

URBAN DISCONTINUITIES

LISBON: STUDIES FOR A CHANGE OF STRATEGY

City; this amazing human creation, involved in controversy and contradiction, amazes and scares us. It has been for centuries a place for societies that long for a common good, creating and dividing tasks among its citizens. The importance it has in our lives has definitely made of urbanity, a fundamental issue in today's studies and our tomorrow's future.



It is common sense that worrying about our cities is of great importance to our lives, since it's these cities that have become, and will go on becoming the main places we humans are gathering to live in. The larger the city, the more issues it has to deal with, specially regarding social problems, and other pragmatic questions such as mobility, traffic and the equilibrium between a healthy functional public space right for the amount of population it must serve in every-day's tasks.

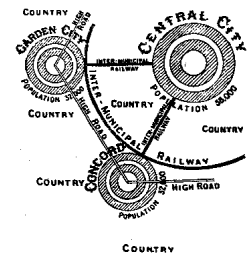
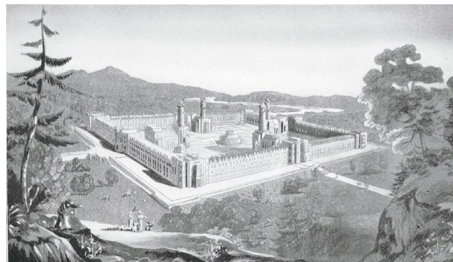
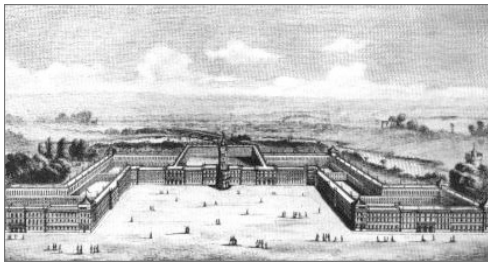
It was this problem concerning the public space, that appeared in the first place within the scope of the design task of the urban design course attended during the two semesters of this year (2007-2008), that mainly harvested my interest for a broader study of problematic areas of today's cities. Mainly, the questions asked during that course regarded the continuity of public spaces neighboring important ruptures in the city, such as railways and important highway connections. Everyone who likes to observe the city and question some of man's interventions within it, must acknowledge the difficult challenges that these infra-structures pose, particularly when it comes to integrating them with the urban scale around. It was the set of questions raised during this design, that led to the theme of this dissertation, and the will to approach them through a perspective other than the transformation tools of design; getting to understand the dynamics of these places was one of the objectives set right on start.

Therefore, this dissertation was structured in 4 different chapters. The first chapter searches to study the principles that have guided the evolution of cities and the ways they have been interpreted and transformed since the Industrial Revolution. The second, leaned on the study of the urban evolution of the main case study - Lisbon; Lisbon was chosen specially for its proximity, and for the many desires of transformation its contradictions have awakened in me, leaving me longing for solutions and ideas that would make of this city a better and even more splendid place. This is why the third chapter has dealt with several urban analysis, such as a general morphological study of the built environment and of the mobility structure, leading to the choice of 14 smaller samples, all equally sized and centered on problematic knots and discontinuous canals within the city's limits. Finally, the last chapter proposed 5 international urban interventions, illustrating successful strategies that dealt with similar problems in other world cities.

THE EVOLUTION OF URBANISTICS SINCE THE 19th CENTURY

The Industrial Revolution has been the most significant series of events that lead to the most significant changes that shook the stable equilibrium of medieval cities. The exponential growth of population derived from rural exodus, led to a complete over-charge of the urban systems, creating dense cities, over-populated, dark, polluted and lacking salubrity, plunging millions into deep poverty, with life conditions that were far worse than the harsh life on the fields. These were times of social tumult, of great changes in political and social organizations, and where free thinking lead to a growing awareness of the need to change; cities and societies became close-linked concepts, dependent one another.

It is within this context that many philanthropists have contributed, expecting to change society and the cities they occupied. Men such as Ebenezer Howard (*Garden Cities*), Robert Owen (*New Harmony*) and Charles Fourier (*Phalanstery*), seeking new models of cities and establishments, that could face the many problems of industrialization, population, and the dichotomy between city and countryside.



Phlanstery (C. Fourier, early 1800's); Garden-city scheme (E. Howard, 1902); New Harmony (Robert Owen, 1825);

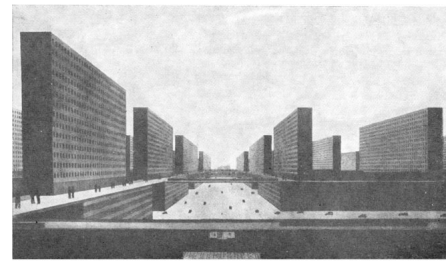
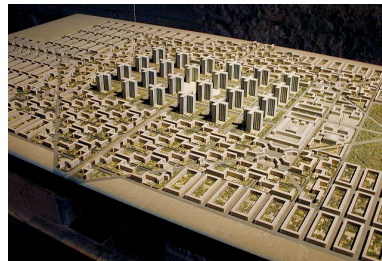
These were isolated and utopian ideas, not real large-scale models, able to effectively change whole cities. However, their relevance lies on the fact that they became the first intellectual products to seek change and better conditions for populations in cities, being the same ideals and principles used on other models and views of cities. Not having been implemented, it is important to refer the important state interventions made during the mid 19th century, which deeply changed the way cities were perceived. It is the case of Barcelona through the expansion of the Catalan engineer Ildefons Cerdà, or the Chess-like scheme of Manhattan, though the closest to the portuguese culture is the model of the Haussmanian Boulevards in Paris. It was this idea of Avenues lined with trees, with homogenous facades, integrated sewage systems and traffic schemes that became the model for many cities of the world, and specially, Lisbon. Paris was the illustration of the “bourgeois” city, and its squares, streets, public buildings, the role-model applied during the late 19th and early 20th centuries.

Boulevards opened during the plans of Napoleon III, Paris (1865)



However, a growing number of people were standing for a different model of cities, searching for ways of designing other than within the *Beaux-Arts* decorative principles; the debate between culturalism and progressism generated many different opinions, and cities and architecture as part of the cultural symbols, were tools being used to express these new conceptions of life, Man and society. Rationalism appeared as the spearhead of progress, eager for a better and generalized application of industrialization. This line of thought generated the largest changes in cities, since its model of city should embrace a totally different format, answering needs of a typical Man, with typical and quantifiable needs, for which industrialization would respond perfectly. These are principles present in the early plan of Tony Garnier for the *Cité Industrielle* (1899 - 1918), where a first conception of functional zoning was established, separating housing districts from hospital, industrial and port districts, each of which would be placed on the best suitable plots in order to fulfill its specific needs. Zoning has also been one of the main design principles for Le Corbusier. In his design for the *3 Million inhabitants city* (1922), other very important principles were presented, setting the very base for the changes later implemented in European cities; from the idea of rationalization by separation of pedestrian and automotive traffic, to the abolition of the street as a canal defined by buildings, instead, replaced by free-standing blocks and towers, encircled by

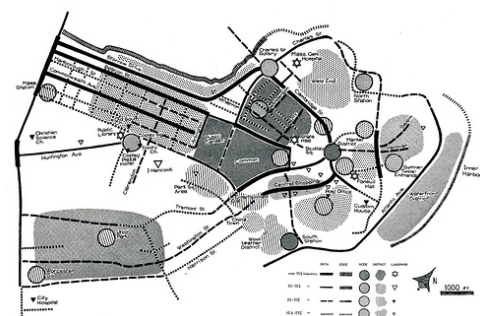
green areas, Le Corbusier succeeded in altering drastically the image of the city. Ludwig Hilberseimer also managed to contribute for this new vision (1925), by using the same principles of separation of traffic, zoning and rationalization, in order to create his own model and vision of a denser city. With the CIAM meetings, and the elaboration of the *Athens Charter* (1933), these ideas were established within the community of architects and urbanists as the ideal model for cities.



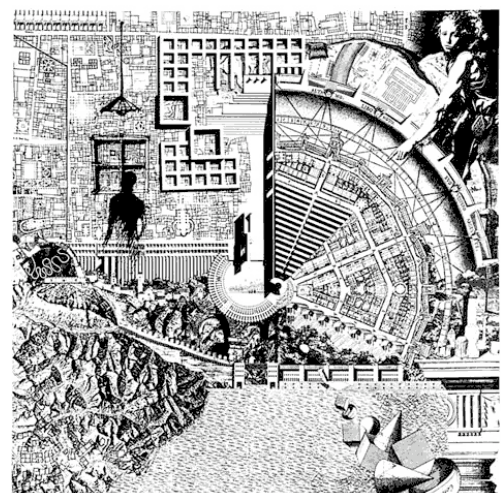
T.Garnier's *Cité Industrielle* (1899-1918); Le Corbusier's *3M inhabitants* (1922); L.Hilberseimer's *architecture of the Great city* (1925)

Though these models weren't effectively applied during the first half of the 20th century, they became widely applied after WWII, since its model-wise character made it easy to apply in large-scale reconstruction; the public space became a mere background for construction, and symbols as well as reference in the built objects were lost to standardization and rationalization of the processes of construction. Large extensions of cities were built, responding to the urgent need for housing, but many elements from the traditional city were being lost in the process; reference and structure lost to anonymous urban landscapes.

People felt the need to create cities they would relate to, feel connected, and where public space would once again be the stage for public life, casual meeting, and structure of the city; the humanization of the city was desired, and that's where the ideas of Kevin Lynch and Aldo Rossi (among others) gain importance, since for Lynch, and specially through his work *Image of the city* (1960), where the idea of readable elements in the city, translated onto memory-drawn maps, would point no longer to the standardized city, but to a city made of symbols, hierarchy of elements and well established structure. Reading the city through well defined elements such as *streets, limits, knots, neighborhoods and monuments* was the solution out of the modern movement city. The homogeneous city, as anonymous as it was, couldn't create effective structure or reference for the pedestrian or inhabitant; homogeneous is substituted by the idea of an heterogeneous city, built out of several different architectures and singular elements. This is the idea of Rossi expressed in his work *The Architecture of the City* (1966), where his concept of the *Analogical City* illustrated by a *collage* clearly points for the importance of different meshes, architectures, monuments and references in the city.



Kevin Lynch's mental map of Boston



Aldo Rossi's collage of the Analogical city

The last 30 years have brought the wide-spreading of the urban condition throughout the world, and with the advent of the private transport, cities have grown in size and extension, but not necessarily in density. Large urban regions have taken the places of the dense compact cities. we now live in the Era of the *Diffuse city* (F. Indovina, 1990); the Metropolis of yesterday became the *Metapolis* of today (F. Ascher, 1995). Whole regions are becoming urban landscapes, and instead of defined entities we are now faced with undefined problems, *Edgeless Cities* (R. Lang, 2003), where the need for accessibility has generated oppressive transportation networks cutting through urbanized territories, anonymously and regardless of the urban surrounding. Obsolete spaces, left-overs of previous times where identity still lies in that long gone past, *Terrain Vague* (I. Solá-Morales, 2002). But these new urban spaces, characterized by ruptured spaces and scales are becoming more and more common in nowadays cities, absorbing urbanity and creating empty spaces, both of reference and identity; *non-spaces* (1995) for the french anthropologue Marc Augé. However, on these new places (or old ones with a one identity) resides the potential for new urbanity and identity; they Are *Places*, and they are part of our urban systems, where transformation can occur, contributing for the integration of these different scaled infrastructures with the surrounding urbanity.



LA Freeway crossing the city;



The Paulista Avenue, São Paulo, Brasil;



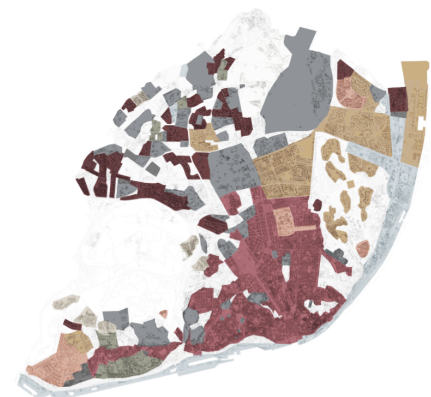
Elevated High-way, Montreal

URBAN EVOLUTION OF THE CITY OF LISBON

I will not go into the details of this process, since for this argument, only 4 different major moments are enough to illustrate the major changes in structure. The first moment can be that of the city until the mid 18th century; until that moment, Lisbon grew initially from the castle, then to the lower (now dry) lands, and then, for centuries (approximately 11 centuries), along the margins of the river. November 1st, 1755 was the day Lisbon suffered a major earthquake, followed by a tsunami and then, for many days, a large fire that consumed the majority of the city's medieval center. This was the opportunity to plan a new capital from the scratch and create the basis for the future developments; thanks to the geometry of the *Baixa* (orthogonal streets, perpendicular to the river and pointing to the *hinterlands*), the possibility of Lisbon growing towards the interior of the territory instead of along the river, became a reality. This leads us to the 2nd moment of this evolution, which is the 19th century Lisbon, with the plans of hygienic *Boulevards*, that would conquer the Northern territories, extending the compact and continuous urbanization, and more than doubling the area of the city. These interventions took a long time to be concluded, and lasted from about 1850 to 1938 (approximately). 1938 is the year in which the Belgian urbanist Étienne De Groer was commissioned by the mayor of Lisbon, Duarte Pacheco, to plan the city of the 20th century and capital of the

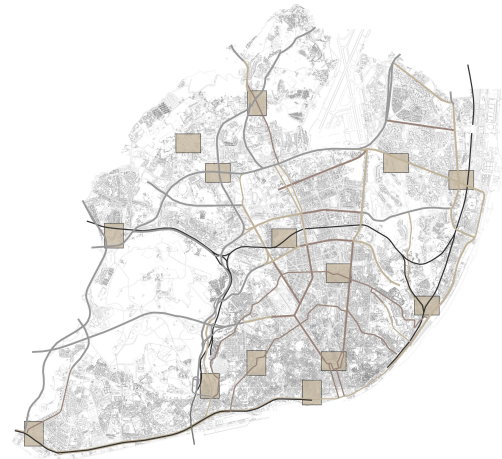


Urban Evolution - different perimeters



Morphology study of different ways to build urban areas in Lisbon

colonial empire, providing it with all the modern public infra-structures it lacked, such as the airport, ports, major road system, university campus, hospital district and the municipal forest park, that would set a perimeter for the city of Lisbon, enclosing its growth; this perimeter was to be materialized by the 2nd circular, a set of four consecutive ring-like avenues that later were converted into one of the main freeways of Lisbon's road system. It is besides this new road system that adulterated De Groer's idea for Lisbon, since it made possible the generalized growth of peripheries, developed highly dependent on the private transportation; this 4th moment, has led to the actual panorama of discontinuous urban landscape (as visible on the morphological analysis made).



Mobility system and the location of the case study areas

STUDY OF AREAS OF URBAN DISCONTINUITY

By looking at the morphological study realized, and crossing it with the road and rail system of Lisbon, it was clear that it was either around these canals, or around the knots between them that the larger discontinuous areas existed; that led to choose those spots as ideal samples for cross study on the subject. So, 14 areas were chosen, 2 of which on the outer limits of the actual city (*Carnide/Telheiras, Lumiar*), 5 within the limits of the 1938-48 plan of De Groer (*Benfica/Calhariz de Benfica, Telheiras knot, Algés/Restelo, Cabo Ruivo/Expo 98, Chelas/Olivais Sul*), 3 along the 19th century rail ring (*Alcântara, Xabregas, Bairro do Rego*), and finally, 4 areas located within the consolidated city that correspond to different historical discontinuities or knots (*Cais do Sodré, Rossio, Estrela, Alameda*).



Example of the sample and area classification: Telheiras knot

On these samples several different areas of different categories, were quantified in order to calculate parameters that could illustrate the phenomenon and dynamics of those places. These parameters could characterize the built environment (density index, footprint index, average of levels, etc...), the public space (pedestrian areas, infra-structural areas, empty no-man's land areas, or discontinuous areas, etc...) or mix indexes that can translate the relation between public and private parts (openness index, discontinuities vs building footprints, etc...). The study of these relations was able to understand and translate several ideas into numbers and conclusions; conclusions such as to how the city relates to large infra-structures (railway canals have shown to be friendlier to the surroundings than freeways, specifically visible when it comes to events such as the spontaneous possession of plots around these canals for informal agriculture), or how the order of appearance on the territory influences both strategies and urbanities on those places (the difference between the earlier part of the *Eixo Norte-Sul* that was built over extra-urban territories and the earlier one, that had to cross heavily urbanized locations, for which the option of a viaduct made in order to allow for public space continuities). The several contradictions on these territories appealed for answers and the need to show alternate solutions that proved to be as efficient, but also more urban and potentially better for the surrounding city.

WELL SUCCEEDED INTERVENTIONS ON URBAN DISCONTINUITIES

Finally, the last chapter tried to present 5 examples of interventions, that succeeded in integrating heavy mobility infra-structures in the city, generating opportunity and urbanity. The first case was that of Berlin and the *Stadtbahn*; this railway was built in the mid 19th century with the objective of uniting the center of the city to the several stations that surrounded the inner city and connected Berlin to other parts of Germany and Europe. This urban line, instead of being built over farm land, was built over the footprint of the, at that time obsolete, fortifications. The strategy used was that of elevating the whole line, and building a viaduct all along its route. This created not only the opportunity for continuity of the public space under the railroad, but also for the creation of usable spaces under its arches, turning this heavy infra-structure into a continuous urban building, with facades and streets along them. The second and third cases, the *Viaduc des Arts* in Paris and the High-Line in New York, are the example of conversion of these canals when considered obsolete; they consist both of linear parks that take advantage of the linearity of these viaducts to create new connections in the city, and an equipment that stimulates urban conversion.



Stadtbahn in Berlin;

Park over the Viaduc des Arts in Paris; Render of the future intervention of the High-Line in New York

But as it was pointed out before, the relation between the city and railways has always been easier than when dealing with heavy road infra-structures; for the purpose of showing solutions for this kind of problems, 2 cases in Barcelona were chosen. The first one, the new *Ronda del Mig*, consisted of covering a 2 km trench that crossed a dense part of the city, separating its margins and generating very conditioned crossings; when covered, a new continuity was obtained, not only transversally, but also all along its route thanks to the new tree-lined pedestrian avenue. Last but no least, the intervention on the Trinity knot shows how the large empty space highway knots can be occupied, given reference by means of design and creating new urban connections. Though this kind of strategies have to measure carefully the capacity they have to attract people, they have the great importance to structure and conquer for the urban system, large empty and discontinuous areas, creating not only more attractive landscapes, but also better public spaces to support healthy urban life; urban design, careful choices of strategies for these heavy interventions are crucial for the future of life in our cities.



Ronda del Mig intervention, Barcelona



Parc del Nus de la Trinitat intervention, Barcelona