dominant spatial construct in the region

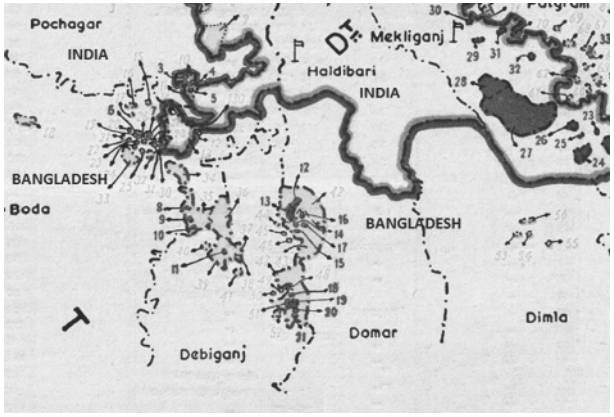
Fig 4
Map of Baltic region showing Swedish Empire as the dominant spatial construct in the region

shifting geographic, political and economic limits over the medium and long term. This is reminiscent of the neuroplasticity of the brain, whereby the cortical map reroutes following external shocks, and compounded micro-changes cumulate into significant structural changes through a feedback loop. The socio-political framework in the League displayed flexibility and plasticity, conducive in allowing temporal warping of structure. Representatives of league cities gathered regularly but also in response to specific issues, these meetings (Tagfahrts) aimed to produce workable consensus. Unlike an emperors' court, this was not adherence to established precepts, but discussed compromise; grey and diffuse. The predominant form of planning took the form of vast numbers of small, local decisions and was not organized from the top down. Reciprocal trade agreements resembled repeater games, which evolved over time, so that the overall system could generate greater long run profits (due to reduced bargaining and enforcement costs), through continued cooperation rather than the short-termism of one-shot games. If a deal raised success locally then that decision was adopted, if it lowered success it was altered. Since the 15th century the costs of trade increased due to internal formalization efforts by agents aiming to extract short-term profits through exclusivity contracts. However more significantly it was due to the structural political changes within Europe, namely the discovery of the new world and the growing power of the nation-state model of governmental control, exemplified in the formation (although ultimate failure) of the Kalmar union.

Game theory distinguishes between repeated and one shot games. In a game that is going to be repeated multiple times (like a maritime trade route) it may be beneficial to cooperate with the opponant to forgo short term utility with the knowledge that repeated interaction would yeild greater long run profits.

The Tellurocratic nation-state model is antonymic to the Thalassocratic League, demonstrating an organized, hierarchical, physically territorial, centralized, ordered and static form; where the map defines physical edges and creates temporal permanence. The nation-state becomes the unit of geo-political division by which territory is categorized; swallowing cities, hinterland and wilderness without partiality. This process coupled with developments in cartography (an accurate plotting of division) formally establishes the concept of 'place'. For a few centuries Europe was divided and rationed formally, according to power and whim. The adoption of nation-statehood corresponds to closure and separation, relating to a formal definition of identity and a planned organization. Sweden had sights on establishing itself as the principle power in the Baltic, and to become a decorated and substantial European nation, choosing to model itself

Wanderer above the Sea of Fog (1818) by Caspar David Friedrich. The painting illustrates that landscape only appears a product of distance and exemplifies the romantic view of ambivilance towards it.



The Cooch-Behar District, nestled between Bangladesh and India, is constituted of 102 mini-exclaves belonging to India on the Bangladeshi side of the border, and 71 exclaves belonging to Bangladesh on the Indian side. Furthermore inside many of those exclaves, there are smaller exclaves belonging to the other country. For example the region of Balapara Khagrabari is an Indian exclave on the Bangladeshi side of the border, inside of which there is a Bangladeshi exclave, which in turn, contains another Indian territory.

Border between the US and Mexico.

Baarle, which straddles the Dutch-Belgian border consists of a smattering of tiny Belgian exclaves inside of the Netherlands town of Baarle-Nassau. As in Cooch-Behar, many of those Belgian exclaves also contain Dutch exclaves. The official border between Belgium and the Netherlands runs through living rooms, gardens and cafés.

on the powerful continental bulk of its closest ally France. During the 17th and 18th centuries Sweden grew through conquest by annexing many of the states that made up the Holy Roman Empire and by 1660, through victories over Russia, Denmark and northern Germanic states, it had all but surrounded the Baltic Sea, effectively subsuming it as an inland lake.

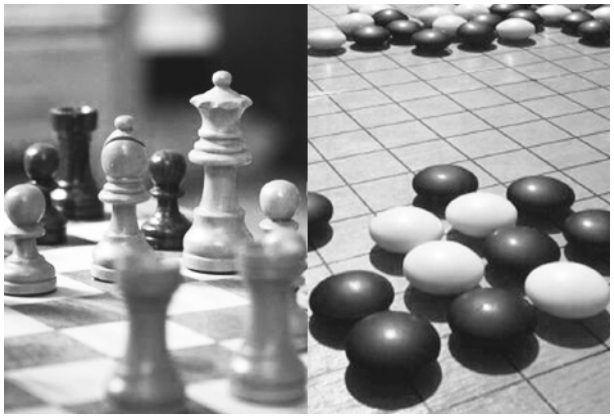
This period was known as Stormaktstiden or the 'great power era' and was defined by closure and managed through a centralized command-driven power system. In effect a direct conquering of the emergent, thalassocratic operations of openness and connection that operated within the League's dynamic identity. Max Weber cites two mechanisms necessary for the creation of national societies[4], firstly a formal enclosure of territory by the imposition of borders to inhibit external influences from augmenting the nations political or social order, and secondly the establishment of internal social interdependencies. The first sets a clinically defined limit of the nation in terms of physical space, additionally clarifying all that is not 'the nation', helping define more clearly the internal identity. The formation of class interdependency strengthens this, calling each individual to participant in the set of interlocking social relationships creating a mechanistic system capable of generating the heat necessary for the national engine to start. Carl Schmitt, who wrote extensively about the effective wielding of political state power in his concept of the political, makes the 'friend vs enemy' distinction[5]. Here he endorses the state's need to clearly define and separate friends from enemies, which is to be done existentially and need not be along lines of perceived morality or have direct benefit for the state. The enemy in these terms becomes much more important to define than the friend since it is only through the clear distinction and identification of the enemy that oneself can become defined. Put simply it is a positive statement to define oneself as different to something whereas it is a normative statement to define oneself as being similar to something. As such the conflict, or at least the potential for conflict, becomes the central crafter of political form and defines the very essence of the hierarchical model of Nation-statehood. This is a top down imposition, and for Schmitt it is an attempt to create unity in the state by defining things in terms of conflict i.e. separation and distinction from the 'other'. Moreover the state is a force acting over a potentially fragmented (or indeed networked) society whose differences must not be allowed to enter the political realm, if they did the society may face civil war. Of key significance is the insistence that a third party holds no power in determining friends or enemies or the need for conflict, it must be from within the state, making this structural form very strong. The world becomes a series of political power centres, with existential claims of sovereignty, exerting centripetal forces. When these forces pull equally in two directions a border is formed designating different political territories. This imposed socio-political structure exiled the nomadic order of the Hanse merchants and a centralized force subsumed the organic flows of the mediaeval era. Moreover as mercantilism developed, a drive for capital accumulation took hold, formalizing trade, which became measurable as it crossed borders. The distinction between domestic and foreign politics was born and a new age dawned where the quantitative outputs of land appeared as islands within the qualitative ebbs and flows of the sea.

'the political enemy need not be morally evil or aesthetically ugly; he need not appear as an economic competitor, and it may even be advantageous to engage with him in business transactions. But he is, nevertheless, the other, the stranger; and it is sufficient for his nature that he is, in a specially intense way, existentially something different and alien, so that in the extreme case conflicts with him are possible. These can neither be decided by a previously determined general norm nor by the judgment of a disinterested and therefore neutral third party.'
Schmitt

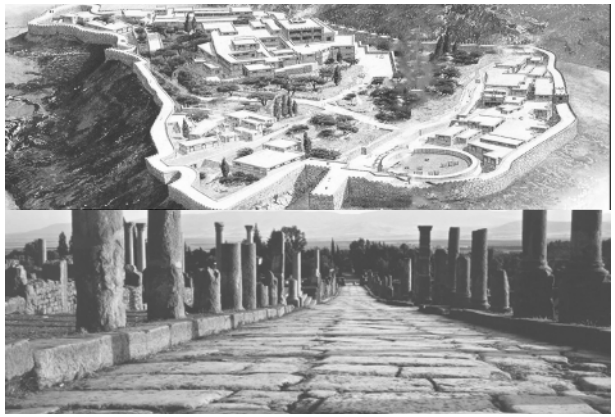
4 Weber, M. Economy and Society (1922) University of California Press vol.2, published (1978). Pg 942

5 Schmitt, C. The Concept of the Political (1927), trans. George Schwab, Chicago: University of Chicago Press 1996, Pg 26.

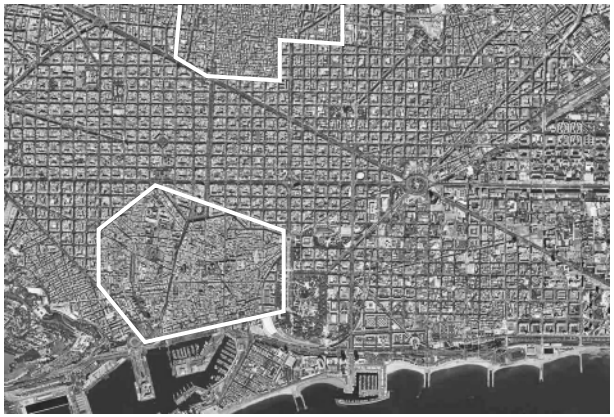
Interface between the smooth and the striated. Desertification is an example of a physical smoothing force.



Deleuze and Guattari describe Chess as a game operating in striated space, while Go operates according to the logic of smooth space. Chess is organised in physical and conceptual striations of space, the pieces are formally controlled and identified and organised hierachically. Go is relatively free of boundaries and the rhythm of the game is unpredictable and of both 'statis and effervescense'. Each piece is identical and organised non-hierachically. Power develops in Go through the specifics of local situations rather than a mechanical overview as in chess.



The Wall and the Road. The Greek's walled cities were distinct units within an archipelago, the roman urban areas however were not limited, they sprawled using road networks carrying a uniform symbolic template - Rome; a concept not a place. Pier Vittorio Aureli argues that the Greek polis ccorresponds to city as a distinct political form, while the Roman urbs corresponds to urbanisation as ever increasing economic expansion. Aureli cites Cerda's Barcelona is an archetypal example of urbanization, within which there is such a level of organisation that future growth was predetermined into the blueprint of the city by established patterns of expansion. This would then be the striating force by which as Deleuze argues form is dissolved into homogeneity, as Aureli puts it 'the city is ruralized and the countryside is urbanized'.



According to Aureli, Cerda legitimised his inveventiion of urbanisation as elucidating the emerging 'conceptual' features of limitlessness in his own words utlizing the 'vast swirling ocean of persons, of things, of interests, of every sort, of a thousand diverse elements'. Aureli writes that 'preciesly for this reason after a careful investigation of the words available for describing this new condition, he coined the word urbanisation, deriving it from the word urbs, with the intention to replace the world ciudad (city)'... 'therefore for Cerda, the centre of the new forms of human habitat was not the city centre with its monuments and symbolic spaces, but what lay beyond it: the suburbs.' The 'in-between' became the primary 'form' of the city.

Chapter 2

SMOOTH vs STRIATED SPACE

2

Arnold Toynbee suggests that the nomad, despite typically being described as a wanderer, actually does not move, the migrant may leave a milieu but 'the nomad has no desire to leave while the landscape shifts and walks around him'.

The Hierarchical structures within Tellurocracies (nation-statehood) are suited to a conventional mapping of territory, ie the categorization and top-down division of space, whereas the networked structures within Thallasocracies (Hanse merchants) occupy a spatiality of borderless trajectories signaling connection rather than division. Deleuze and Guattari make a similar distinction in their definitions of *Smooth* and *Striated* space[6]. In their analysis smooth space is dominated by nomadic forces, while striated space is concerned with sedentary captures. Smooth space is haptic rather than visual, vectorial and non-measurable. It refers to 'intensities' and events so that it can only be analyzed qualitatively. Sea, desert, steppe and ice typically display characteristics of smooth space textured in 'traits' with continuous variation and total freedom of movement[7]. The occupants of such space are nomads who experience space in a tactile manner not anchoring to concrete points of reference. There is no context in smooth space; no objective view by which to compare the one with the other, however this type of space is not to be thought of as homogenous[8] (it is striated space that generates homogeneity, when it occurs everywhere and in all directions) but rather amorphous and with no form. Striated space is quantifiable and objective, corresponding to Euclidean geometry, whereby space can be metrically defined by a set of static rules. Deleuze and Guattari write that world history concerns an 'extended confrontation between the smooth and the striated in which the striated progressively took hold'[9]. The historical shift from Thalassocratic to Tellurocratic organization in the Baltic region illustrates the process by which striated space usurped smooth space. Historically the networked, flexible League structures occupied the maritime realm (the amorphous blob of intensities) and therefore the relationship between agent and context was subjective and varied with each unique journey. Historically maritime 'nomads' would navigate looking skyward (bottom-up) utilizing the starry constellations and feel their way through the play of wind and light. Modern European state apparatus captured this as territory through the marking of the first latitude line and birthed an invasion of striation. Sweden effectively swallowed the Baltic, and reclaimed it as land. Nature become less a thing to traverse and instead something to exploit. This marked a shift in the Baltic region - the sea no longer defined the land around it, but rather the land (elevated by its utility) defined the sea within it. Within Stockholm this elevated continental space as the premier territory, the city captured more islands and spread north and south into the mainland. The power of Stockholm was less derived from the networked power of the sea but from the brute force of captured land and its hierarchical dominance over its surroundings.

Throughout Europe nation-states land grabbed, since striation brought distant territory close as displacement became calculable. More generally 'territory was from the start inseparable from practices such as survey and cartography that were meant to provide a panoptic-like overview of what was available, in what quantity and where'[10]. Space became territorialized having undergone mastery by states and corporations, losing it's romanticism, wildness and dynamism and its 'former vital dimension; its somewhat feminine connotation of primeval fecundity'[11], in order to become static, passive and quantifiable. Striating forces conceived our contemporary concept of territory, which was generated by the developments in cartography. Maps developed a separation between management and the space itself. The colonial masterplan and the civil engineer became the sculptors of space at a scale beyond the human, whereby the whole was planned centrally to ensure efficient extraction of capital and the 'economic efficiency of urbanization was propelled by the military logic of settlement'[12]. During this period cities such as Stockholm for the first time began to plan their trajectory of development though the managerial, hierarchical forces contained within the nation-state model. Territory in this sense became defined through top-down methods as opposed to the bottom-up methods of nomadic occupation and maritime navigation that defined smooth space.

6 Deleuze, G.,Guattari, F. Capitalism and Schizophrenia, A Thousand Plateaus. (1980) Bloomsbury Press 2013 ch.14 - 1440: The Smooth and The Striated.

7 ibid. pg 556-559

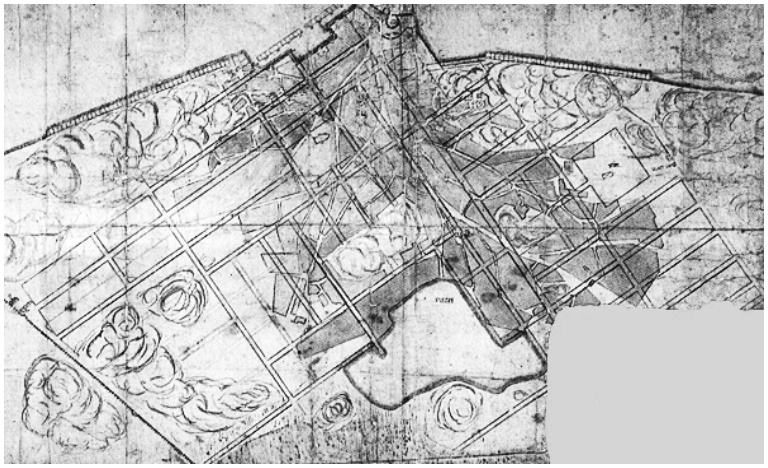
8 ibid. pg 557

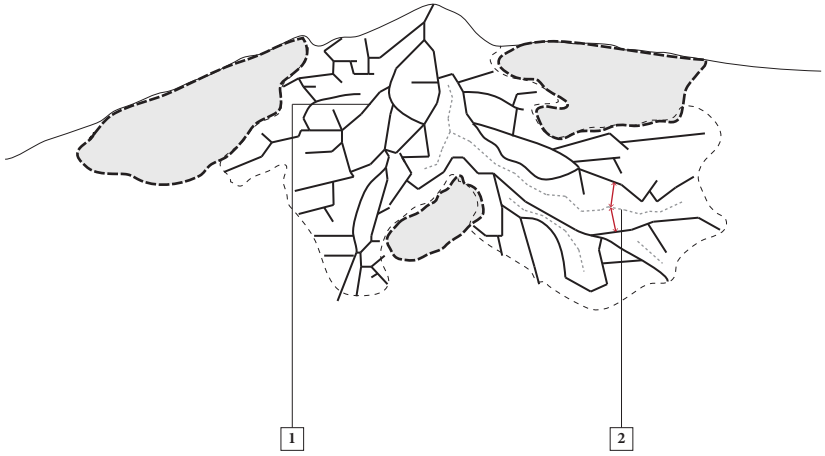
9 ibid. pg 557

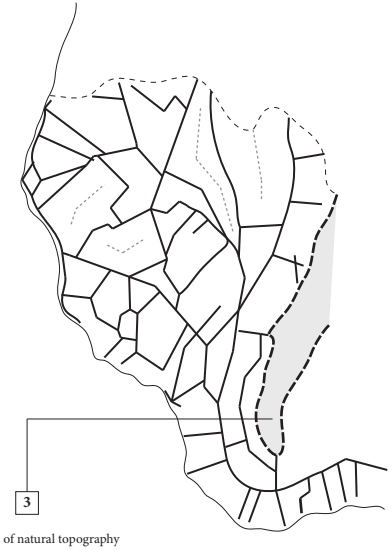
10 Picon, A. Territory: Architecture Beyond Environment, Architectural Design, Vol. 80 Issue 3. (2010). Pg. 95

11 ibid. pg. 96

12 Aureli P. V. The possibility of an absolute architecture, MIT Press (2011).







1

Dendritic street plan
Roads link key nodes predominantly on coastal docks

2

Maximum distance from access route
No new structures further than this value - approx. 20m
Voronoi diagram lines indicated by grey dotted lines

3

Follow lines of natural topography
Rocky outcrops prevent economical building

Fig 5

Chapter 3

EMERGENCE vs THE MASTERPLAN

3

Stockholm's urbanism reflects this change in territorial definition. As is typical of mediaeval towns Stockholm initially developed through bottom-up processes. Small scale, local decisions following simple rules, dictated the urban form and developed typical web-like irregular street patterns. The streets would develop responding to local stimuli, and follow natural topography hence their non-linear nature. A regularly journeyed route may develop into a main thoroughfare and attract buildings to settle upon it. Piecemeal additions would join efficiently given the current situation, even if the whole system could be re-mapped to be more efficient. By the end of the 13th century a chaotic streetscape had been generated, but one with a degree of order. Hall comments that although the town showed signs of ordered layout 'no traces of any plan can be observed. Instead the structure give the impression of having grown up 'spontaneously', that is to say, without any overall advance planning'[13]. Stockholm had, at this point, developed as an emergent system.

Emergent systems typically display:
(1) Radical novelty (qualities not previously seen in systems)
(2) Coherence or correlation (wholes maintain themselves)
(3) A macro 'level' (a property of 'wholeness')
(4) Products of a dynamic process (evolution)
(5) Demonstrative (it can be seen)

'the arising of novel and coherent structures, patterns and properties during the process of self-organization in complex systems'.
Jeffrey Goldstein

The transition of Stockholm into the centre of a major European power meant 'it was time – quite literally – to cast off the medieval garb and clothe the country in a more worthy physical form, architectural apparel in keeping with the new pretentions'.[14] For political and Economic reasons Stockholm needed an overhaul. It did not want to face the embarrassing situation following the death of Gustav Adolf II where there was hesitation to invite European dignitaries to the funeral proceedings in case the shabbiness of Stockholm would undermine its claim as the France of the north.[15] After a fire in 1625, Stora Nygatan in Gamla Stan was rebuilt to accommodate royal processions, while Skeppsbron was remodeled to present a more arresting visual impact for those approaching by sail ship. However it was Örnehufvud's urban regeneration plan that was the total scheme intended to elevate the city and its suburbs into a first rate European capital. Economically speaking and perhaps most significantly the regularisation of the urban fabric allowed the crown to be able to exert much greater control over trade and industry. Wider navigable streets orientated in grids made the process of extracting tax simpler, forming an exchange rate between space and value. There were also significant alterations to the realms administration, interestingly the Swedish word 'regulera' or 'regulate' was used for both the physical and administrative reforms. Judicial and municipal decisions where historically made in pleno, and were inefficient since the vast majority of aldermen and councillors

Olof Hansson Örnehufvud was responsible for the overall logic of the plan while Anders Torstensson handled the management and implementation.

13 Hall, T. Stockholm: The Making of a Metropolis, Routledge (2009) Pg 26

14 ibid Pg 31

15 ibid Pg 31

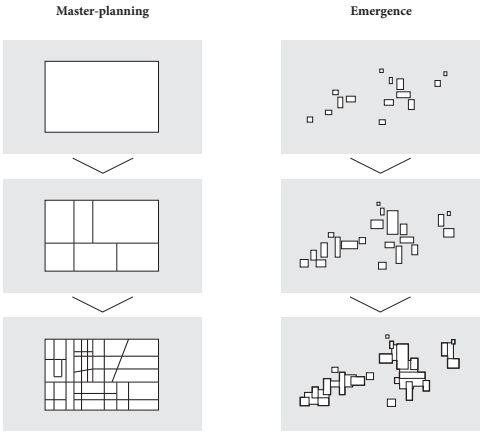
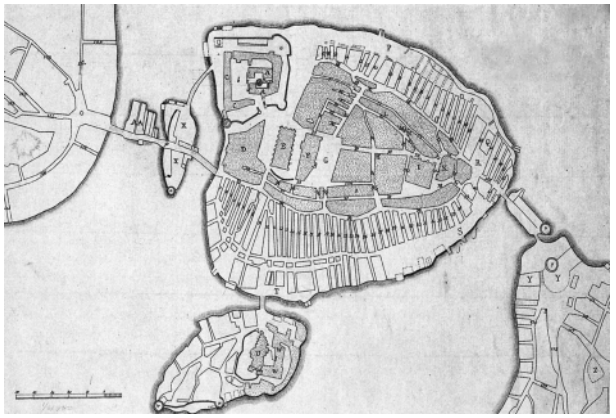


Fig 6
Designation of space through the master-plan and in an emergent system.

Skeppsbron ('The Ship's Bridge') is both a street and a quay in Gamla stan stretching from Strömbron southward to Slussen.



Map from 1547 (published in 1876) shows layout of Stadsholmen with location of Kronor Castle in upper left corner. Primary routes date from around 1200, while secondary routes constructed around 1400.

Example elevations for structures along Skeppsbron. This was highly regulated since it is the elevation of Gamla Stan first seen as approaching the city from the sea. The style is especially influenced by Germany architecture due to the great volume of trade occurring between the nations during the Hanseatic period. Structures were typically limited to 6 stories and while each sturcture is unique they follow fairly stringent set of principles.

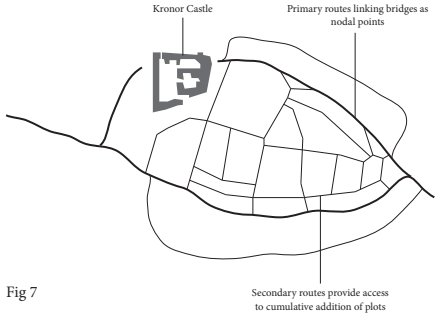
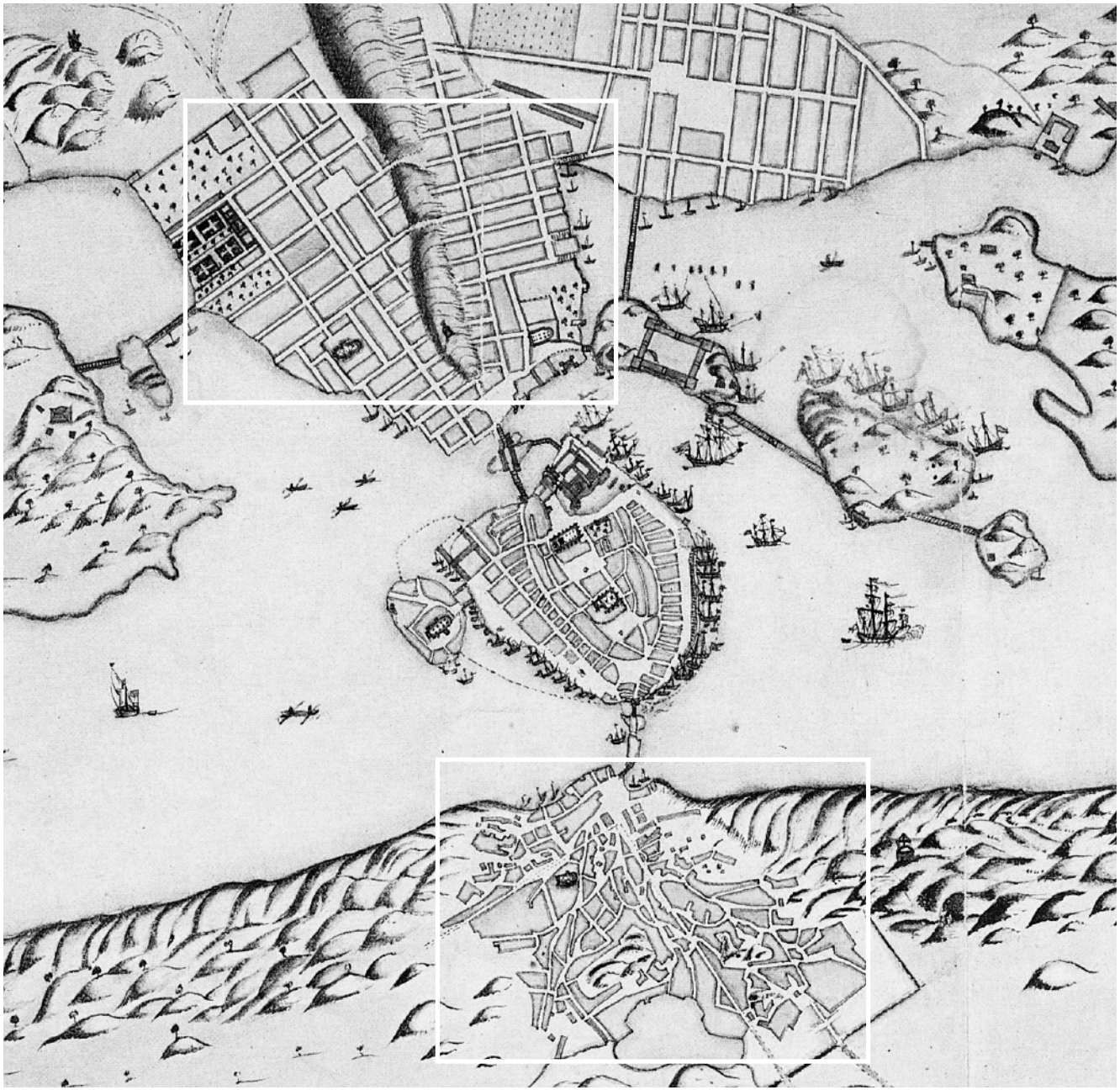


Fig 7

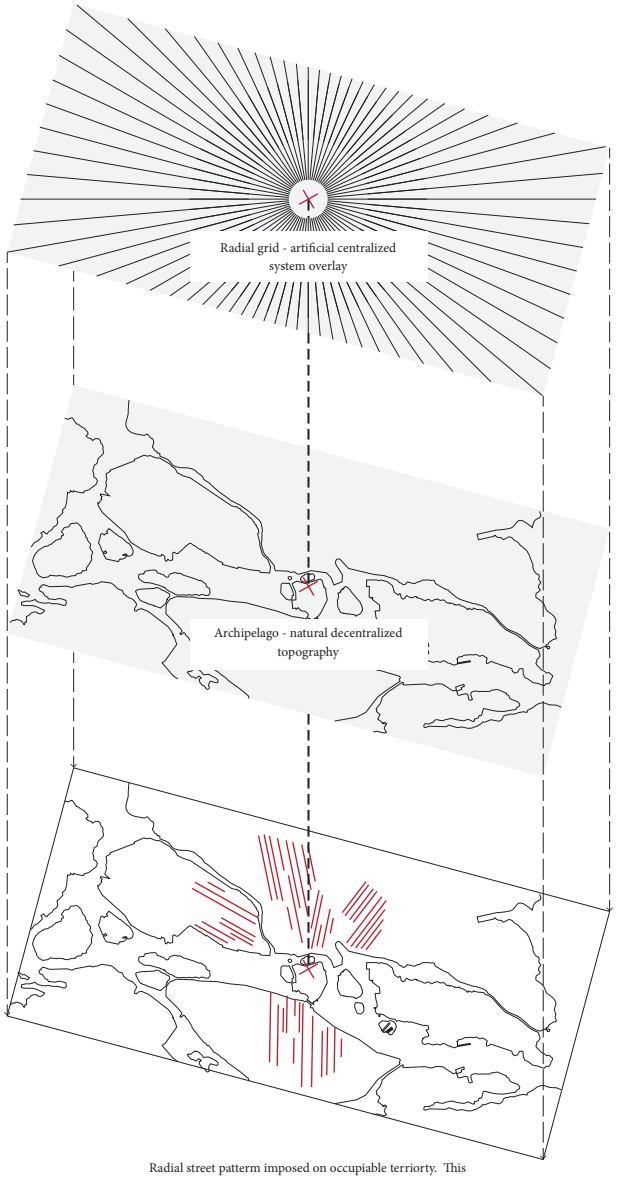


1642 map of Stockholm


Original street plan
New gridded street pattern

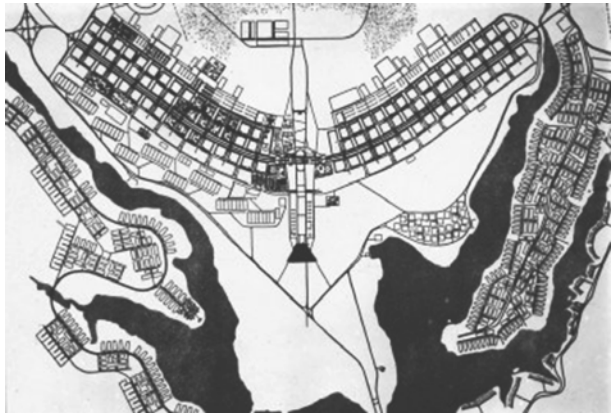
fulfilled their duties as leisure activities. In 1636 this system was replaced by a formal 'division of offices', and four corporate bodies became responsible for matters regarding justice, trade, officials and buildings. The economic functioning of mercantilism, advocated an hierarchical control of the economy through top-down management in a form of economic nationalism. Not only then did physical territory undergo division and categorization, but also social territory as seen in the separation and labeling of offices, this was significant as both territories were codependent. The concept of separation and establishment of physical and social borders are central elements present in tellurocracies. Mercantilism aims to enrich and empower the nation and state to the maximum degree, by acquiring and retaining as much economic activity as possible within national borders. Again the management of the space and the space itself are separated, meaning conception of space is objective and conceived in the third person. At this time Anders Torstensson was elevated to the role of city engineer, essentially director of urban planning, marking a significant shift in the process of urban growth and management. As was typical of large European cities the role of the civil engineer rose to prominence with macro infrastructural decisions prioritized so that the discipline of urban planning developed as a set of sequential decisions at reducing scales.

The maps opposite from 1636 and 1641 show the districts of Sodermalm and Norrmalm respectively. The original street layout is illustrated in dark grey while the imposed new gridded streets are shown in red. Landowners where given new rectangular plots lining the gridded streets and were responsible for all development within their plot borders. Fig 8 shows the logic of the radial street plan of the surrounding districts, which orientate inwards focusing on the Kronor Castle (destroyed by fire in 1697 and now Stockholm Palace) – this radial arrangement is an archetypal centralized structure, designed to elevate state and accentuate the origin of city and state power. The diagrams indicate how the natural decentralized landscape of Stockholm; connected disparate islands, were overlaid with a radial imposition. The grain of the chaotic, multi-orientated topography of the archipelago became ordered into a system that now had an official centre and periphery. By developing a formal centre a simple bid-rent model began to order city territory into rings of decreasing importance, organized according to land value.



Radial street patterm imposed on occupiable terriorty. This ignores the archipelago and maritime nature of the city. Street order follows centralized system as typical in landlocked capitals.

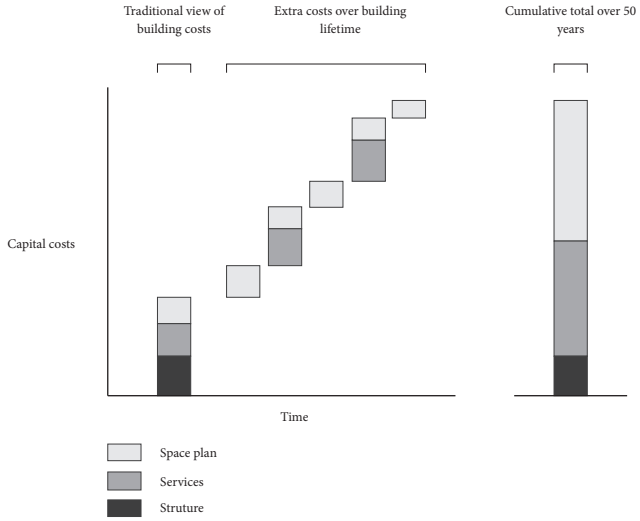
Fig 8
Radial arrangement of streetscape in Stockholm.



Lúcio Costa's plan of Brasilia conceived in 1957 is one of Alexanders examples of a tree type city. Cities interestingly have the tendency over time to adapt and emerge generating a more 'natural' reaction to imposition. Brasilia, perhaps the most artificial city ever seen, already displays patterns (as Alexander would propose) that you might find in a 5,000 year old city, 'all you have to do is to go out of the centre, and you get completely normal plazas and streets with kids playing, and places open every hour of the day and night, selling food and illegal alcohol and everything else' - Ricky Burdett, Professor of Urban Studies at the London School of Economics.

Kenzo Tange's plan for Tokyo Bay area 1960 another of Alexanders tree type cities.

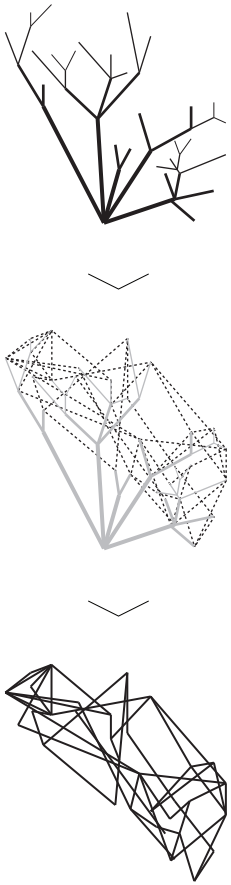
Building adapatation in New Orleans. Stewart Brand refers to 'low road'buildings of simple low cost buildings being preferred since they can easily be modified to adapat to changing needs and qualities of their location. He rejects 'centre out' approach of design, where a single person or group designs a building for others to use, in favor of an evolutionary approach where owners can change a building over time to meet their needs. Typical projects are designed to be static forms, whereas even buildings that are seen as permanant like the Palazzo pubblico in Siena have been continually adpated throughout its 500 year life.



Example of buildings cost over time, diagram taken from Stewart Brand's book 'how buildings learn'.

In the seminal text 'The City is Not a Tree'[16], Christopher Alexander makes a distinction between webs and trees (structures with and without overlapping branches respectively). Tree-type cities such as Tange's Tokyo plan or Costa's Brasilia are 'artificial' cities; they have been envisaged and designed unlike web-like cities where traditional society developed multiple overlapping interconnections which emerged over time[17]. Alexander cites Kyoto and Manhattan as web-like cities, which allow for ambiguity and multiplicity. Webs typically result from emergent systems; where larger complex entities arise from interactions from simpler entities and display qualities that the simpler entities do not possess. Alexander makes the simple yet very significant point that cities are vastly complex, and so follows a critique against large scale, top-down methods of planning. His example of the news rack and the traffic light at the micro level illustrates this complexity and demonstrates the emergent properties that develop through the interaction of a few very simple entities. The interactivity of elements at ever increasing scales creates a resulting spatial system that could not be designed. With regard to Stockholm it would seem that the original settlement demonstrates these web-like qualities where urban form gradually evolved around natural topography and to the dictate of small-scale decisions, which ultimately had impact at larger scales. The radial Örnehufvud plan however is tree-like, imposed on the macro scale with mathematical precision to the will of a creator. This system is filtered down through the hierarchal structure to decreasing scales forming a panoptic, totalitarian design which in a sense instantly transforms the city into an 'artificial' form. The implementation of this plan was demonstrably total and rapid evidenced by the mass rearrangement of landowners and demolition of buildings and roads. Stockholm underwent major surgery rather than a gradual reshaping, which elevated the cities appearance and political presence on the international stage. This reinforces the observed narrative whereby the tellurocratic conception of space has dominated the historic thalassocratic model. Hierarchies marked by division and a formal accumulation of power have surfaced as peaked islands in the networked seas, and a more formal definition of territory has been established at both the national and now urban scale.

'in Berkeley at the corner of Hearst and Euclid, there is a drugstore, and outside the drugstore a traffic light. In the entrance to the drugstore there is a newsrack where the day's papers are displayed. When the light is red, people who are waiting to cross the street stand idly by the light; and since they have nothing to do, they look at the papers displayed on the newsrack which they can see from where they stand. Some of them just read the headlines, others actually buy a paper while they wait. This effect makes the newsrack and the traffic light interactive; the newsrack, the newspapers on it, the money going from people's pockets to the dime slot, the people who stop at the light and read papers, the traffic light, the electric impulses which make the lights change, and the sidewalk which the people stand on form a system - they all work together.'
Alexander



Tree has a centre and hierachical structure. Poisiton relative to construct is objective and calculable.

Hidden webs of relationships between branches. Vitality of city life wraps around the objective form binding it together.

Web-like relatioships become dominanet way the city is understood. Ones position in the construct is subjective.

Fig 9
Underlying web-like structures.

16 Alexander, C. "The City is not a Tree," Architectural Forum, Vol. 122, No. 1: 58–62 (Part I), (1965).

17 ibid pg.58-62

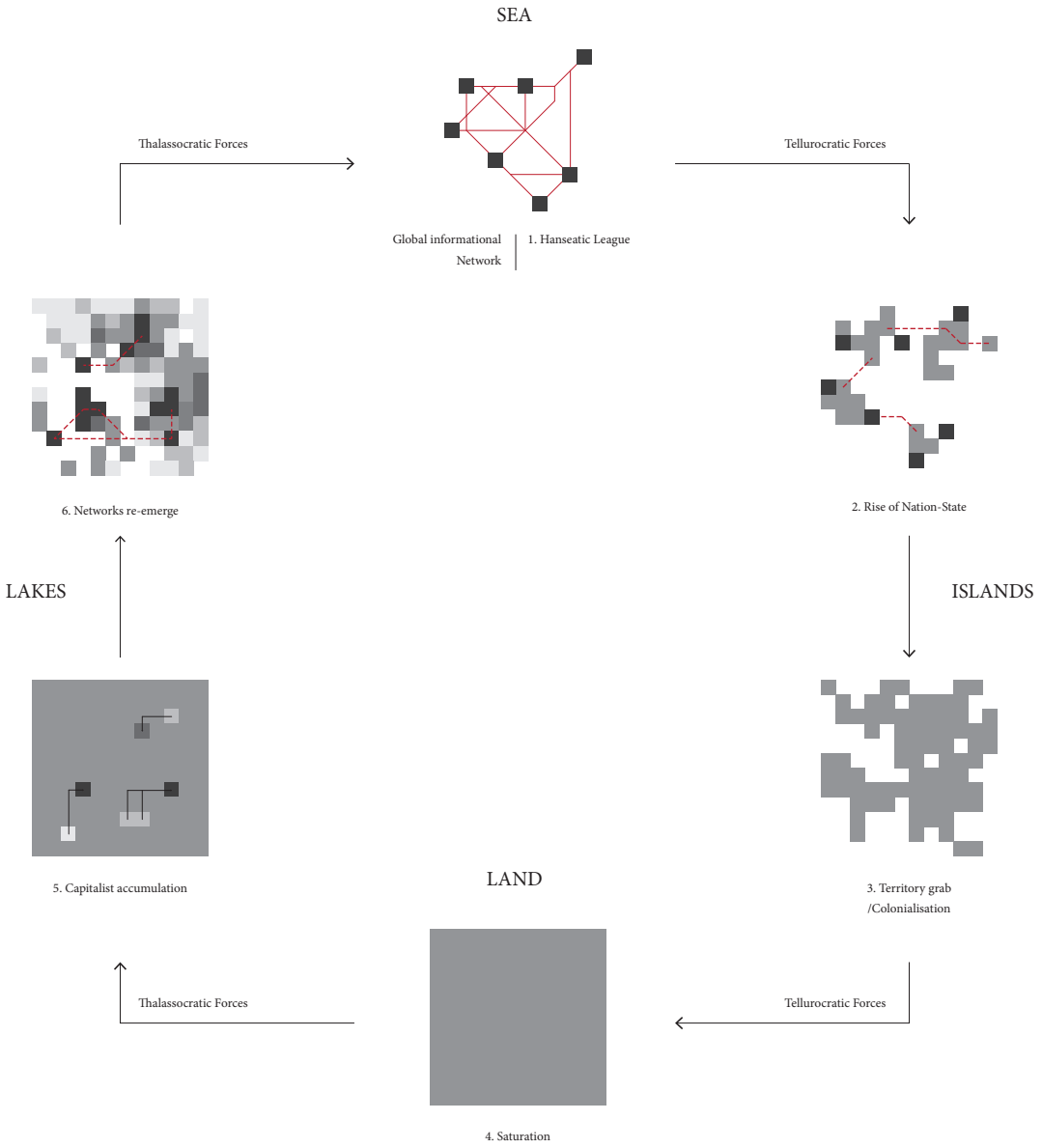
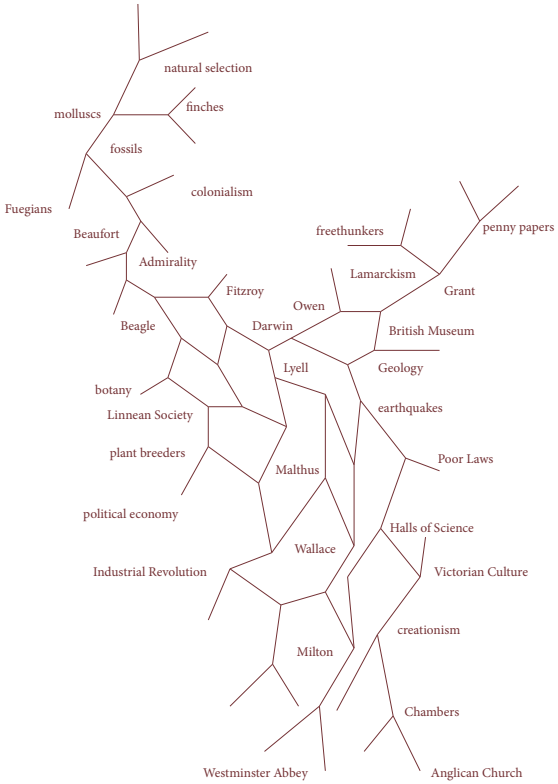


Fig 10
Cyclical pattern of spatial conflict.

Having examined briefly the general conflict through the lens of the social and spatial history of Stockholm, observing the shift from network to hierarchy, smooth to striated and emergence to master-plan, it is interesting to note a general reversal of this process occurring today. Warren weaver posits in 'Science and Complexity'[18] that the 17th, 18th and 19th century faced problems of simplicity; a small number of interrelated factors that can be modeled simply, utilizing visual concepts of shape and geometry. By the 20th century problems of disorganized complexity were uncovered, a very large number of variables appearing chaotic that could only be investigated using probability and statistical methods of modeling. During the late 20th century the interrelationships between many of these factors began to be understood, forming problems of organized complexity that 'involve dealing simultaneously with a sizable number of factors interrelated into an organic whole[19]. Weaver's observation is useful when considering the changing social and spatial shifts through history. Previously because scientific understanding of the world was so simplistic, the approach to city form was equally simplistic. We are now understanding the world as interrelated dynamic systems (disorganized and organized forms of complexity) and are perhaps transitioning from trying to solve problems solely through top-down methods, to accepting complexity and operating within it, to bring about beneficial change. We are discovering once again the interrelated networked systems that have always existed and removing the categorizing impositions that were intended to control. Spatially one could assign the simplistic interventions as Alexanders tree-like artificial forms while the complexities that lie beneath are the natural web-like forms, whereby branches form loops connecting elsewhere on the tree and contain no discernable origin, destination or place. The hierarchical tree occupies a definable space and as such contains objective form. The networked web however must be seen subjectively, depending on a viewpoint, and consequently its form contains no guarantee of being static. It is interesting to note that, as Weaver postulates, scientific breakthroughs today are often the joining of two branches that previously were thought independent. In urban planning often an intervention can create unexpected results that pop up elsewhere in the system; this could simply be a loop that was thought to be a branch. Today it is necessary to recognize the problems of complexity and therefore the limited power of top-down methods of urban planning, or at least the ability to exactly predict outcomes. Cities have always been complex systems and so our methods of planning must acknowledge this fact, it is no surprise that emergent methods of spatial design become powerful since they recognize that top-down approaches are often incapable of accounting for the vast range of complex factors. Solutions may be better grown than dictated. This alternative approach represents a shift back towards the maritime model of space, within which the chaotic and complex web of factors are to be navigated rather than controlled.

18 Weaver, W. Science and Complexity, American Scientist, 36: 536-544 (1948)

19 ibid pg.536-544



'Darwin Assemblage', Fortun and Bernstein (1980)

Chapter 4

ASSEMBLAGE vs MECHANICAL MODEL

4

Deleuze and Guattari propose an alternative conception of spatial organization, given this increased complexity of social constructs, the principle of 'assemblage'. They assert that there are no fundamentals that constitute a material world for the social and that it therefore possesses no stable ontology. But rather that social formations are assemblages of complex configurations which in turn are intrinsic in wider combinations of configurations. In this framework fluidity, exchangeability and multiplicity are emphasized[20]. The relationships between parts are not stable or fixed but rather are constantly able to be replaced. Manuel deLanda develops this theory by distinguishing between relations of interiority and relations of exteriority[21]. This effectively moves away from the mechanical model of society which follows relations of interiority; that is each part plays a specific role in forming the whole – for example in the human body the heart cannot sit in the lungs position, the lungs cannot perform the duties of the kidneys etc. The principle of exteriority however asserts that the component within an assemblage can be detached and reattached into a new assemblage with different interactions. This means that assemblages are dependent on their component parts as before but have a structure of their own that is irreducible to these parts, and indeed the component assemblages can never explain the whole they construct; a predominant principle in *strong* emergence.

Mechanical/organicist model - taking inspiration from the nineteenth-century industrial city as well as understanding the anatomy of a body being effectively a machine of parts/organs.

In weak emergence the emergent property is amenable to simulation. In strong emergence the whole cannot be predicted from the parts (even with super-intelligent machines simulating every interection). The whole is other than the sum of its parts.

Historical hierarchical master-planning as seen in Stockholm, typically follows an mechanical conception of space and relies on the world being understood as dependent on problems of simplicity. This results in binary outputs of success, if parts happen to be placed well the system works, if they don't the whole suffers. Contrastingly emergent systems occupy a more fluid conception of space and identity, the organized complexity of the networked model, and therefore could be understood to follow the logic of assemblage. While relations of interiority are defined by necessity (element A cannot exist without element B), deLanda argues that relations of exteriority are only 'contingently obligatory' citing Deleuzes example of the Orchid and the Wasp[22]. In this example co-evolution developed orchids that evolved to look like female wasps. This effectively meant the orchid had captured the wasp as part of its reproductive organs. This is not a relation of interiority since if wasps where to disappear from the system the orchids would either die out themselves or find another method of reproduction, similarly removing the orchids would not cause the wasp to cease to exist. Each entity could be plugged into in new relations, which would change the entities properties and behavior.

The concept of assemblage according to Deleuze follows the spatial form of the 'rhizome'. Rhizomes (similar to Alexander's webs) are root like organisms, taking a physical form reminiscent of the network and examples include crabgrass or potato plants. In these cases they grow horizontally without beginning or end. In contrast to the arborescent model the Rhizome contains no centre, and as such if you remove elements from the rhizome it is still whole and will continue to grow. The primary structure of the rhizome concerns the 'principle of multiplicity', which moves away from structuralism as understanding space as comprised of units within rules, but of multiplicities connecting and expanding with other multiplicities within a networked structure. For Deleuze and Guattari 'a multiplicity has neither subject nor object, only determinations, magnitudes, and dimensions that cannot increase in number without the multiplicity changing in nature (the laws of combination therefore increase in number as the multiplicity grows)'[23].

'In an assemblage, nothing explains it all: not the sciences, not the social sciences, not the human sciences. There isn't anything that is first or fundamental in an assemblage—nature, language, culture, institutions, whatever—it's all at once, and we with our questions come after it. Meaning that we are both assembled by it, and in pursuit of it. Even though we're consigned to come after the assemblage has been assembled, both with and without our intentionality, that doesn't stop us from going after it, too.' Fortun and Bernstein (1980)

Rhizomic structures resemble the smooth space of the sea demonstrating networked structures and their alternative conception of territory, which accounts for this underlying complexity. The loops within the rhizome may have multiple connections and so adjusting a single element in a system would cause unpredictable effects. Thinking of cities as made up of closed circuits of parts I would argue is underestimating their complexity. Assemblage theory provides an alternative method of intervention whereby it is accepted that unpredictability will result, as such testing and gradual moves become paramount and in this way the planner would begin to operate within, rather than above, the sea of complexity, easing out solutions through call and response. There appears then to be a re-emergence of sea-like conceptions of space, whereby now hierarchies and not networks which are threatened. The networked seas, which gave way to hierarchical formations of land, are now reappearing as pools within the landscape forming another chapter in the macro-oscillation between the land and sea.

20 Deleuze, G.,Guattari, F. Capitalism and Schizophrenia, A Thousand Plateaus. (1980) Bloomsbury Press 2013. Pg 8

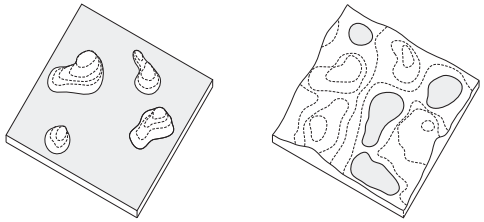
21 deLanda, M. A New Philosophy of Society, Assemblage theory and Social Complexity, Bloomsbury (2006) Pg 10

22 Deleuze, G.,Guattari, F. Capitalism and Schizophrenia, A Thousand Plateaus. (1980) Bloomsbury Press 2013. Pg 10

23 ibid Pg 8

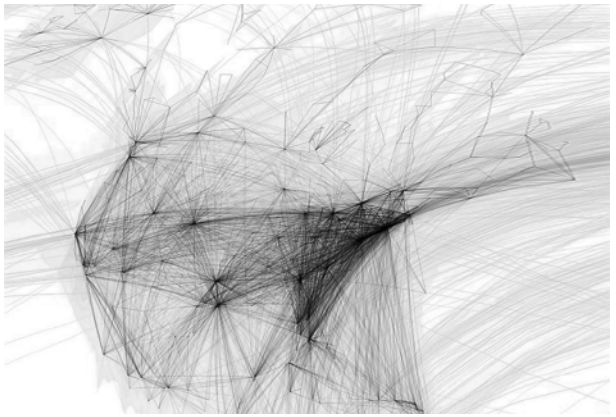
PART II

ISLANDS AND LAKES



The meta-narrative previously outlined is somewhat simplistic, especially while the contemporary city seems ruled by nuance and complexity, however it does provide a critical framework within which one can recognize the characteristics of both conceptions of spatial territory and therefore comprehend more clearly the mechanics within the competition of power. The allegory begins to develop into landscapes that contain both land and sea; islands and lakes. This section intends to highlight and embrace this complexity and provide some critical insight into how one as a designer must approach the contemporary city.

Territories in Europe with seperatist movements, signifying an incompatible underlying structure.



Air travel in North America.

The islanded city state of Singapore has been hugely successful in establishing itself as a transport and commerce hub, this in part due to the economic and political flexibility it possess by virtue of being a small territory with homegenous qualities.

A Google data centre.

Chapter 5
COEXISTENCE

5

It must first be recognized that networks and hierarchies appear at different scales and consequently have the potential for coexistence. At a global scale there appears to be greater competition over national borders and indeed words such as 'separatist' 'devolution' and 'secession' are becoming more readily stated. This in one sense reinforces the logic of tellurocratic territory, defined by land capture and control, or at least indicates its retained significance. However I would argue that the intensified battle over territory (exemplified in nationalist movements) may actually be symptomatic of a more fundamental structural change in our spatial organization that disrupts and challenges this form of territoriality. A networked tribal structure exists underneath the hierarchical nation-state imposition, and perhaps given increased social liberation and communication there is greater conflict mounting between the layers. It is no surprise that historical city state models, being a smaller unit of division, have reappeared in the discourse and seemingly describe more accurately the structural form of these social linkages as well as global politics and economics, than the yellows and greens of an atlas. One reason for the rise of such models is the requirement for greater plasticity rather than strength, a thalassocratic trait. Nassim Nicholas Taleb posits that a city-state displays more adaptability and subsequently durability than the nation-state[24]. Indeed we observe a world where a city like Lagos holds a significant presence globally despite occupying a defective Nigeria and where there can be the utter disintegration of nations like Iraq and Syria while Baghdad and Damascus may well emerge relatively intact. Smaller units of division are better suited to adapting in a volatile world and indeed hierachical structures may be less able to maintain power than smaller networked units that act collectively.

Furthermore not only do networks underlie imposition, but new networks have emerged within the nation-state hierarchies themselves, 'National economies have become so intertwined that economic security depends less on national armies than on financial transactions around the world. Global corporations play nations off against each other to get the best deals on taxes and regulations'[25]. Money moves nonchalantly. Firms outsource so many arms of their activity to multiple locations and indeed the activities (whether legal, financial or administrative) of their headquarters are outsourced also to centres of service specialization; a definition of their structure is more concerned with a collection of linked relationships rather and contiguous shapes, 'while organizations are located in places, … the organizational logic is placeless'[26]. Financial markets seemingly operate in smooth space utilizing networked logics and their architecture is infrastructural; connective not divisive. Deleuze and Guattari refer directly to this commenting that 'the present-day accelerated forms of the circulation of capital are making the distinctions between constant and variable capital, and even fixed and circulating capital, increasingly relative; the essential thing is instead the distinction between striated capital and smooth capital, and the way in which the former gives rise to the latter through complexes that cut across territories and States, and even the different types of States.'[27] Similarly individuals may be more integrated (through technology) with someone of analogous social class and education thousands of miles away, than with their geographical neighbor. The aviation industry, functioning within another key smooth space; air, has allowed close to instantaneous physical interaction between cities, so that London has far more in common with New York than it does with rural England. London grows through networked connection with other global cities rather than by annexing its immediate geographic territory. This suggests that cities today take a more rhizomic form, where each city has multiple centres geographically dispersed (echoing maritime trading structures). Bateson observed that the human hand could be better understood as four key relationships between digits rather than the rather arbitrary observation that there are five digits.[28] Both models of the hand are concurrently true, one static, one dynamic. In the same way the two languages of space exist simultaneously within one another.. Space can be both mapped through separation and boundary and at the same time be defined by connection, but it is the dynamic networked form that is increasingly becoming the dominant form of organization. Hierarchies therefore (such as the nation state) have both beneath and emerging within them organizational structures that show the overarching traits of historical thalassocratic leagues; the flexible, 'Sea-like' smooth qualities of connected networks. Taken a step further it is interesting to observe that, given the rise in networked logic, hierarchies are already beginning to develop. I would argue for instance that companies such as Google and Facebook are acting hierarchically attempting to create cyber borders to ring-fence data and so capture territory within the giant networks of information flow. This indicates that a layered and fractal structure belongs to the two organizational logics; land within sea and sea within land.

It is curious to note that digital maps today are both static representations of place, and dynamic systems of data flow

24 Taleb, N. N. Antifragile: Things at Gain From Disorder, Random House Publishing Group, (2012). Pg.348

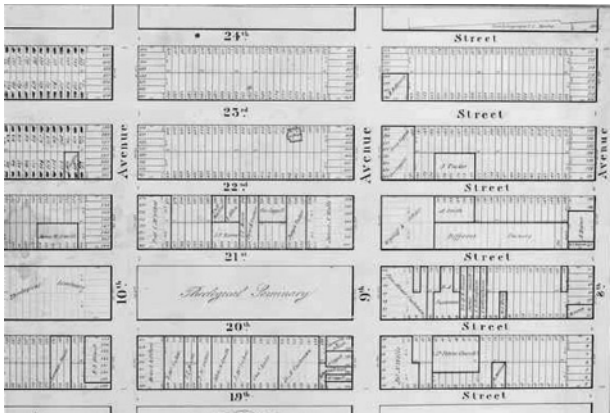
25 Reich, R. The New Tribalism and the Decline of the Nation State, Chicago Tribune (March 25, 2014).

26 Nyíri, J. C., Review of Castells, the information age. In F. Webster & B. Dimitriou (Eds.), Manuel Castells, Volume III pg. 5-34. London: Sage Publications (2004) pg.23

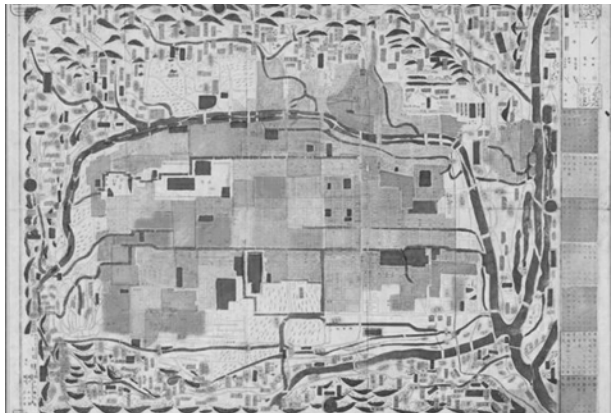
27 Deleuze, G.,Guattari, F. Capitalism and Schizophrenia, A Thousand Plateaus. (1980) Bloomsbury Press 2013 Pg 572.

28 Bateson, G. An Ecology of Mind – A Daughters Portrait of Gregory Bateson, Im, Nora Bateson (2010).

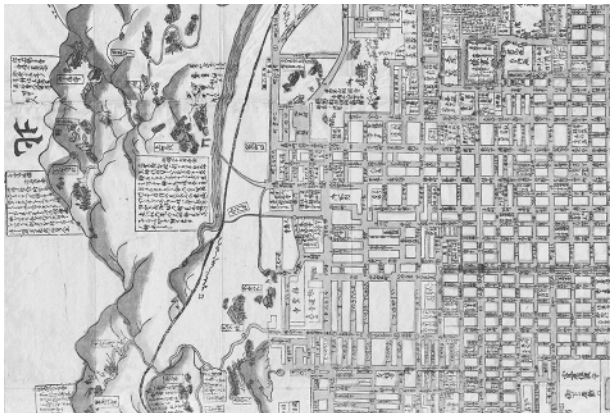
Manhattan island visualised before settlement and in its current state. Broadway follows the Native American Wickquasgeck trail.



Commissioners plan for Manhattan, regular blocks form the streets into loops.



Historic map of Kyoto displaying two spatial languages. The mountainous regions surrounding the flat plain upon which Kyoto is situated.



Portion of map of Kyoto (1696), grid acts as a thalassocratic, smoothing force.

Chapter 6
CORRESPONDENCE

6

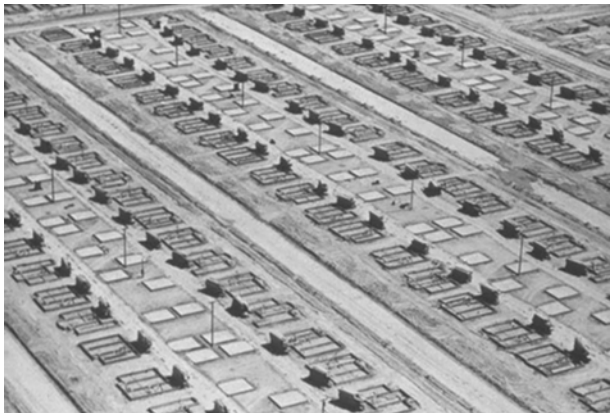
Networks and hierarchies coexist but significantly the fluctuating conflict between the two types of territorialisation is occurring at an increasing rate. New structures of organization, which have historically taken centuries to occur as we have seen in the case of Stockholm, now take only a matter of years or months to appear. Additionally the results of these changes have become more ambiguous often resulting in counterintuitive results. Emergent systems, which operate in smooth space, actually often craft striated urban form, and master-planned systems acting as striating forces, often create smoother urban form.

Deleuze and Guattari's 'extended confrontation between the smooth and the striated' has been evidenced through the historical analysis; we have seen the process of maritime striation through top-down forces and its impact on urban form. However this would also appear to occur naturally through bottom-up forces. If we take a simple urban system of a small settlement, hierarchical routes gradually emerge linking key destinations, subsequently these more well trod routes would encourage further settlement and reinforce their dominance, echoing Robert Merton's 'Matthew effect'. For instance Broadway, the great urban canyon in Manhattan was originally the Native American Wickquasgeck trail. Conversely striating forces can often impose a smoothing effect on space. For instance the grid would typically be cited as a product of striation since it is imposed from the top down and is an organizational decision resulting from an hierarchal power structure, yet it often democratizes territory. As mentioned previously Alexander refers to Manhattan and Kyoto as web-like cities, and yet both these adhere rigidly to a 'designed' grid. He writes 'in simplicity of structure the tree is comparable to the compulsive desire for neatness and order that insists the candlesticks on a mantelpiece be perfectly straight and perfectly symmetrical about the centre. The semilattice (web), by comparison, is the structure of a complex fabric; it is the structure of living things, of great paintings and symphonies. It must be emphasized, lest the orderly mind shrink in horror from anything that is not clearly articulated and categorized in tree form, that the idea of overlap, ambiguity, multiplicity of aspect and the semilattice (web) are not less orderly than the rigid tree, but more so. They represent a thicker, tougher, more subtle and more complex view of structure.'[29] In these cases imposing grids aids in fostering multiplicity and spontaneity despite possessing, counter-intuitively, a regulatory nature. The grid can smooth space by providing multiple overlapping access routes. There are no branches in grids, only loops, and therefore no opportunity to establish hierarchical street patterns. What is actually significant is the nature of control with which a grid asserts, not necessarily its physical form. In Stockholm's case this was an immediate and total overhaul of the existing organization 'insisting the candlesticks be perfectly straight', seen not just in the radial arrangement pointing to the seat of power, but also in the rigid planning controls enforced over the replacement structures. It is worth nothing however that although the radial arrangement is somewhat hierarchical, many of the gridded areas in Stockholm actually have been smoothed by this arrangement. Stockholm has a relatively flat skyline, still dominated by church spires (punctuated hierarchical elements). Manhattan provides the absurd case whereby Native American footprints determined an urban striation as vast as Broadway while the commissioners' plan smoothed and released space, allowing and encouraging access and growth, effectively providing the trellis on which the vine can grow. In this case striation has developed through a bottom-up emergent system, and smoothing through a top-down master-planned system. It is therefore far too simplistic to assign all imposition as dominating and restrictive, besides cities have an innate ability to respond and adapt; to grow around and often redefine the imposition that may have once caged them. Indeed master-planning space need not be an imposition according to a fixed design and could actually utilize networked logics and principles of emergence.

The 'matthew effect' was introduced by sociologist Robert K. Merton in 1968, it refers to the parable of the talents in the Gospel of Matthew. 'For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken even that which he hath' - Matthew 25:29.

29 Alexander, C. The City is not a Tree, Architectural Forum, Vol. 122, No. 1: 58–62 (Part I), (1965).

The city as a stereotype. The image of the city modelled by New York - central park, world trade centre and downtown all emulated.



Mid 20th century American housing development, image shows units under construction.

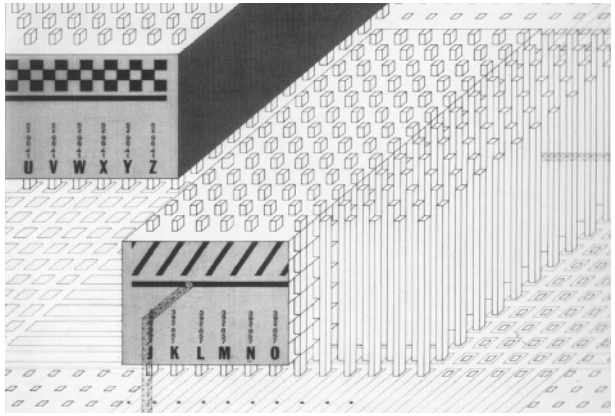


Image from 'No-stop City' by Archizoom Associati.

Ryōan-ji is a Zen temple in Kyoto. The garden is a prime exmaple of a 'dry landscape', using carefully selected river polished rocks placed within pebbles.

Chapter 7
COALESCENCE

7

'Once discovered as a form of capital, there is no choice for buildings but to operate according to the logic of capital. In that sense there may ultimately be no such thing as Modern or Postmodern architecture, but simply architecture before and after its annexation by capital'
Reinier de Graaf

Weavers 'science and complexity' paper is particularly pertinent given the mistakes of assuming a simple world and therefore implementing simplistic impositions. Social and physical structures are far more complex and require more complex and perhaps more subtle solutions. Keller Easterling describes cities becoming formulas, 'a cartoon of abstract economic and technical logics that are pressed into full view, usually they are replicating the formula for Shenzhen and Dubai anywhere in the world with the drumbeat of generic skyscrapers … A kind of operating system for shaping the city'.[30] She asserts that 'we don't build cities by accumulating masterpiece buildings, architecture is only responsible for only a trickle of the world's spaces while a fire hose blasts out the rest, architects make stones in the water … But what if the water is also an artistic curiosity; this pervasive, powerful, seemingly remote-controlled flow of information and activity in space … what if we can tinker with the operating system; not just with object form, but in a way that is more like making software.'[31] A design imposition in this analogy would be seen as simply the stone in water, while the vast majority of urban space appears through capitalist circuits with increasing economic efficiency. Easterling argues that to make any impact whatsoever one has to influence the 'water' by altering its operating system; inputting a multiplier or infecting it with new algorithms. In this sense the designer must shift from defining physical form to affecting the logic that produces form. Urban systems such as Cerda's Barcelona plan or Oglethropes Savannah plan meant it was impossible to predict the cities eventual boundary, but crucially they determined the logic of its operation and expansion. Similarly the Hanseatic League was defined by the transactional logic within the minds of the merchants not its physical presence, whereas the nation-state model is defined by its borders. Cerda and Oglethorpe planned from the inside out, so that decisions were made at increasing scales, as opposed to outside-in planning where the largest scale decisions are tackled first and the micro scale; the actual operation of the individual, is unpredictable. Resultantly we see in these cases that there is much potential to utilize emergent systems to make a different kind of imposition, one more concerned with infrastructural design, what Easterling would refer to as 'active form'. This type of imposition would consist of repeatable and contagious formulas that can expand and create a far larger impact. Easterling cites Special Economic Zones, golf communities, and Starbucks as effectively behaving like pieces of software, they are live pieces of infrastructure constantly updating and

Blueprint for a Savannah ward, the system rather than the object was designed for repetition and expansion.

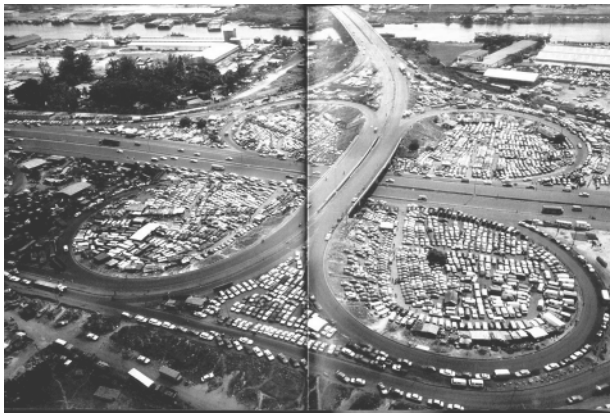
30 Easterling, K. The Space in Which We're Swimming, Talk at Yale City (2013).

31 ibid

Aerial photograph of Glastonbury festival. Festival architecture is a mixture of centrally planned forms and networked systems. There is designated programmed space with directly hierachical archietcture such as a stage, while on a micro level the arrangemnt of tents is self-organised and contains it own emergent logic.

Christiania Freetown, is a self-proclaimed autonomous neighborhood of about 850 residents, covering 34 hectares (84 acres) in the centre of Copenhagen. Structures predominantly constitute found materials assembled according to local needs and are constructed according to emergent principles.

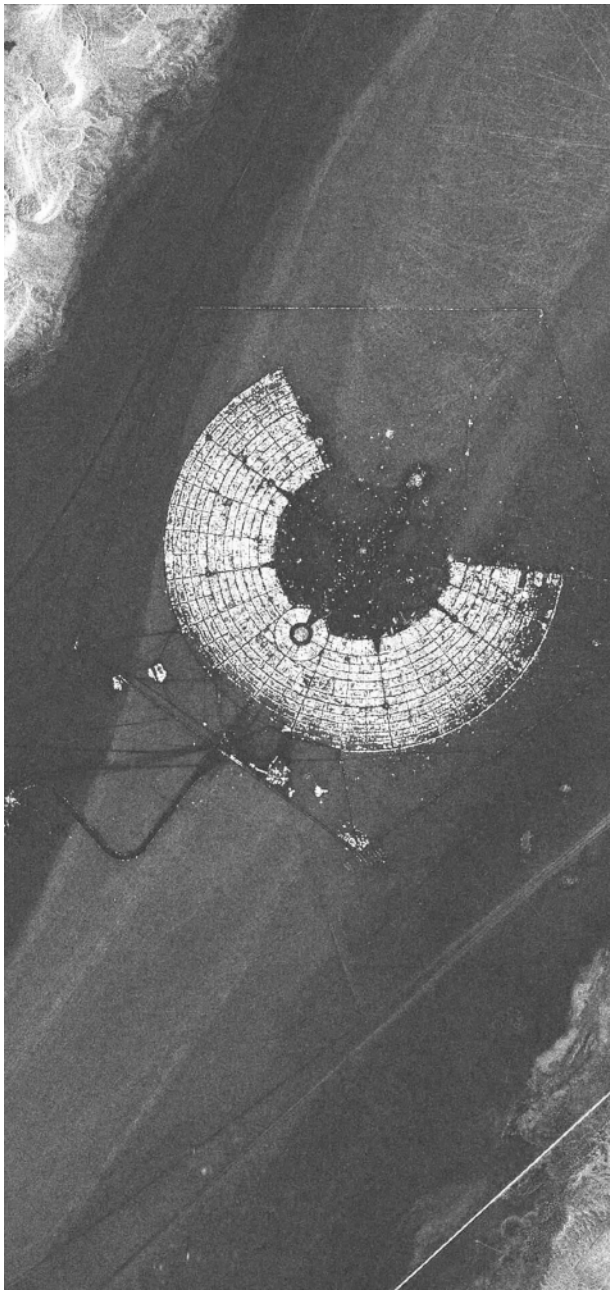
Java island, Amsterdam. Plot based urbanism - each form is unique yet there is an overall order, a form of consistency rather than homogeneity.



'The real thing we tried to look at is what happens to a society when the state is absent. At that point, the state had really withdrawn from Lagos; the city was left to its own devices, both in terms of money and services. That, by definition, created an unbelievable proliferation of independent agency: each citizen needed to take, in any day, maybe 400 or 500 independent decisions on how to survive that extremely complex system. That was why the title [of the unpublished book] became Lagos: How it Works, because it was the ultimate dysfunctional city – but actually, in terms of all the initiatives and ingenuity, it mobilised an incredibly beautiful, almost utopian landscape of independence and agency.'
Rem Koolhaas on Lagos

demonstrating plasticity given new information. Urban planning then should aim to subvert rather than impose, and navigate rather than control.

Rem Koolhaas states that the modern city will be a mixture of 'formal, serious, complex structures and informal flexible changing entities', he goes on to explain that top-down planning will play a much more subtle role and 'that self-organisation will be inscribed in an organized model of the city'.[32] This acknowledges that new forms of spatial constructs may possess both hierarchical and networked logics simultaneously and indeed it is the interaction between these approaches; intervention and response, that actually develops interesting space. Chaos should not be exiled through organist imposition but utilized as a formative agent in design, and equally imposed order can frame the natural dynamism of the city. Easterling similarly claims that 'Active form and object form exist together. They propel and enhance each other.' This dialogue between the two approaches would suggest a more incremental approach with allowance that the requirement criteria of future solutions is subject to change. Buildings should not been seen as finished, but as one iteration in a long and unpredictable future. Ombretta Romice and Sergio Porta propose a plot-based urbanism that utilises these relatively small urban components due to their adaptability.[33] They argue that resilience is the key attribute for the contemporary city and that the scale of the plot is large enough to allow meaning to be generated for its users, but small enough to demonstrate flexibility and therefore possess the ability to assemble and disassemble more rapidly. This is significant since cities today find a context in which economic, social and political change occurs with increased volatility. Stewart brand in his book 'how buildings learn'[34] claims the best buildings are low cost, simple designs, created so that modification is easily possible. He makes the observation that buildings have many chapters in their history and so to design for the specifics of now fails to meet most of the necessary criteria. Design could be implemented more like a guiding hand, so that imposition and the responding self-organization act in conversation. The inhabitants adapt the design and the design adapts to the inhabitants activity. Urban planners should perhaps see intervention as testing; that is to work in collaboration with the users of the space generating solutions that are demonstrated by the observed activity, rather than designed before inhabitation.



Photograph from space of Black Rock City—a temporary city erected every year for a single week in Black Rock Desert, Nevada for the Burning Man festival. The built form is both formally planned and developed through emergent systems. Each inhabitant enters a cooperative social structure with total participation and therefore shared responsibility for all aspects of city life.

32 Koolhaas, R. Lagos, lm written and directed by Bregtje van der Haak. (2003).

33 Porta, S. and Romice, O. Plot-based urbanism : towards time-consciousness in place-making. Working paper. University of Strathclyde, Glasgow (2010)

34 Brand, S. How Buildings Learn: What Happens After They're Built, Penguin Publishing Group (1994)

Makoko floating water community in Lagos. This is a self-organised form of urbanism generated through local interction and limited by economic and physical restrictions. the resulted urban fabric is very ordered despite there being no official plan.

The Tower of David in Caracas is an unfinished office block inhabited by squatters until 2014. The concrete structure and building envelope was constructed but no partition walls had been installed. It housed 750 families as well as shops and workplaces for some of the inhabitants. The orientation of the internal spaces in the Tower of David was controlled by the interaction of each individual, walls were placed according to specific needs. There were rules that emerged through this activity; proximity of walls, location of circulation routes and orientation of private and public spaces all contain observable patterns.

Makoko floating water community in Lagos. The floating school designed by Kunlé Adeyemi was completed in 2013. Although successful for the three years it was in operation, I would argue the designer would be more influential if they intervened into the system that generated the form, rather than developing a series of iconic buildings.

Bauhäusle at the Technical University of Stuttgart is a self-built student housing complex buiolt between 1981 and 1983. Under the supervision of Peter Sulzer and Peter Hübner it was designed and built using the Walter Segal timber self-build method by students who became the orginal inhabitants. The deisgn therefore was well suited to specific needs but more significantly the building skills generated by the inhabitants meant that further alteration and adaption could be implemented. In this sense the building was never complete but entered into a dynamic co-evolution with its inhabitants.

The traditional approach to building with construction following design and each with a beginning and end, may be more successful if it acts cyclically, so that each forms a feedback loop with the other. The design informs the built form, which in turn becomes an information set that informs the design. The building is never complete and the design never decided. The occupants provide auto-generative actions and therefore they become designers themselves. Computing programs such as Grasshopper take this algorithmic approach, whereby computational processes are designed rather than the spaces themselves. In this way a live feedback loop is generated so that if one alters a part of the system, feedback filters through to all aspects of the design. In a sense algorithmic design is a Deleuzian assemblage, each part can be plugged and unplugged into new locations and this can be regulated by the live functioning of that assemblage. Data from a functioning building can be fed into the algorithm to output superior design elements. Moreover the power of networks could be utilized similar to the processes used in the formation of wiki structures. Wikipedia for instance, an innately rhizomic, structure uses emergent processes so that self-organized collaboration of millions of contributors produces a complex but ordered form. Employees of Wikipedia are only responsible for the maintenance of the system, they do not write the articles, and indeed the hierarchical encyclopedia competitors have been totally usurped. The content is self-regulated and the quality of each article is incrementally improved, through multiple interactions and collaborations. There is no author, only the infrastructure is designed. The examples of slum architecture, the Makoko water community in lagos and The Tower of David in Caracas opposite, show self-organization in operation; the formation of dwellings is tailored to local needs which could not have been accounted for if they were designed traditionally. The role of a planner in both of these cases would be more powerful if they altered the operating system given the extra information they may posses by holding an objective view. In Makoko this may comprise of the process of manufacturing the dwellings; the informal economic systems that govern the purchasing of raw material and construction; or the signaling that decides the location of each new dwelling. Adding a multiplier into the formula that governs the information system may well have large scale impacts on the form of the all structures, for instance adding a treatment to the timber at the stage in which it is gathered would be far more potent than building a handful of superior dwellings. Architects could learn from the occupants of The Tower of David, not only by emulating their self-regulation, but acting to efficiently create the 'trellis' (the concrete frame) and reserving resources to facilitate the occupants to arrange themselves as the 'vine'.

The interaction between land and sea through tellurocratic and thalassocratic forces governs social and spatial organization. This conflict has moved away from simplicity and augmented over time, as underlying complexity has been unearthed and technological and economic factors have allowed new types of collaboration. Stockholm, as an entity that sits physically upon continental and maritime territory, illustrates both forces in conflict throughout its history. Fluctuating periods of political dominance and social freedom have birthed complex urban fabrics, constituted of both land and sea-like constructs, mirroring the natural topography. Schmitt writes that 'World history is the history of the wars waged by maritime powers against land or continental powers and by land powers against sea or maritime powers ... All important changes in history imply a new perception of space'. Conceivably today the conflict between land and sea has become more a coalescence, after all; total war, fought at all scales, in all places and at all times ceases to be war. This is perhaps the new perception of space; not 'either/or' but 'both/and'; a constellation of lakes and an archipelago of islands.

Addendum

SEA LEVEL

A THOUSAND PLATEAUS

8

Sea level: a thousand plateaus is a design intervention within the Stockholm archipelago. The urban design methodology utilizes the emergent capacities of collective intelligence for the territorialisation of the maritime realm. This urbanism involves the local interaction of autonomous agents, who through implementing local decisions collectively inform a complex self-organised and self-regulating system. In this way the masterplan becomes irrelevant, and design moves from the third to the first-person. Urban planning is replaced by processes which occur simultaneously at all scales. Local decisions generate complex macro form, this complexity in turn creates varied urban conditions which inform local inhabitation. This feedback creates an adaptive, evolving, auto-generated urbanism.

The proposals articulate a potential new chapter in Stockholm's shifting spatiality. Form is generated through emergent principles and formed of rhizomic structures. The rhizomic landscape is then inhabited by a series of programmes, this striates the space, attaching value and utility to it. The interventions proposed at this stage are tree-like and hierarchical, punctuating the landscape, and interestingly demonstrating emergent qualities of their own. The project is practically possible and utilizes limits on raw materials and the physical rules of water inhabitation to create the parameters in which non-hierarchical form could be developed. It does however also occupy a conceptual space whereby principles are naively taken literally so as to caricature the boundaries of the Deleuzian conflict in spatial territory. The project is an archipelago undergoing a constant war between land and sea.

Of central importance is the maritime realm as a form of 'smooth' space. Occupation here is nomadic as opposed to notions of territory typically defined by structural borders and real-estate capture. The project is grown rather than designed, whereby the algorithm supersedes the masterplan in generating a series of floating plateaus. The network of overlapping programmes exist within new economic (libertarian socialist) and political (anarchist) frameworks. The ownership is cooperative and private space is only defined as such in social terms. The project is seeded on the island of Beckholmen in central Stockholm, whereby recycled materials are gathered, deconstructed and reassembled within the dry docks on the island. These assemblages are then floated out into the Baltic Sea to form the urbanism.

1. The Bridge

The bridge occupies both the maritime and continental realms simultaneously despite being a static object: The positive of the bridges' form (the route on top) connects two continental zones, making them one. Whereas the negative of the bridges' form (the empty space underneath) connects two maritime zones, making them one. The sea bridge is the land bridge, they are one and the same object.

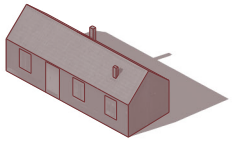
2. The Dry Dock

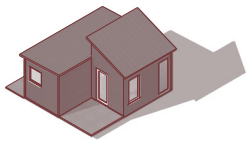
The dry-dock occupies both the maritime and continental realms since being a dynamic object, it can exist in two modes: During the flooding process land is reclaimed by the sea, deterritorialising the quantifiable activities that had first claimed it as continental territory. Flooding takes no energy input, the smoothing force of the sea swallowing labour and capital. During the emptying process however land is reclaimed from the sea, territorialising the non-quantifiable qualities that had previously existing ubiquitously throughout the water. Emptying takes energy input, the striating force of the land enslaving the territory to produce.

The urbanism is bridges, while the generator is the dry dock.

ORGANIST ARRANGEMENT

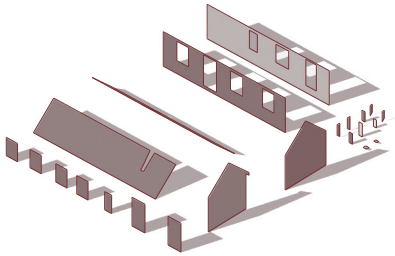
Existing arrangment, each element plays a specific role together constituing the whole.

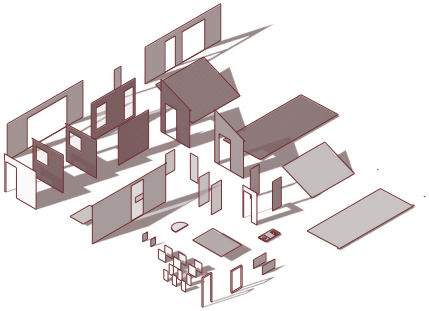




DECONSTRUCTION

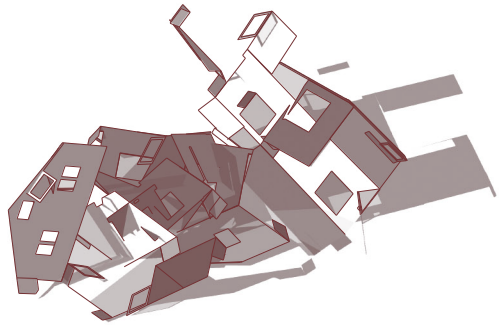
Seperation of all constituent elements, detaching material from utility.

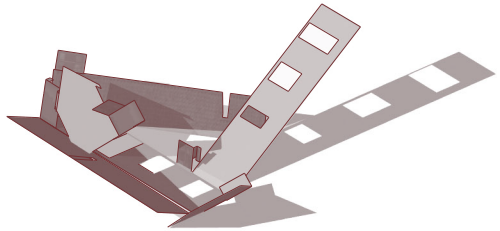


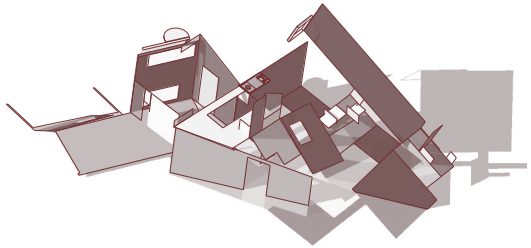


ASSEMBLAGE OF A PLATEAU

Reassembly according to emergent rules. Local cumulative decisions determine position of elements so that form at all scales change simultaneously.







Input material

100 recycled elements

Algorithm 1

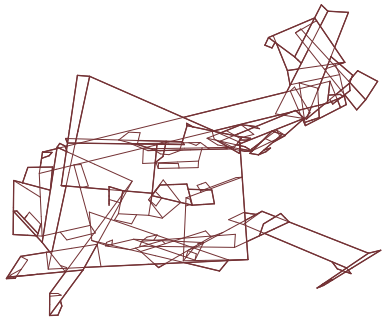
Cumulative element longest edge attachs to existing assemblages lomgest edge.

Algorithm 2

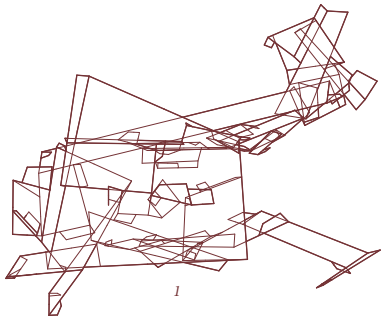
Assemblage orientated in floating equilibrium.

Algorithm 3

Order of element addition follows random sequence.



Assemblage/plateau 1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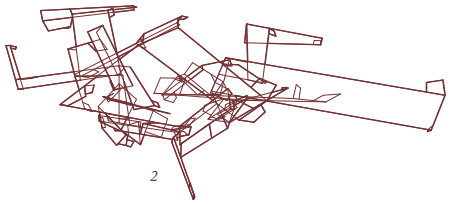
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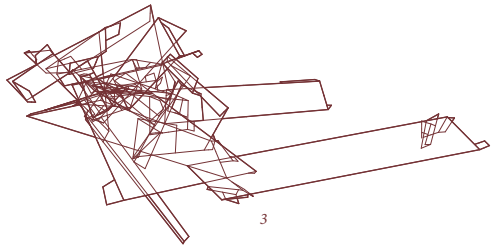
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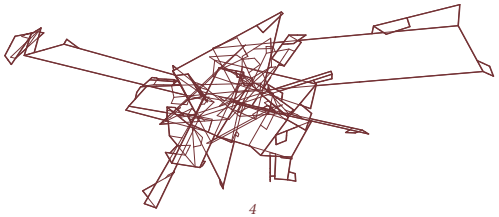
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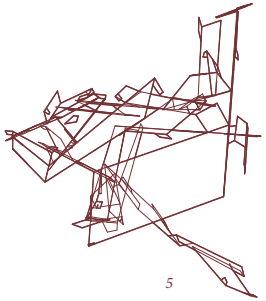
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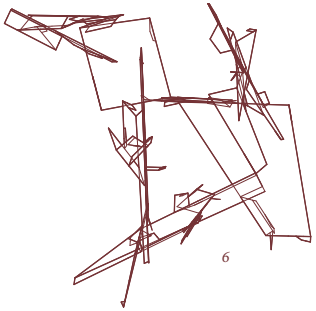
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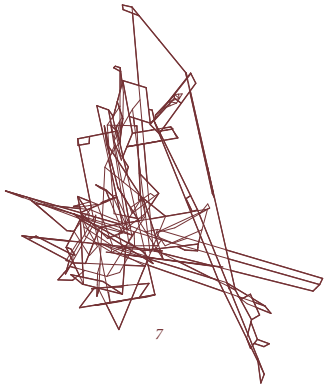
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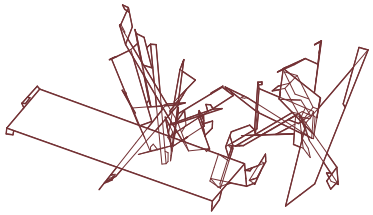
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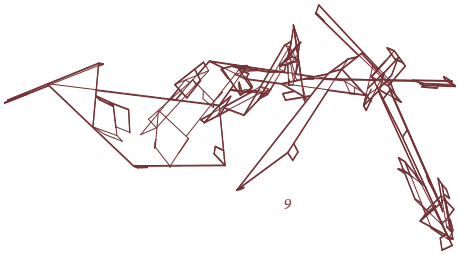
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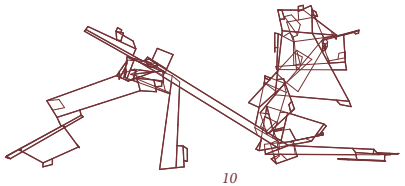
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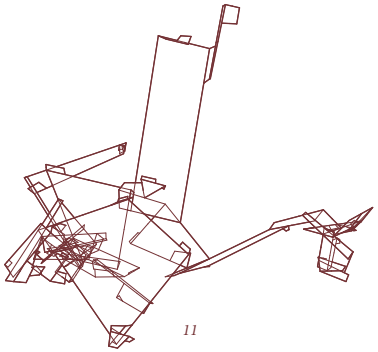
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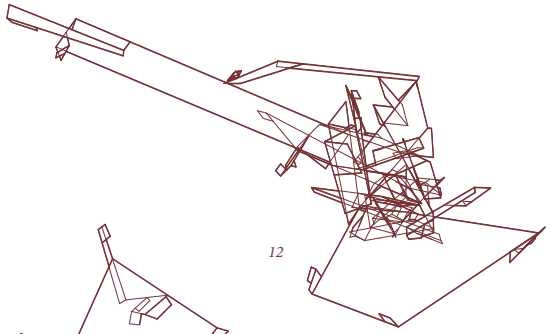
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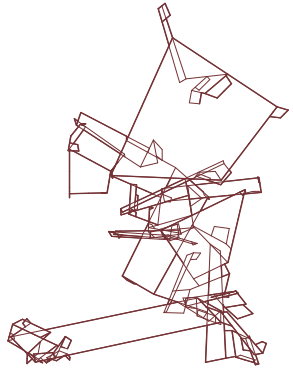
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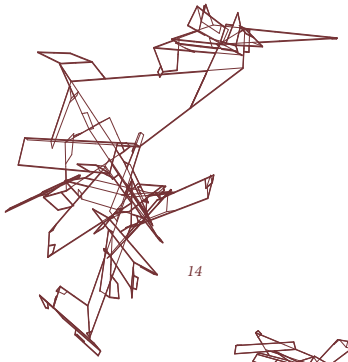
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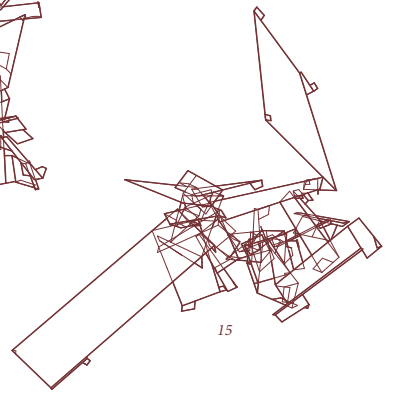
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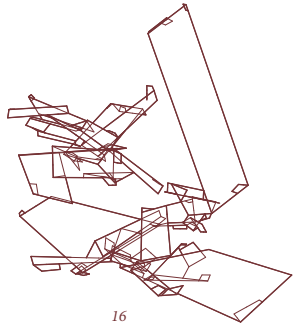
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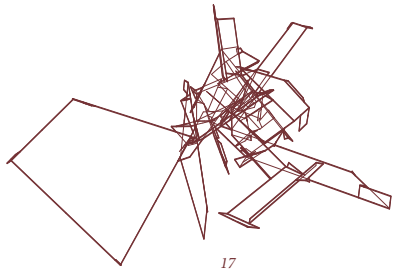
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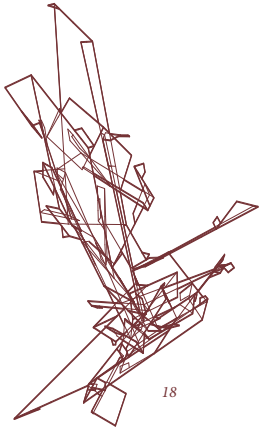
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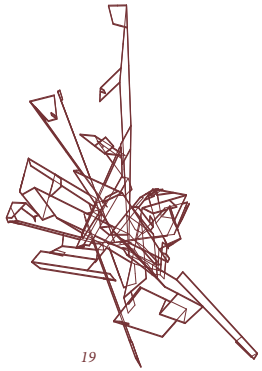
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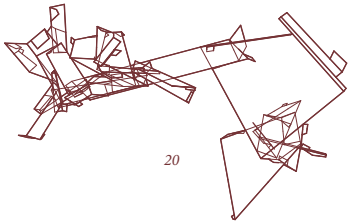
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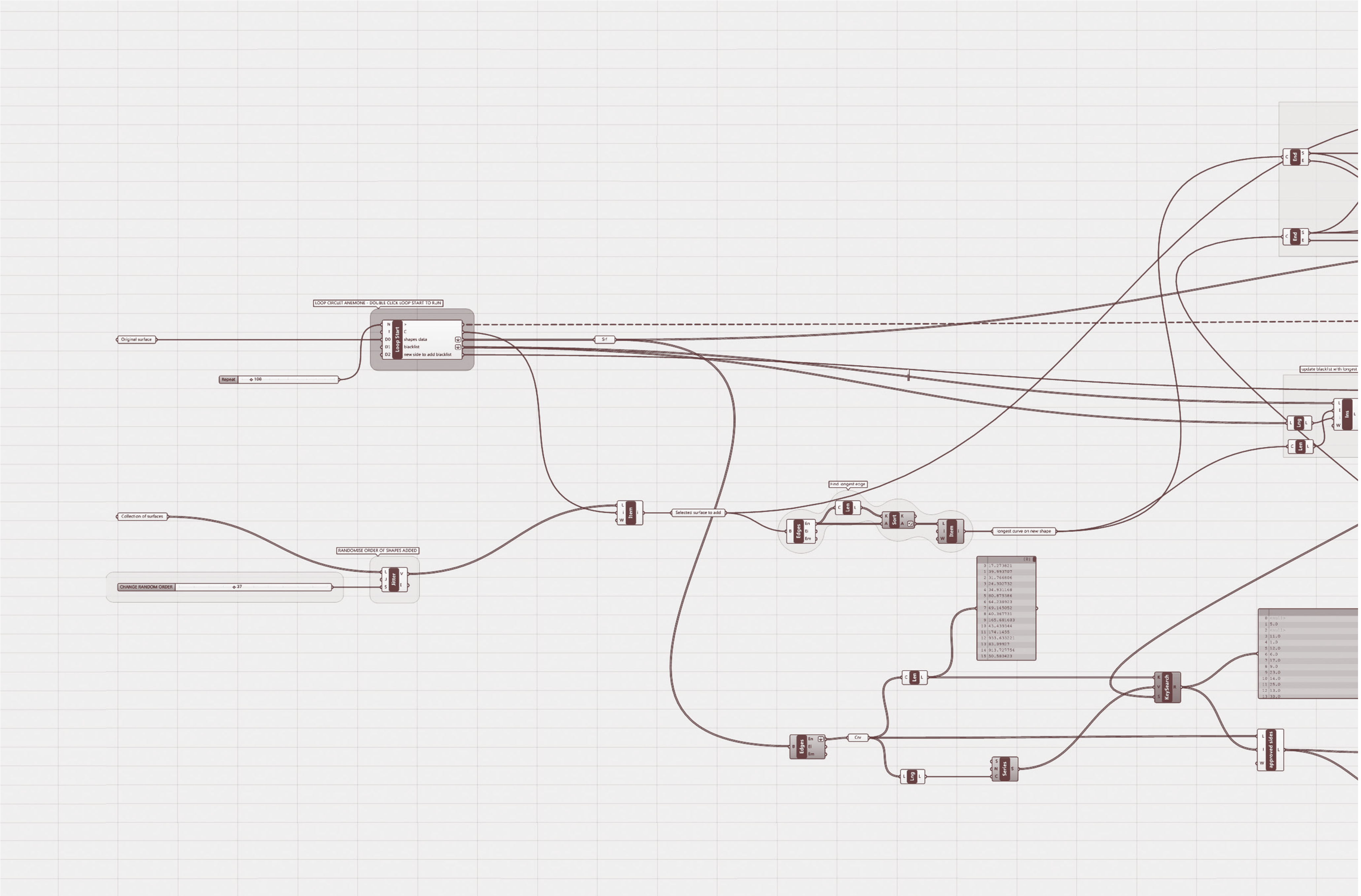
LOOP CIRCUIT ANEMONE - DOUBLE CLICK LOOP START TO RUN
Loop Start
shapes data
blacklist
new side to add blacklist
Original surface
Repeat
100
Srf
Collection of surfaces
RANDOMISE ORDER OF SHAPES ADDED
Jitter
CHANGE RANDOM ORDER
37
Item
Selected surface to add
Find longest edge
Edges
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Sort
longest curve on new shape
update blacklist with longest
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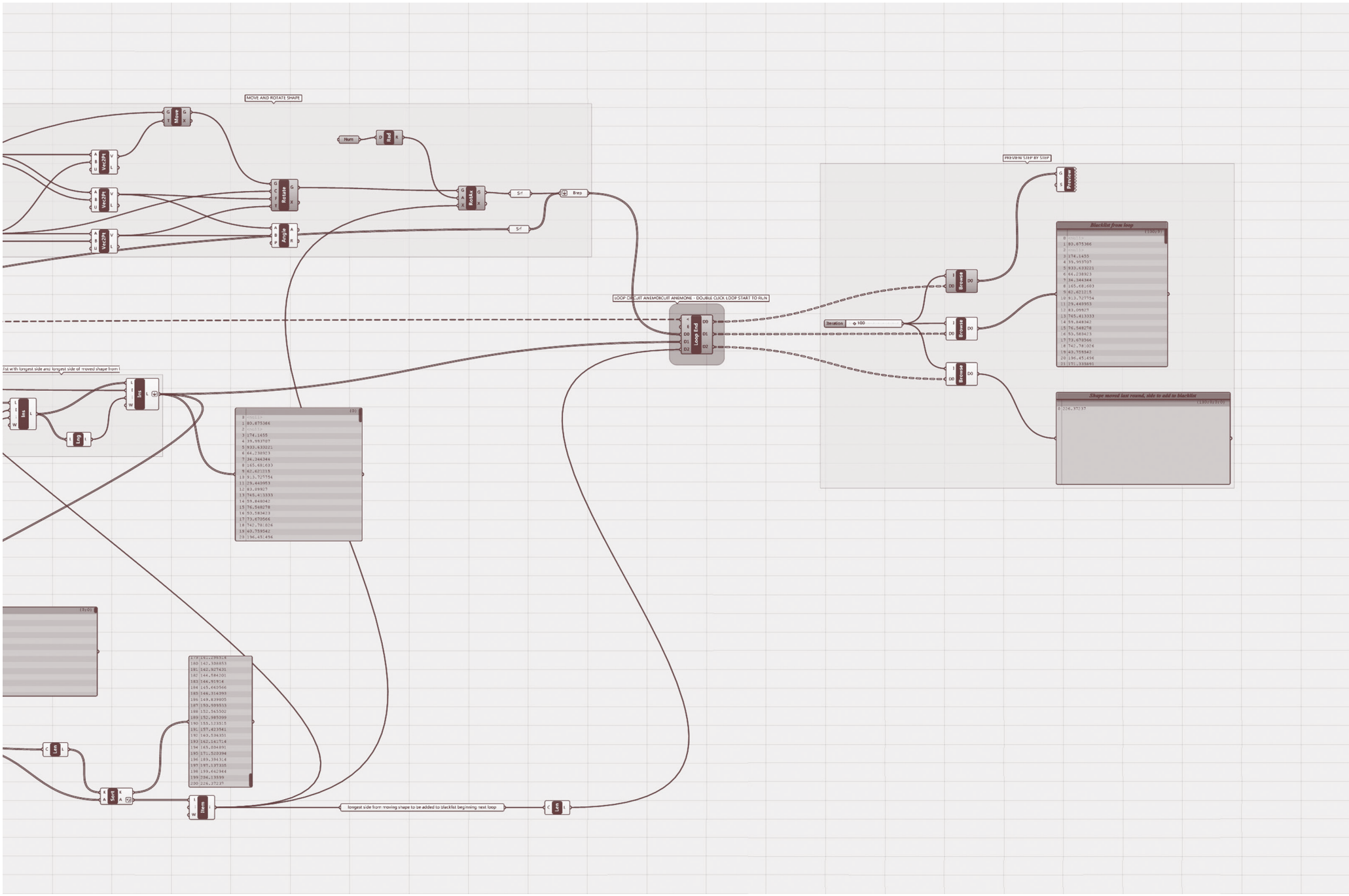
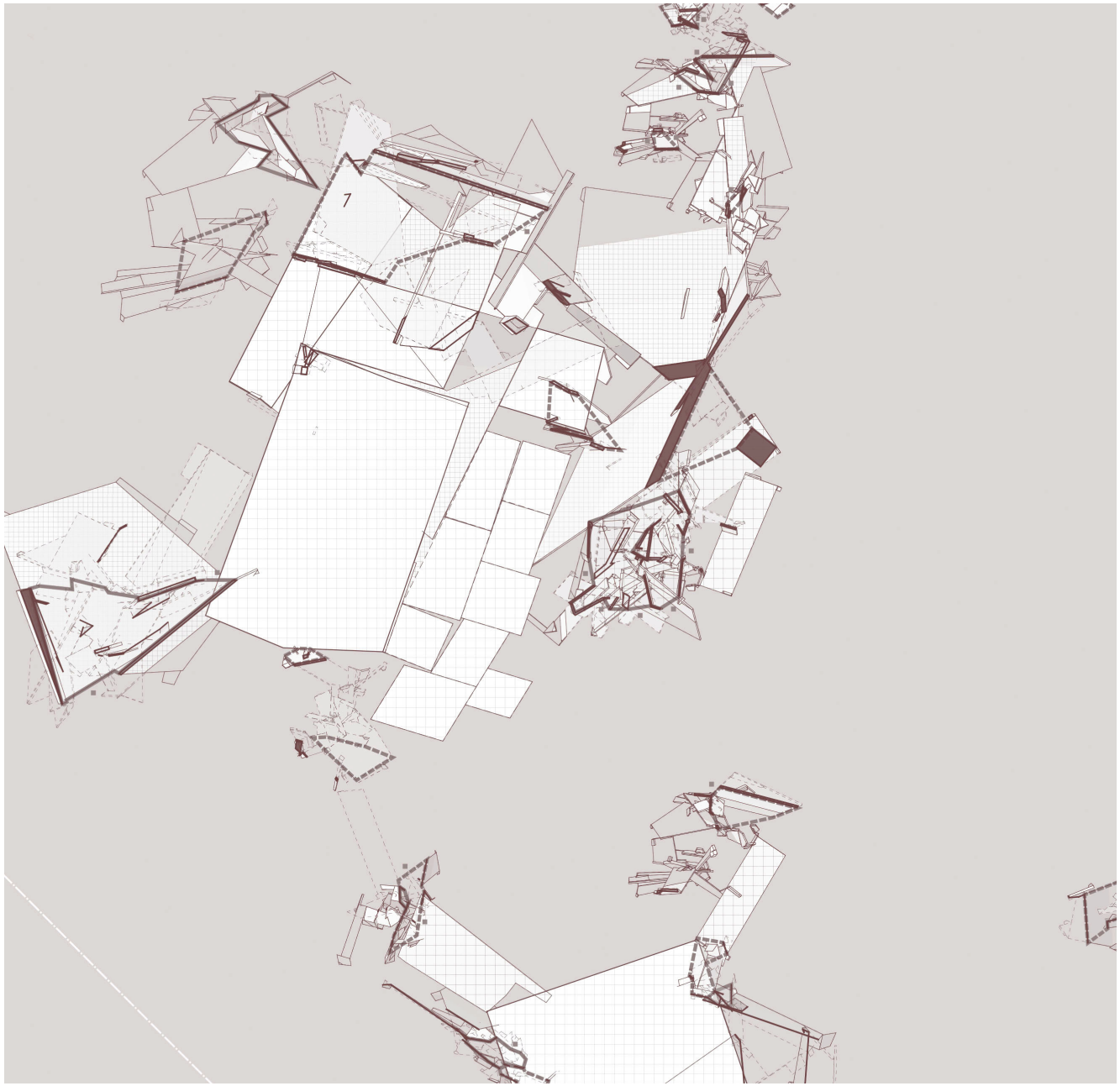
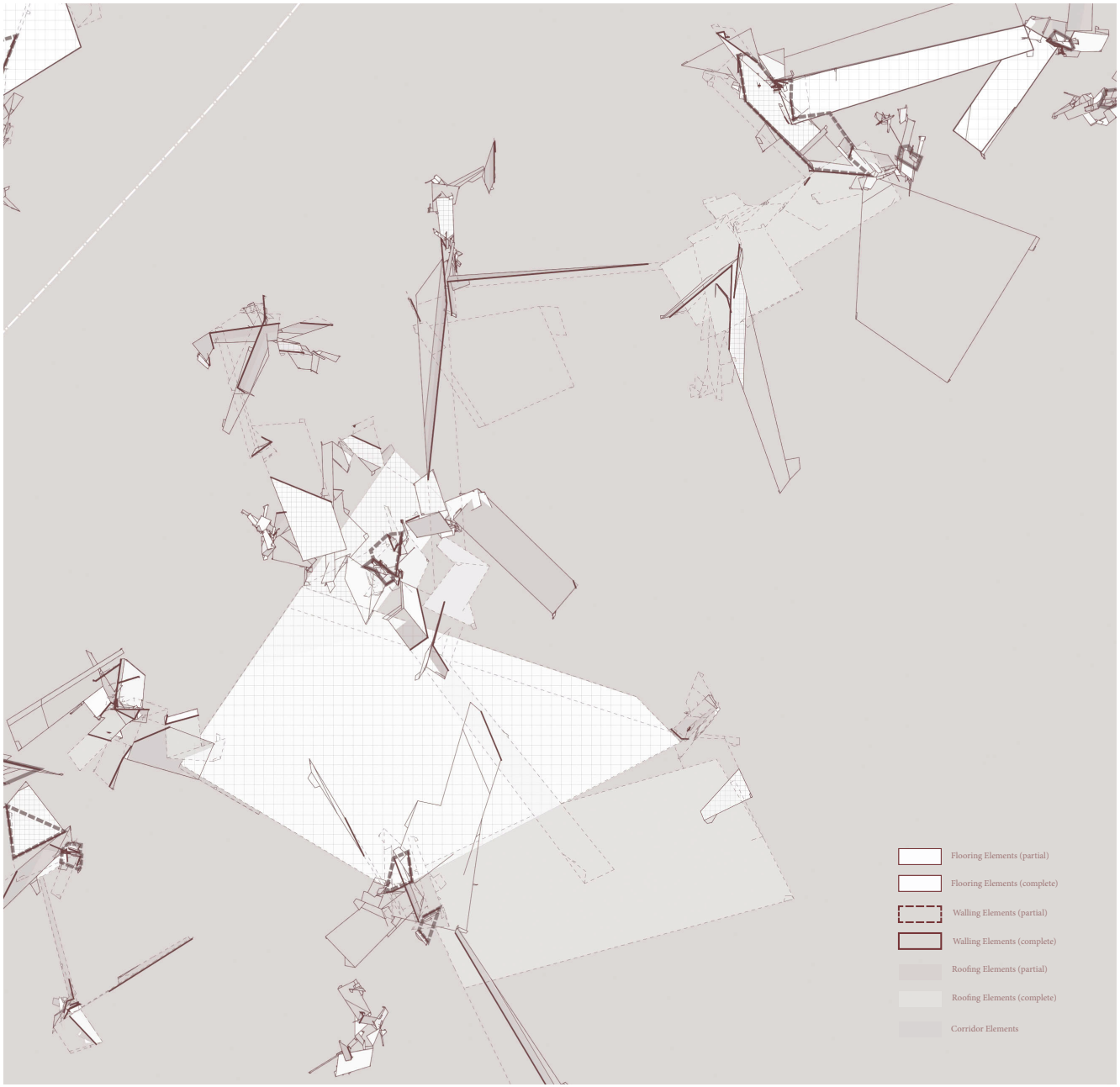
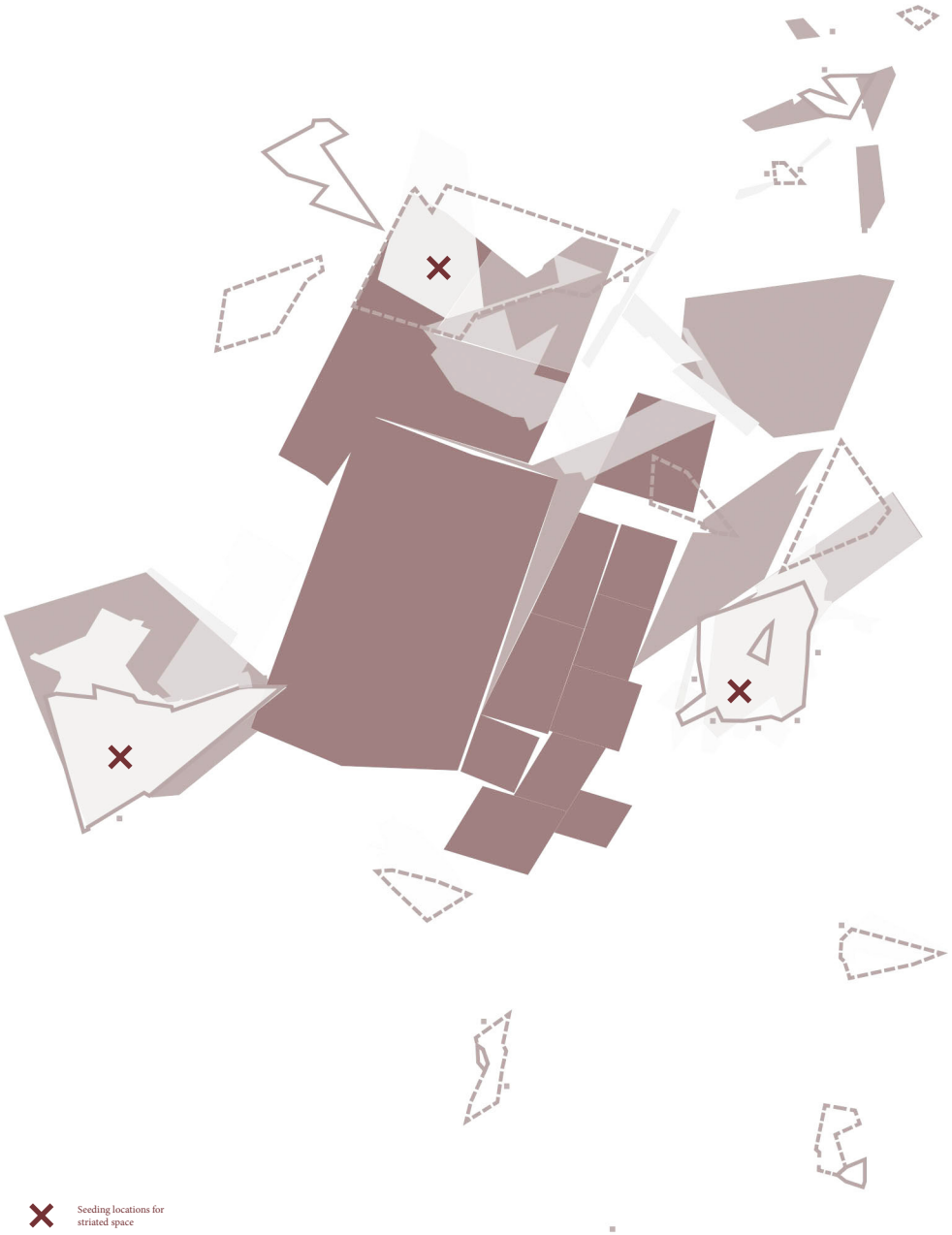
KeySearch
approved sides


MOVE AND ROTATE SHAPE
Move
VecZpX
VecZpY
VecZpZ
Rotate
Angle
Num
Rad
RotAx
S-f
Brep
LOOP CIRCUIT ANEMOBICUIT ANEMONE - DOUBLE CLICK LOOP START TO RUN
Loop End
Iteration
100
PREVIEW STEP BY STEP
Preview
Browse
Browse
Browse
Blacklist from loop
Shape moved last round, side to add to blacklist
ist with longest side and longest side of moved shape from l
Ins
Ins
Log
Len
Sort
Item
Len
longest side from moving shape to be added to blacklist beginning next loop



The algorithmic software models the interaction of individual behaviour so that the plans shown (connected plateaus) are 'grown'.



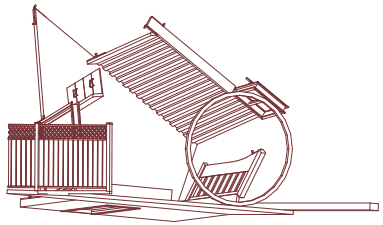

Seeding locations for
striated space

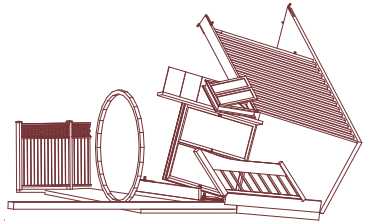
Certain conditions allow inhabitation so that space can be strategically utilised to house the growing and coalescing list of programmes that occupy the urbanism.

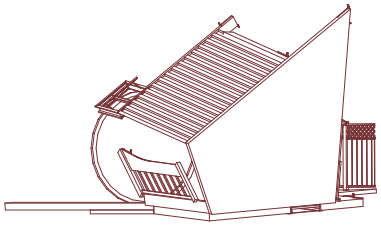
The urbanism itself acts as an information set to generate the required elements to complete buiding envelopes. The physical form and information become synonamous.

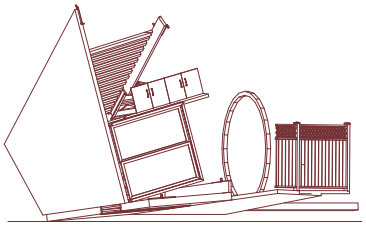
New elements are 'plugged into' the assemblage. Each element displays multiplicity and can perform different roles. As such an elements role is dependant on its neighbours so that new interfaces change the role of the elements. The urbanism is constantly undergoing change and each element therefore has a dynamic role to play.

Smooth Space

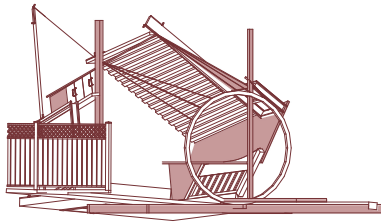


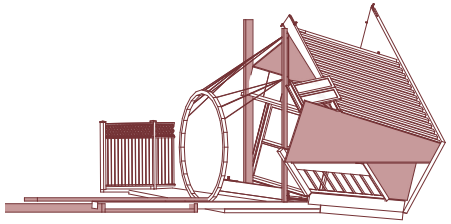


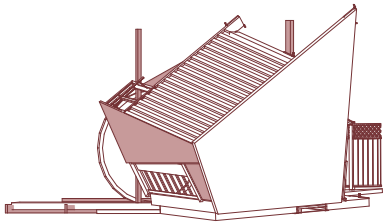


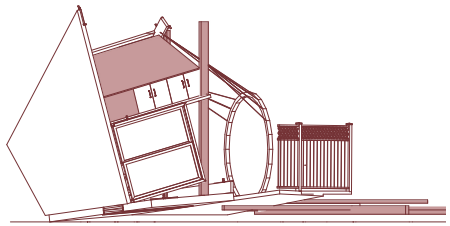


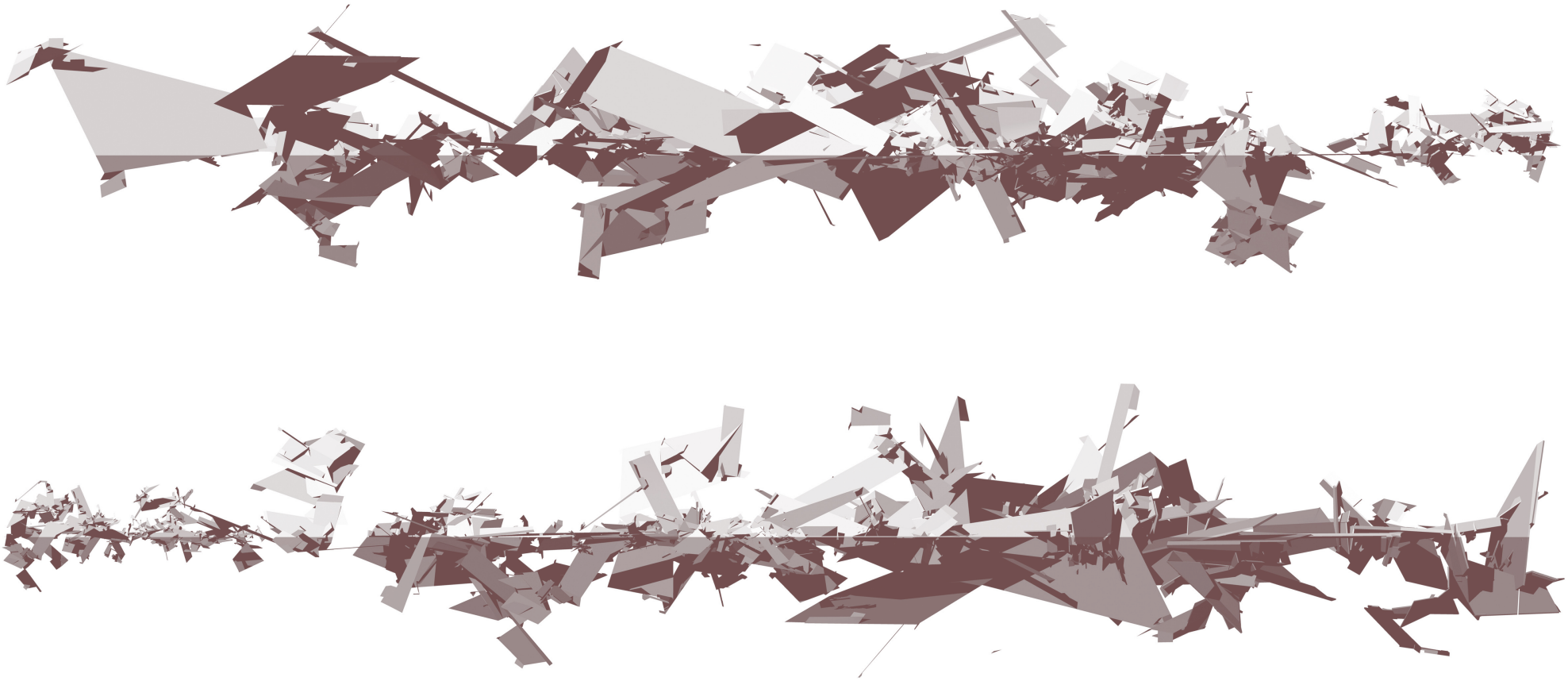
Striated Space

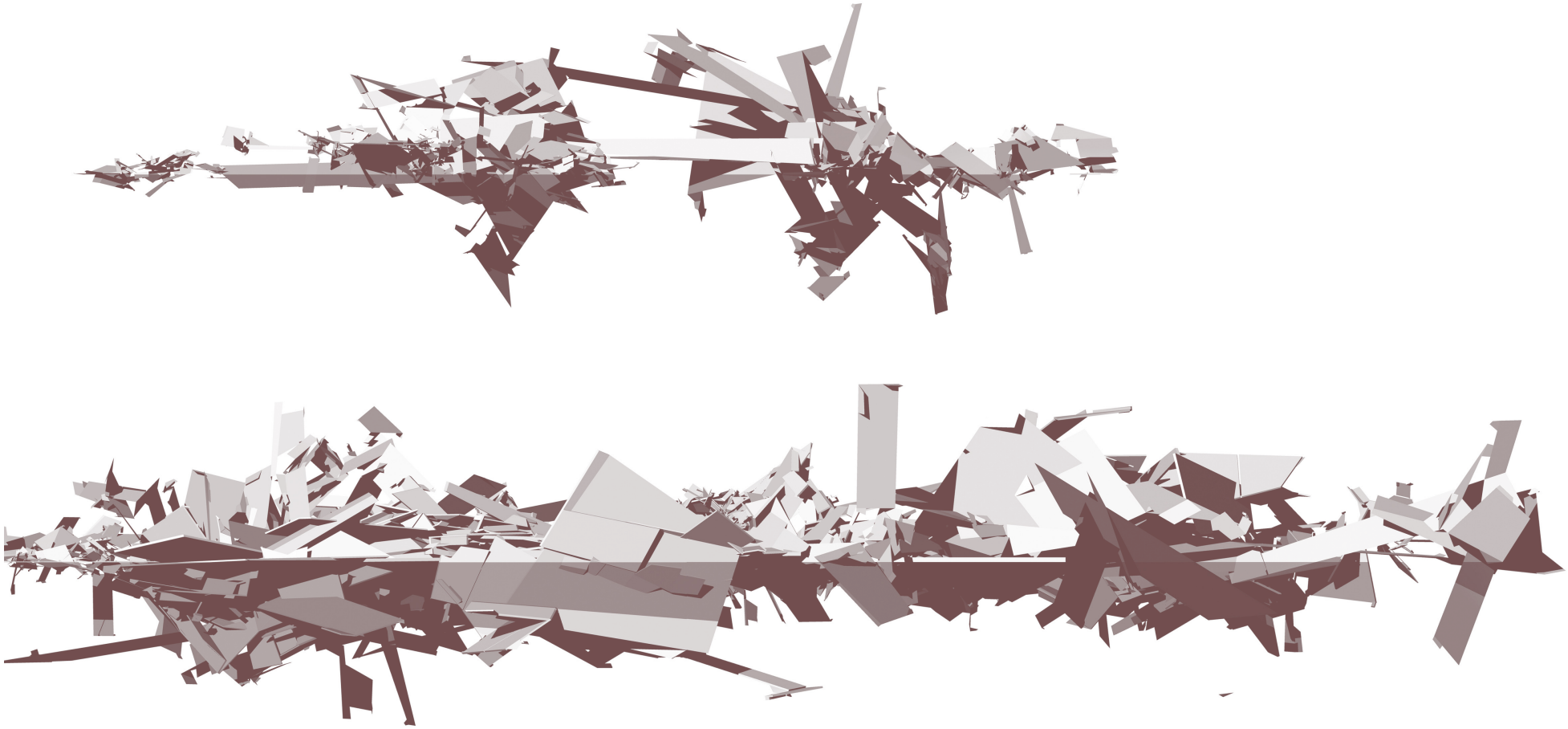


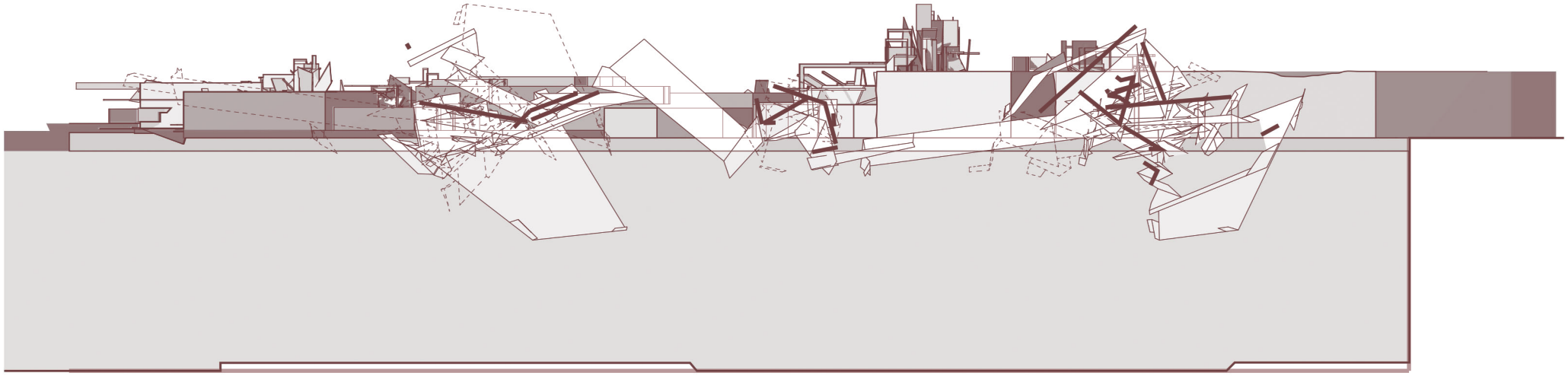


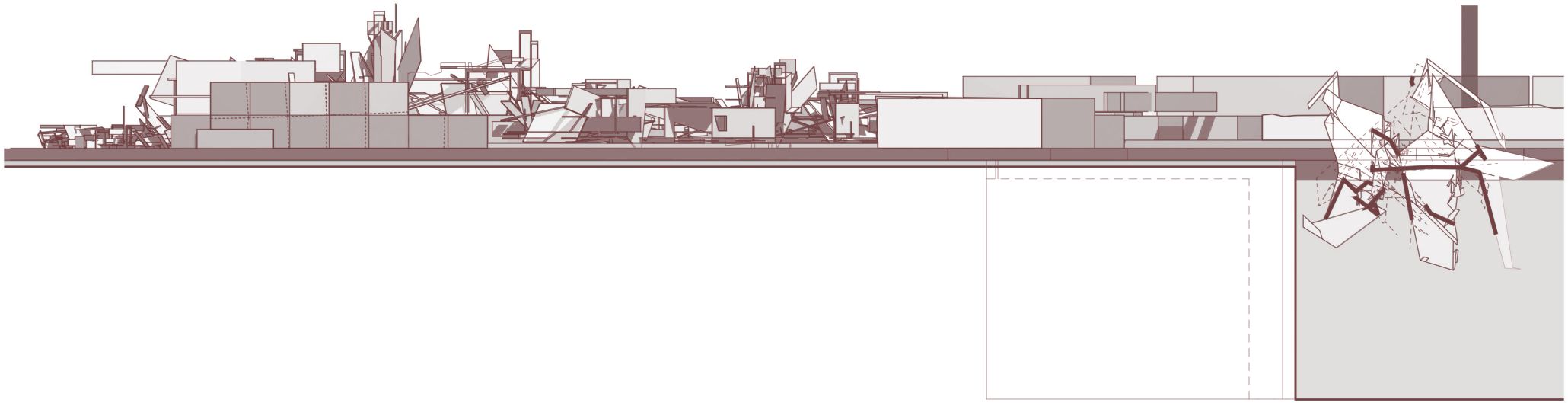








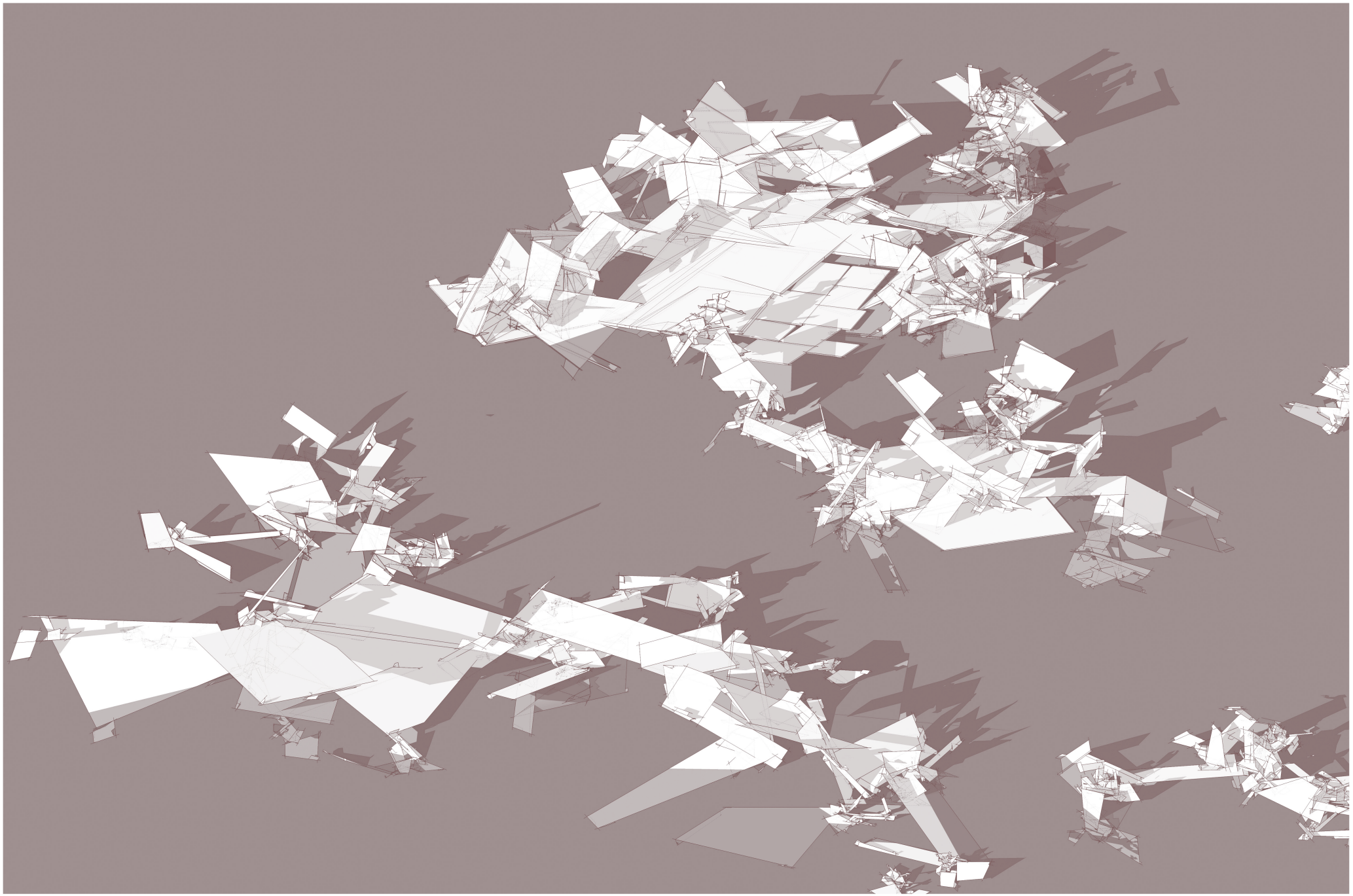


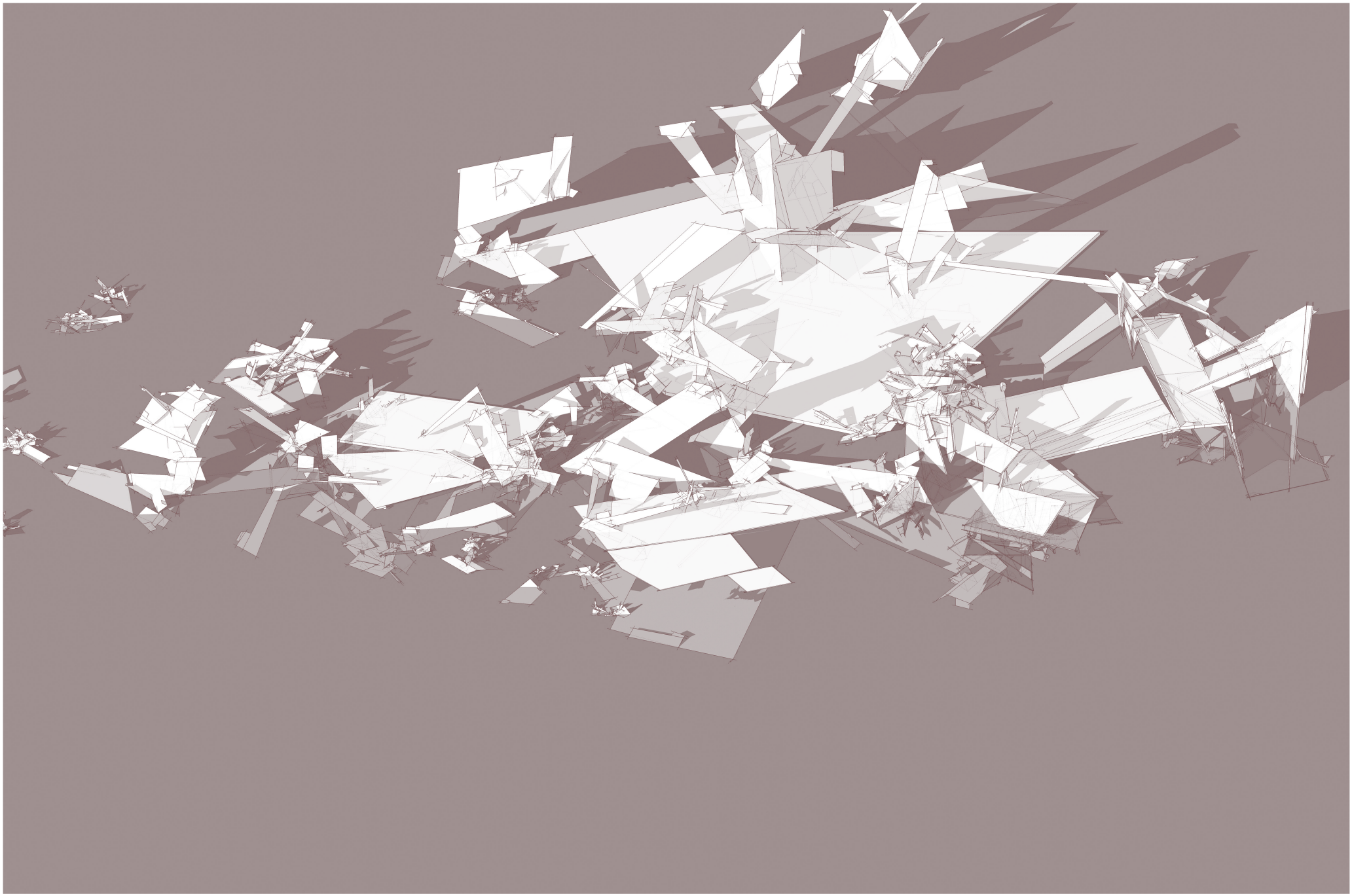


Autogenerated *smooth* space is developed through bottom-up processes. Algorithms define the limits to this space, these can be edited if small scale decisions adjust to the requirements of local agents. This landscape can then be inhabited through striating processes which augment the existing landscape to produce utility.

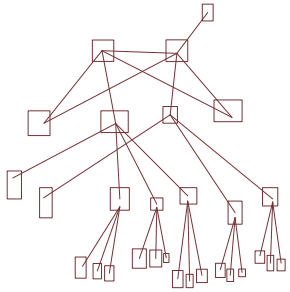
Grasshopper is used to develop the parameters to auto-generate multiple assemblages. These are then floated as plataeus upon the sea. The coalescence of these plateaus develops the general landscape. This physical architecture also exists as coded information so that the architecture and information form a continuous live loop - the buildings learn. Architecture and information are therefore one and the same. The landscape provides physical qualities that encourage certain programes to occupy. These seed and sprawl accoss the smooth space, striating it.

The occupied striated space appears as an archipealgo of islands in the rhizomic sea of urbanism. In this way genuine uniqueness is generated. The sea frames the land and the land frames the sea. The existing auto-generated built form, acts as a information script to 'cookie cut' new elements so that usable space can be created through the completion of building envelopes. This feedback system helps generate a changing set of general rules (like a written constitution). The resultant architecture is the result of a constant battle between smoothing and striating forces.

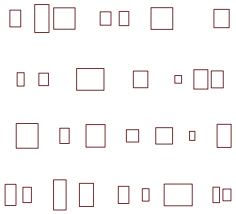




hierarchy



deconstruct(factorise)



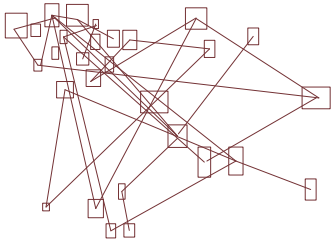
$EL_1 \subseteq \{ E_1, E_2, E_3 \ldots E_n \}$

$EL_2 \subseteq \{ E_1, E_2, E_3 \ldots E_n \}$

...

$EL_N \subseteq \{ E_1, E_2, E_3 \ldots E_n \}$

re(assemble)



$E_L \subseteq \{ E_1, E_2, E_3 \ldots E_n \}$

$$\sum_{n=1}^{100} E_L^x = \{ E_L^1 \cup E_L^2, E_L^{1,2} \cup E_L^3, E_L^{1,2,3} \cup E_L^4, \ldots, E_L^{n-1} \cup E_L^n \}$$

seq 1 to 1000 follows random seed

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