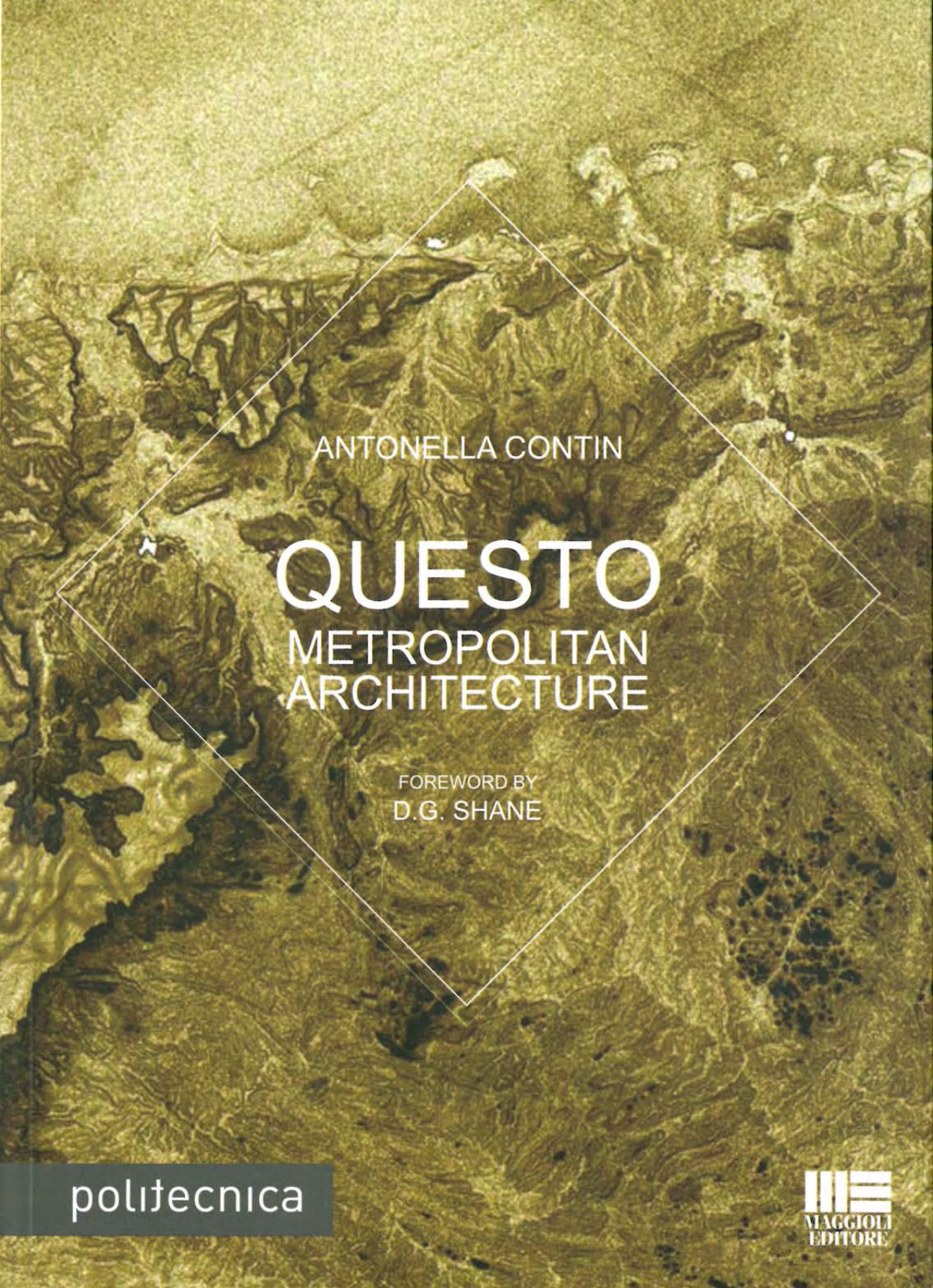
ANTONELLA CONTIN
QUESTO
METROPOLITAN
ARCHITECTURE
FOREWORD BY
D.G. SHANE
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MAGGIOLI
EDITORE

Questo represents MS[Lab] research activity at the Milan School of Architecture: it tackles with almost all of the vast range of problems urban designers from all over the world face today, as they cope with the emerging form of the megacity/metacity (MVDVR 2000). Assuming Foucault's 1968 concept of the heterotopia of illusion, *Questo* unpacks and questions important research themes in the field of urban design, opening the discussion to new perspectives rather than solving its thorny issues. The idea of a new collective intelligence at work still permeates the volume without a pre-set solution. According to Antonella Contin's premises, *Questo* is an open question as well as a statement. The MS [lab] Milan-based team is investigating the world opened up by Foucault's heterotopias of illusion, in the contemporary context of networked multitudes, new collective associations and individualities, formal and informal, whose urban future is uncertain and multi-dimensional.

MS
[*lab*]

Antonella Contin

QUESTO Metropolitan Architecture

QUESTO è un progetto di Antonella Contin e raccoglie la rielaborazione dei contributi alla ricerca sviluppata dal Laboratorio Misura e Scala della città contemporanea. Grandi contenitori e Paesaggi, Laboratorio di Ricerca del Dipartimento di Architettura e Studi Urbani _ Scuola di Architettura e Società. Politecnico di Milano, dal 2000 ad oggi.

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Antonella Contin

QUESTO

Metropolitan Architecture

MAGGIOLI EDITORE

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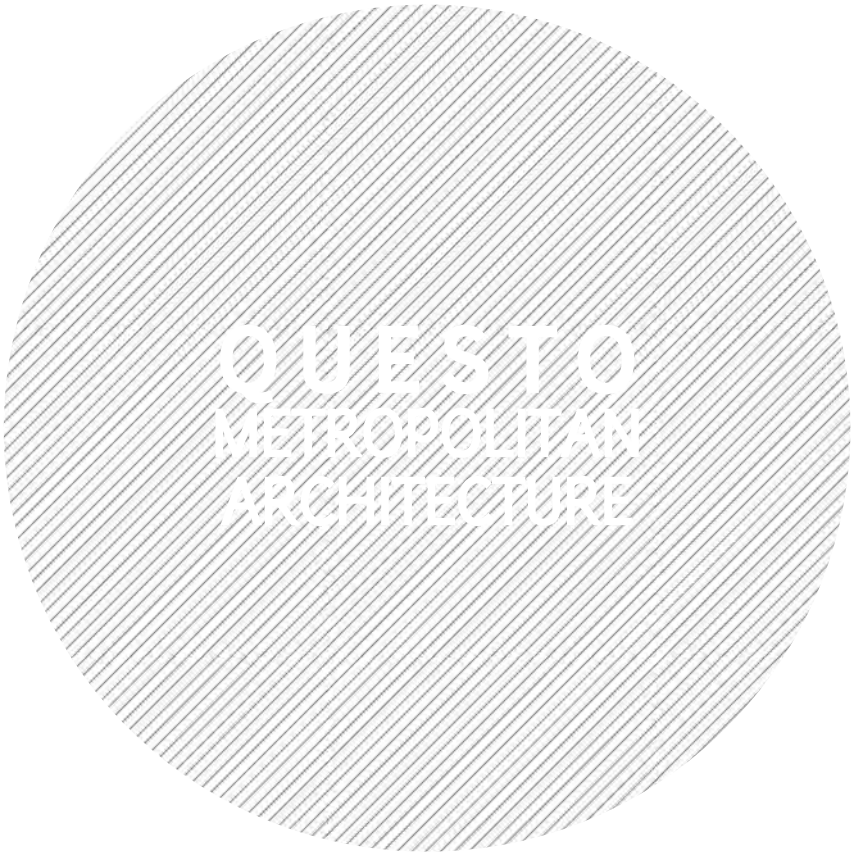


Comment

Antonella Contin

/* You may have wondered why I have decided to call QUESTO a book containing the research that I conducted for three years as coordinator of the Laboratory of Measure and Scale of the contemporary city. Explaining the reasons of this choice is not an easy task, even less easy it is to justify it. But perhaps it is not a justification for this choice that I'm looking for.

QUESTO is the enlightening and peremptory title of the first book of Franco Donatoni, a composer. It is an essay on musical composition and at the same time, as stated in a review of the book, it is a real composition, conducted over a verbal material. I ran into Donatoni by chance, or by necessity, as it often happens to me, through Raffaele Pe, a PhD student of mine and musician, who introduced me to him. I don't know much about the discipline of music, in particular modern and contemporary music. But, when Raffaele made me listen to a composition by Donatoni, while telling me his story (a fundamental detail, as always) I finally felt that it was possible to find harmony even in the chaos of different tonalities, all of those sound pulses (grains of sound, as Martino Traversa, physicist and musician, another happy encounter of mine, would call them) that affect our senses.

There is not much to add, then, everything is in this title: QUESTO. The intention is to say that my research is clearly placed in the architectural discipline; because Metropolitan Architecture today is QUESTO : to have a multidisciplinary point of view over the physical space of the city and the architecture. A Metropolitan Architecture today, however, should be considered related to a wide range of magnitude, bigness it has been called, that we essentially have to refer to the proximity until now, and that must be placed in a context of mass mobility of people and goods that implies a different relationship between individuals and groups. QUESTO means, then, that we must integrate into our project of architecture, urban design and landscape a new sensibility to the natural ground, the environment, new ways of citizenship that do not conceive the public space as a solid street/square matrix. QUESTO means to think about new styles of behaviour induced by virtual communications in real time, a different built form type and a PAESAGGIO as a new reality made by a strong connection between the green/blue/grey infrastructures. Finally, QUESTO implies an innovative relation between the concepts of heritage and inheritance or estate that forces us to link through a sensitive urban design and architectural project the medium and little towns and villages (and their local armatures) to the bigger metropolitan infrastructural scale. HISTORY doesn't found our project anymore, we are respectful but not subordinate to it.

But, let's go back to Donatoni and its notational maps that no longer use the notes written on the basis of the pentagram, Donatoni that uses random techniques, upsets sounds and rearranges them according to his own very rigorous method; QUESTO wants to claim the consistency of the research process even when the techniques of analysis, interpretation and project related to our European cities no longer work, and is intended to demonstrate that we are in a time of uncertainty, indeed, but if we practice it with rigorous commitment and perseverance we can turn it into a scientific method. That is what Donatoni's music has taught us.

For all THIS ("per tutto QUESTO", as we say in Italian) our research is rich in the contributions of the techniques: the open source satellite maps, the digital parametric software, the applications of new devices, which are able to make also the metropolitan fabric porous. For THIS, over time, this practice has led to discoveries, unexpected results and the opening of new issues, especially in cities that have to face the risk of an explosive growth. These new fields of research are organized at various levels: from the geographical horizons to the most minute urban scale, and finally to the spatial analysis where PAESAGGIO and landscape urbanism are interlaced and feed off each other.

QUESTO is just the beginning, but inside it, like in a seed, there is already everything that will grow in the future as long as our Italian school will be able to constitute a fertile soil for the themes of the metropolitan city and architecture. ○

Questo and the Metacity

David Grahame Shane

/* The work in *Questo* represents the research of the professors and students at the Milan Polytechnic in confronting the vast range of problems faced by urban designers globally, as they grapple with the emerging form of the megacity/metacity (MVDVR 2000). This introduction will use the Milan Expo and Foucault's 1968 concept of the heterotopia of illusion to unpack some important research themes from the new Milan School. Many themes are shared with the Milan Expo 2015, but unlike the Milan Expo in *Questo* the questions still remain open and in play, not settled or under control. The idea of a new collective intelligence at work still permeates the volume without a set solution. As Professor Contin points out at the start, *Questo* is an open question as well as a statement. The Milan team MS [lab] (Measure and Scale of the Contemporary City Research Lab, DASTU Department) is still exploring the world opened up by Foucault's heterotopias of illusion, a new world of networked multitudes, new collective associations and individualities, formal and informal, whose urban future is uncertain and multi-dimensional.

The Polytechnic has examined aspects of this new informational model in the megacity/metacity before, for instance in *Innovative Technologies in Urban Mapping* (2014)

also edited by Professor Contin and others. In that volume I wrote of the "Metacity; origins and implications" outlining the structure and complexity of the metacity. Other contributions to *Innovative Technologies in Urban Mapping* also examined mental maps and conceptual models of cities updating Kevin Lynch's *Image of the City* (1961) for the digital and information age. The question of Rossi's (1982) urban collective memory and its symbolic realm always haunted this research, spilling over into questions of satellite wayfinding and GPS navigation. In this Introduction I would like to build a framework around the 5 sections of the research in *Questo* reflecting further on the emerging contours of this new megacity/metacity system using the contemporary Milan Expo as an instrument of investigation or lens.

The first two sections of *Questo* investigate the old metropolitan model under the impact of the metacity/megacity, bringing new modes of mobility and communication, while enriching old public symbols with a new collective memory and intelligence. The middle section of *Questo* concentrates on the peri-urban edge of the metropolis, blending into the citta diffusa, city-territory where Landscape Urbanism and ecological issues play a major role. Here new modes of mobility and communications allow for new urban forms and a new collective intelligence engaging the landscape. Finally in the last two sections of *Questo* the media and communications dimension of the metacity encompassing both the old metropolis and the vast scale of the city territory is brought into focus. Here *Questo*'s research examines the logics and dynamics of the multi-scalar, informational metacity, reflecting an emerging, dynamic, collective intelligence and a shifting, multiform urban commons.

The 5 sections of the *Questo* volume reflect the structure of the megacity/metacity that is a complex system containing 3 previous models of the city, each with their own urban codes; the concentric metropolis, the linear megalopolis and polycentric fragmented metropolis (Shane 2011). World's Fairs, as heterotopias of illusion, mirrored and marked these shifting codes in urban models. The first London Great Exhibition of 1851 (6 million visitors), for instance, portrayed the triumph of European science, industry and technology in transforming the globe into a commercial, colonial system, represented as a "phantasmagoria" of

commodities within a gigantic, cast-iron greenhouse designed by the landscape gardener Paxton, symbolizing the industrial metropolis (Benjamin 1935). Engineers, doctors and bankers brushed aside the previous feudal and agricultural based logic of Lynch's (1981) "city of faith" to usher in a new collective intelligence with a scientific knowledge base and representative urban form of boulevards and symbolic public squares (Graham and Marvin 2001).

Jumping ahead to the 1958 Brussels World Fair (48 million visitors) Cold War realities created a new collective intelligence and urban form. The Atomium, a giant model of the structure of the atom symbolizing the future towered over both super power rivals. There was no single all encompassing, industrial glass enclosure and Europe no longer predominated. The vast Russian worker's pavilion with the first Sputnik satellite inside faced the circular, consumer heaven of the monumental US Pavilion. A sample section of elevated highway zoomed nowhere. There were even surreal African and Belgian villages sheltering under the Atomium, the later serving Belgian chocolates on its plaza (Shane 2011).

In describing the World Fair as a heterotopia of illusion in 1968 Foucault stressed the illusion of freedom and flexibility, mirroring society and its speed of change. In his late lectures (1976-78) he began to describe an emerging society where individuals would have more life choices, differences would be tolerated to a degree, and multiple voices would shape the public realm into shifting and changing formations over time. These heterotopias with their flexible codes gave the illusion of individual choice, freedom and control, while working inside fast changing semiological, coded systems of consumption, creating immersive environments for individual pleasure (Petit 2014). The new smaller, neo-liberal state would only guarantee an ecologically safe, healthy environment, supporting the individual through this micro-scaled "biopower" (e.g. inoculation versus giant hospitals). It would be up to individuals to develop and improve their lives above this basic minimum. The state appeared to retreat, ensuring free markets and creating the conditions for individual choice, combating monopolies, opening markets up to global competition, while also providing security in the public realm.

This small state, post-war American and European, aesthetic turn in the 1970's built on Walter Benjamin's hope in "The Work of Art in the Age of Mechanical Reproduction" (1936) that the mass-produced, cheap postcards of European masterpieces, decried for their poor quality by art critics, would draw ordinary people to go to appreciate the real art in museums, an opening towards the multitude of individuals, authenticity, leisure and pleasure. Foucault's later lectures (1976-78) stressed the shift from the top-down industrial, mass society of the heterotopia of deviance to the bottom-up "multiple" of individuals, a concept paralleling the knowledge-based "multitude" in Deleuze and Guattari's *A Thousand Plateaus* (1980) as noted by later scholars Virno (2004) and Lazaratto (2006). The post-war proliferation of museums, galleries, performance spaces, theaters and opera houses as city symbols seems to fulfill Benjamin's hope. These heterotopias represent one clear, top-down, corporate governmental and urban marketing response marking the rise of the metacity, the city of information and leisure, as theorized by Lash and Urry in *Economies of Sign and Space* (1994).

The first two sections of *Questo* concern a "new metropolis" or centrality inside the new informational systems, once controlled by the heterotopias of crisis and deviance, now dominated by the heterotopia of illusion and its informational systems. There is a struggle in the new metropolis to accommodate the past while competing with Worlds Fair simulacra to accommodate the tourists with their pursuit of leisure and pleasure. Here Foucault's preoccupation with the small state, the freedom of individuals and their variety produced the mass tourism of the connected multitude of individuals with their new freedom to travel, fly and consume.

Walt Disney understood this emerging pattern early in his Disneyland (1954) and later Experimental Prototype Community of Tomorrow (EPCOT), designed in the 1970's under the influence of Worlds Fairs. Disney focused on transforming GM's Futurama from the 1939 New York World Fair into a radical new world where powerful American corporations (ATT, GE, GM, Kodak etc) automated every city service and serviced an individual's every need. In the built EPCOT (1982, 12 million visitors) old cities became simple, single perspective visual armatures of collaged iconic buildings forming a set piece image, information

easily consumed by the fast moving Disney guests and their cameras (now smartphones). In this mash-up of world history a reversed and scaled down Piazza San Marco and campanile represented Italy while Paris became a miniature boulevard and scaled down Eiffel Tower (Marling 1998).

The current proliferation of museums, improved metropolitan urban scenography and the flow of transient visitors seems to prove Benjamin right about the human desire for beauty and at the same time provide evidence of the role of the heterotopia of illusion in restructuring the conceptual, memory map of the city. A new collective intelligence is driving a new collective, urban form. From the Beaubourg in Paris (1977, 7 million visitors), to the Guggenheim in Bilbao (1997) and the Tate Modern in London (2000), city administrators have used heterotopias of illusion as key attractors in arts led development schemes powering the metacity transformation (Shane 2008). Gentrification often followed, as in the Marais in Paris or Southbank London.

For the tourist the metacity became a symbolic object (Judd and Fainstein 1999), to be read as a collection of heterotopic attractors, linked into a flow network, easily read as a pattern from a smart phone, tourist map or high overlook (a cathedral rooftop, castle tower, Ferris wheel or skyscraper observatory). The transformation of the city center into a theme park with authentic, historic, urban symbolic intermediaries, like cathedrals, castles, department stores, gallerias and opera houses, also meant that the flow between these attractions needed to improve, as in Baroque Rome or a Disney campus.

In Milan, as elsewhere, this implied an upgrading of the public transportation services, busses and subways, limiting private automobile access, pedestrianizing key historic street armatures and lighting the city at night. Contributors to Michael Sorkin's *Variations on a Theme Park* (1992) observed that cities had all become like theme parks as tourists flooded the city center and drove out the long time occupants of old working or middle class inner city neighborhoods. Instead of the traditional ghettos of the metropolis, tourists demanded new facilities, cleaner streets, new street furniture and cafes, restaurants and bars. New immigrants became priced out of the classic ghettos and might settle more easily in the inner city suburban ring, as even more affluent citizens moved ever outwards.

In addition the metacity transformation of the city center into the "new metropolis" required new corporate and social spaces that could be used for promotional events, advertising and annual celebrations, as well as traditional religious and state festivals, as in the Piazza del Duomo Milan. The pedestrianization of the city center did not necessarily mean it would become a new political commons. In the metacity many of the new public spaces are private operated public spaces (Pops) with access ceded to the public in exchange for extra square footage of development rights. Most cities require a permit for a legal demonstration in a public space, a permit that can become impossible to obtain as tourism trumps local use (Kayden 2000). This difficulty resulted in spontaneous outbursts like the Arab Spring in Tahrir Square in Cairo or the Occupy movement world-wide, a code switch enabled by the hand-held, personal communication devices of the metacity studied in the last two informational sections of *Questo*.

Beyond the "new metropolis" of the first two sections with their issues of the renovation and memory of urban form, Questo's third, middle section concentrates on the widely distributed, agri-urban landscape city, now incorporated into a global system of communication, the focus of the theme of the Milan Expo. Here looking at the structure of the Expo aids understanding of the strategic importance of Landscape Urbanism as a key hinge point in the Polytechnics research. Foucault outlined how the new smaller, state would only guarantee an ecologically safe, healthy environment, supporting the individual through this micro-scaled "biopower". It would be up to individuals to develop and improve their lives above this basic minimum. Jim Corner, one of the originators of Landscape Urbanism clearly understood this new situation in outlining his concept of "performative urbanism" in which individual actors as well as corporate entities played key roles. Corner also emphasized the media dimensions of his projects plugging into the new communal consciousness provided by the press, radio, TV and Internet. Time and waiting for emerging patterns, to be detected by designers, played a large part in his practice that was open ended and accommodated multiple narratives (Shane 2003, Waldheim 2005).

The middle sections of *Questo* face up to the massive future problems outlined by the UN in Asia and Africa in terms

of adjusting Landscape Urbanism and bottom-up, informal urban patterns to climate change and the new informational age of the multitude and collective, sharing individuals. Here the complexity and contradictions of Foucault's formulation of the multiple become clearer. Without satellites, global communications and computers we would have no way to model our current and future urban predicament. The multiple of poor individuals building our cities of the future will have access to hand held devices and information systems, but the they will be motivated by their own performative urban needs of the moment, not the longer term imaginary or scientific regulations of urban designers. Global online resources, like Slum Dwellers International (SDI) represent a new form of collective intelligence that hopefully will inform some of the individual builders of the favela city.

Janice Perlman (1976, 2010), who coined the term megacity, first tracked the evolution of the unmapped, spontaneous and informal settlements built in Rio forming 60% of the city. Perlman returned over several generations as the favelas became an integral part of their host city. Now it is possible to book an air-bandb apartment in the mature favelas of Rio (Griffin 2015). In Asia geographer Terry McGee (1971, 1991) similarly first described the unmapped, fast growing, peri-urban Asian desakota (village-city system) system based on studies in Jakarta Indonesia. Later McGee (2007, 2009) revised this hybrid, water-based model to accommodate the global influx of factories, exploiting cheap labor, and then the big box retail outlets and gated residential suburbs that filled the peri-urban desakota in the last round of globalization before the great Recession of 2008. U.N. Habitat (2013), lead by Joan Clos of Barcelona fame, plans to treat such settlements and favelas as part of the city, making an emphasis on their livability, access to services and safe public spaces, streets and squares.

The scale and speed of the future Asian and African migrations predicted by the UN urban model is unprecedented (Satterthwaite 2007). China for instance, plans to move 350 million people (the population of the USA) to cities in the next 10 years (Xu Xianping 2014). In anticipation the 2010 Shanghai Expo (73 million visitors) returned to a top-down, old style propaganda model of state pavilions that emphasized urban education and the massive task of moving so many peasants to a new "harmony" in modern cities.

Even in China there are informal urban villages captured by the city that accommodate upto 60% of the floating, non-registered factory workers in Special Economic Zones (SEZ) like Shenzhen. The city of Shenzhen chose to represent itself at the Expo through its plans for upgrading its urban villages (Urbanus 2005, 2010).

The sophisticated, agricultural village metaphor and emphasis of the Milan Expo celebrates another emergent metacity logic. This informational logic points to a new global imaginary, a slow growth agricultural heritage and ecology based on the Italian city-territory, feudal tradition shown in the famous Lorenzetti image of *Good Government* in Siena, used as a veil or screen down the central axis of OMA's Monditalia Pavilion at the 2014 Biennale. The Milan and Venice schools both have a long tradition of examining the city-territory, linking the city to villages and to the agricultural-industrial territory. This "citta diffusa" (Indovina (1990) and Secchi (1992)) tradition, combined with the typological research of these great schools, provides the background to the Expo. Here in Stefano Boeri's (2014) design Paxton's greenhouse of 1851 transforms into a contemporary garden city of thematic and national pavilions each with its own productive park, containing characteristic plants and foods. Arranged along a long armature the multiple pavilions form a new kind of global village, representing the small state model with its concerns for the environment, ecology and safety of the individual and planet. At the same time the system aims at the visitor's taste-buds, illustrating state bio-power at its most basic, appealing to our love of food.

At the 2014 Biennale and in the Expo the logic of the small state, its environmental protection duties and the freedom of the individual to choose coalesce in a demonstration model of a new informational, ideal world. Both reveal the contradictions of the current neo-liberal model outlined by Foucault, as corporations appear as individuals (owning pavilions sponsored by chieftains or oligarchs) and the bottom-up choices of the multitude of free individual visitors are restricted via sponsored websites and information sources to a menu of choices, as in the Disney park. Meanwhile, thanks to Edward Snowden (2015) we know that this small state model scans and collects all information from the Internet and World Wide Web with the cooperation of big telecommunication and web search companies in fulfilling its duties to maintain safety and security in the public realm. Yet

none of these layers of information prevent individuals from creating their own websites, communicating with each other and creating their own events around the Expo, opening the event to the multitude.

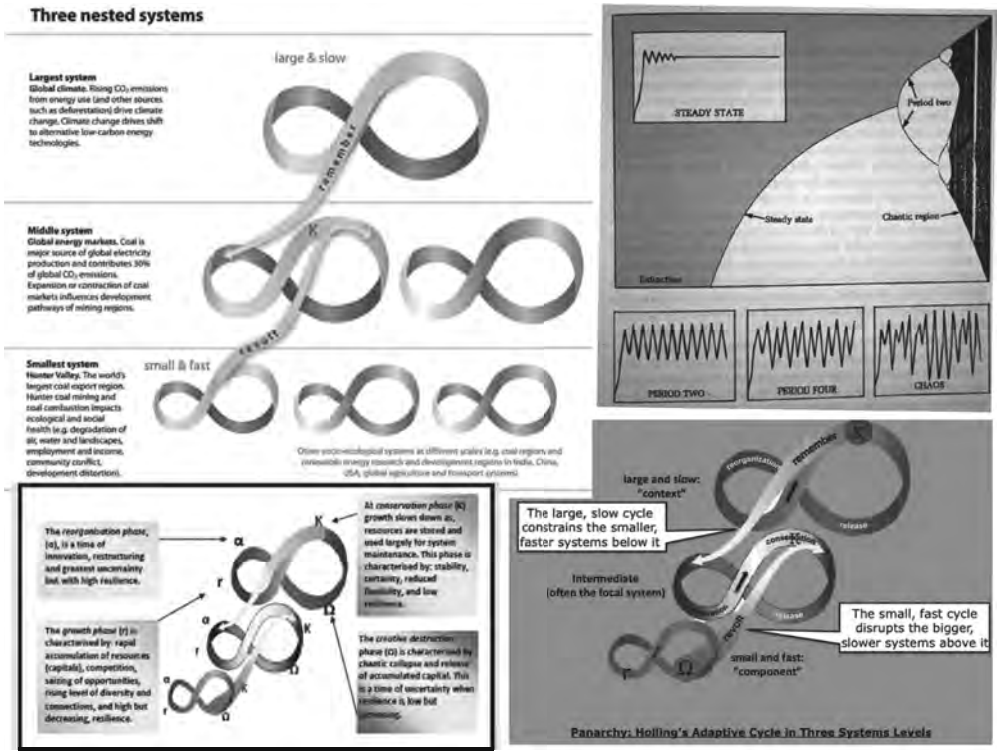
The diffuse urban form of the global Expo village provides a convenient bridge to the abstract and invisible world of the informational and networked city examined in the last sections of *Questo*, especially in the last section "Metropolis 2.0". Here the problem of the new collective intelligence of the multitude confronts the institutional built form of the Worlds Fair, heterotopia of illusion. What is the significance of urban form if the metacity can be constructed from diffuse agri-urban villages, rich or poor, formal or informal, new towns and new nodes in networked cities, or even the symbolic fragments of the old metropolis? Do the state and corporate, top-down pavilions of the Milan Expo represent the best possible answer, a new hybrid of media and city? Is this the freedom of choice that Foucault imagined for individuals, with the small state, multiple voices and fast-changing codes that still safeguard the environment and provide for public safety?

The *Questo* research suggests that there are problems here. Much of the research relates to the idea of a collective, shared intelligence valued by Foucault, Deleuze, Guattari, Lazzarato and Virno. This collective intelligence is investigated in many strange forms, sometimes through the metaphor of musical rhythms in the city, sometimes as the spacing of plug-in informational kiosks, sometimes as a situated, collective, "hypercortex", a kind of communal brain or unconscious that informs the metacity configuration, an Italian version of the *Smart City* concept promoted by global I.T. companies.

Yet in the end *Questo* in Metropolis 2.0 does not make the jump into the *Smart City* electronic shopping basket of self-drive electric cars, with electronically monitored streets and eco-buildings, sensing every need of the eco-citizen consumer, detecting personal tastes through panoptic informing sensors that construct each individual's user profile. Beyond this *Smart City* propaganda *Questo* returns to ask some basic questions about urban form, memory and how we find our way, recognize and use parts of the city, seek out new spaces and create new environments in the constantly shifting informational environment of the city. Smart city government appears by the end of *Questo* as a messy

collusion between the small state and municipality, business corporations acting as free individuals and the multitude of consumers who also produce their own performative environments. Entrepreneurs and media savvy "makers" can shape this development through micro-heterotopias of illusion, small start-up organizations, custom applications and associations.

Finally *Questo* proposes a new research program for examining the metacity and the multitude. This program respects their multiplicity and complexity but attempts to construct a research overview for the PhD and Masters students. The first section introduces the new centrality of the revised metropolitan model with its new conceptual mapping, airports, highway nets and ecological impacts. These unfold in the second section in a consideration of the new scale of the megacity/metacity as it impacts the metropolitan core, altering the concept and content of the urban block, super block and megablock as they merge into the megalopolis and the city territory (long a concern of Italian urbanism). The problem of the historical city and collective memory, a memory built in stone, appears here. The third section considers the city territory of the mega-city/metacity as an extension of the megalopolis but enriched by new media and communication systems. It then becomes transformed into part of a peri-urban or rurban landscape condition, linked to Landscape Urbanism design. The last two sections of *Questo* examine the umbrella of communication systems that make this huge scale leap possible, treating the city as an information system, but not in the commercial *Smart City* sense. ○



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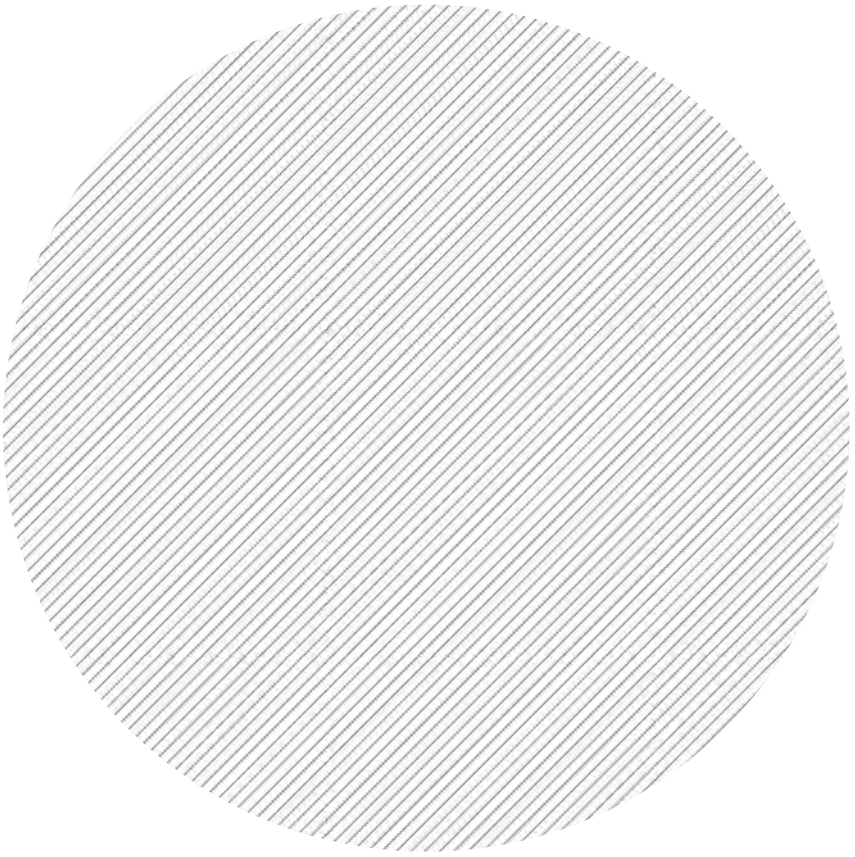

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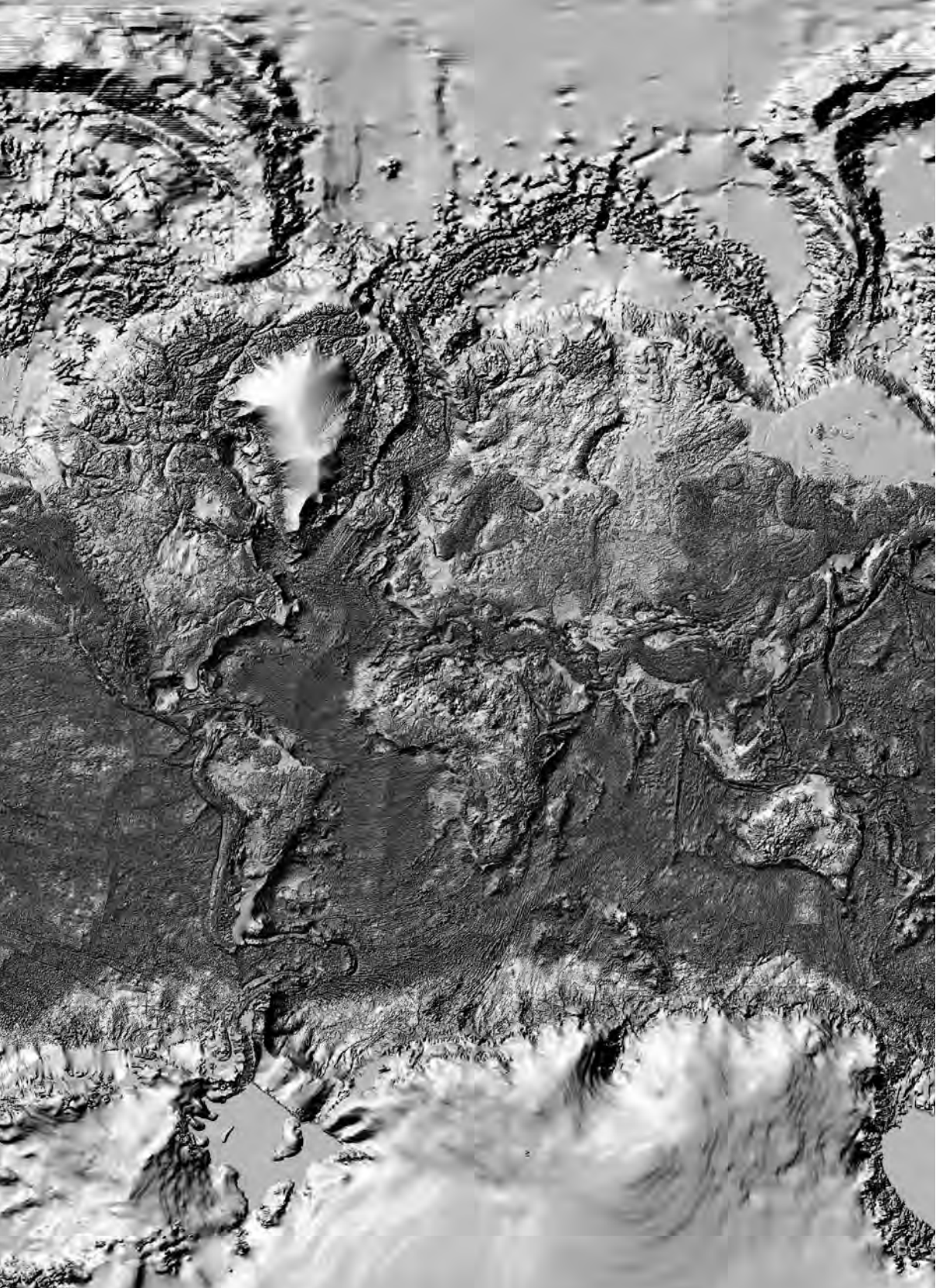
THE SCALES READING METHOD FOR A METROPOLITAN ARCHITECTURE

Metropolitan Mapping: Scales Reading as First Faze of Analysis and Interpretation of the Metropolitan City Dimension



QUESTO IS WHAT THE NEW METROPOLITAN DIMENSION STANDS AS OBJECT OF RESEARCH

ANTONELLA CONTIN

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/ The question.*
Dynamic strategies for Metropolitan Architecture management.

The destruction of cities and territories, as a typical urban phenomenon in recent centuries, consists of the inconsistent detachment between Geography, the methods of urban structure projects and its functions.
The contraction of time has neglected the value of the place. This fact led to a first rejection of the value of the ground (the tabula rasa of modernism) and then, to the logic of self-oriented network of infrastructure whose interfaces with the city fabric and landscapes are not often well harmonized and are built foll owing only an economical logic. A contemporary urban design requires a clear understanding of its structure and dynamics, through an analysis at various levels of scale, able to understand the laws of its urban metabolism, to produce a dynamic and sustainable strategy to determine it and drive it. The complexity of the scales of a Metropolitan Architecture project involves a multidisciplinary frame, which supports a complex decision-making process driven by a strong vision.

The management of the built cultural heritage and landscape in urban development

1

/* Here, I think, is the heart of the matter: management of the built cultural heritage and landscape is also needed in the metropolitan city development because the passages of scale have to occur without alienating the socio-economic structure and the image of the physical structure of the city. In fact, groups of private interests, rather than common public interest, often develop special activities.
The deep connection of a new metropolitan digit with the infrastructure networks, but also with medium and small cities rooted in the territory of the valley, is particularly interesting if we consider it as a profoundly critical approach against a purely economic or ecological urban development. We found a way to conceive and reach this aim through the vision of Pedro Ortiz named *Metro-Matrix*.

This kind of renewed Humanism in the study of the metropolitan organism allows then to fully consider the Metropolitan Architecture as an integrated space-time system, but also leads to a re-consideration, within the urban fabric understood as a public good, of all the spaces, even those which Portugali (Portugali, 2011) defines permeated by a sense of placelessness, that is, the anonymous spaces of the "usual repeated gestures", the abandoned and neglected ones, the space in between the infrastructures for which we have to re-conceptualize a meaning and a name (now we only define them: green spaces…). It is now undeniable that a more systemic perspective constitutes the basis for such a definition: the metropolitan landscape, the built environment and the cultural heritage as a true infrastructure open to be used at different times.

The role of the metropolis is a cultural jump. A methodological indication for the development of a fast growing city

2

/* Imagine being involved in the transformation of settlements, which are at the fringe edges of a metropolis, in Africa, Asia or Latin America, constantly changing and characterized by a variable degree of informality.

The starting point of your work comes from the necessity to define the contemporary city within its territory and to project the metropolitan architecture as a clarification of a new scale of intervention. The framework of your project coincides therefore with the formal and structural dimensioning of the city territory.
From this point of view, you have to start your context analysis with a statement: the need for a cultural "jump" that should identify a range of elements and, in particular, new relations among elements in the metropolitan context, rather than simply upgrade the instruments of intervention and investigation. So you need a better definition of the structural pattern and backbone of this new reality, in order to show the discontinuity occurring in the urban development and in the cultural awareness of such phenomena.

Today, in fact, a syntactic transformation is happening inside cities: new relations of interdependence and coexistence (legal/illegal, formal/informal, urban fabric/urban agriculture...) require a new metropolitan structure. This is mainly because the relations between physical objects have evolved: this fact, indeed, determines the syntactic and morphological reform of the city. In other words, every urban project asks itself about the relations established within the existing historical forms and meta-historical paradigms of its typical codes (i.e. both the different settlement-habits and the diverse interpretation of the geography in each country). In fact, today, topics like "foundation" and "history" seem to have been removed, in the name of a pure technological automatism, repetitive and incapable of being connected to a specific historical time. This is one of the worst effects of globalization. When we deal with large regional and local networks, which become planetary models, we are ultimately going to face complex systems, related to physically increasing and self-referential models. The problem that the complexity generates is mainly an embrittlement of the settlement-syntax, which exposes it to external perturbations (mostly economical). Furthermore, its global standardization runs toward a de-complexification. At the local scale the problem is different. On one hand, the problem is twofold: firstly, we see a struggle with the de-differentiation (neurology thinking) of local culture, which is the condition of a real spatial identity. On the other, we understand the need of a connection to the large network systems. Here we encounter the complexity, as we have no

longer just a problem of instruments, but of new meanings in front of us: we may talk about dialogical complexity. We deal indeed with systems that need both a continuous comparison among scales and different solutions that set new methods to actualize an identity that comes from history.

Measure and scale of the contemporary city

/* The Measure and Scale Laboratory study on the metropolis today identifies a problem of organized complexity: a qualitative complexity, in which a relatively small number of interrelated variables creates complex effects, rather than a quantitative complexity of growth, thus, that causes a distortion or a deformation of the urban form.
Always, especially in Italy, measure and scale are related to the human dimensions and are commensurate with the urban fabric and the density parameters of the urban density. Today, however, we may consider that this order of magnitude, which mainly exists due to the proximity, is inserted in a context of mass mobility of people and goods, which implies a different relationship between individuals, groups, crowds and in-trade.
Since time it has been argued, in fact, the theme of the incommensurability linked not only to the ways and times of flows, of the meetings on the networks and in places of intermodal exchange between networks, but also linked to a new sensitivity about the natural soil, and also to new styles of behaviour induced by virtual communications in real time.

The question that forms the background to our study considers the transformation of the spatial map as a problem of the mental maps reform, which, now, potentiates the action of the citizens (residents and city users) in a field of global action, in order to replace, in an expanded horizon, the original local environment. Through each project, then, we aim to present how it's possible to deal with the transformations of contemporary urban territories, with the reforms of typological and morphological paradigms of architecture and cities (private, semi-public and public spaces) in terms of metabolism, i.e. considering transformation, replacement and maintenance processes of the context, with respect to the three basic forms of sustainability: the economic and social, the eco-efficiency, and the managerial and entrepreneurial.

We also try to demonstrate how our theoretical studies have been harmonized with other national and international schools standards, and how the latest discipline achievements were analysed, as well, opening up experiments and field tests. Finally, our research seeks to investigate how it has created a professional and intellectual synthesis of these issues that, by providing skills up to date, has trained our students.
Since years, the Measure and Scale Laboratory of the Department of Architecture and Urban Studies of the Politecnico di Milano point of view, when we start a new project, faces some issues:
*/ time is peculiar to each developing model;
*/ size is optimal for each developing model;
*/ to support the local people and economies;
*/ the transformation of a territory, when for example new energy deposit is founded or when a new infrastructure or settlement has to be built, as what we NOT have to break if we do not want to destroy a kind of sustainability that the local citizens have in any case attained by themself;
*/ the transformation as what we have to strengthen so that the inhabitants can participate and share their growth movement;
*/ to find precisely the places of the new scale interchange and densification where to introduce the development.

So that, our objectives are:
*/ possibility of an evolution of the local model of urbanity;
*/ possible and realistic growth/transformation of the regional and local models.

And our tools are:
*/ a new mapping project through an hybrid mapping;
*/ the use of specific computational tools, which can help us to build a series of topological models that describe and bring into connection the main mechanisms that generate the physical space, simulating an on-going reality, from which it is possible to obtain, through a critical reading of the pre-configured scenarios, forecasts and models of sustainable development, that is characterized by a close link with the physical and cultural context.
Therefore we need a methodological indication for the development of the new metropolitan settlement. This is the

concern of the Reticular Matrix Methodology System (Ortiz, 2014). The Reticular Matrix is a study of a way for regulating the growth at the metropolitan scale. It is a methodology of territorial decision-making, a system of choices logically systematized: the organization of a vision inside a discipline. It is based on a method of project allowing us to describe and design urban phenomena related to the change of scale, which determines the mutation of types of morphologies, of urban spaces and landscapes. Consequently, it is an investigation that we apply to the urban and architectonic disciplines (Descartes) with obstinate accuracy (Leonardo): it clarifies the precision of a way arbitrarily chosen, that is: geography, geometry and memory (in this case its denial as I will explain later). It is not a science; it does not study objects, but rather the relations among the objects within a new metropolitan scale of decision-making. And, it uses a conventional language for this study: this language deals with the relationships and not only with the quantities.

Schematic device and new measures. The game rules of composition and the teaching of Leonardo to define the shape of the metropolis

4

/* Today, through the creation of new immeasurable infrastructure (grey infrastructure), new measures, new cadences and flows between relay and arrests, among fields and broken links are created. The historic soil marked above the historical geography is oriented through various rules of the game: the puzzles dominoes, chess and checkers (Viganò, 1999). These games represent different ranges of rules of orientation and placement of the different digits that make up the territories and their environments. We recognised, as an important tool, this not combinatorial setting, which replaces the dispositive scheme with the matter of the real: the ground is interpreted as a checkerboard or a checkers; so, we start to move towards the concept of field. The morphology of the soil becomes visible through signs, which we have to interpret. These look/define the territory from all the points of view: that was the secret of the isometric maps of Leonardo. Leonardo, in fact, started from the territorial scale to get to define every single bell tower. He used the stakes of geography in order to return to it, but viewed as "by flying bodies" that meant the will to dislodge from many

different parts to be able to look at the land and the environment. Leonardo, so, put the emphasis on the mental perspective: the visibility of the morphology of a territory as a key element to watch and mark the ground. This raises the total vision of the soil modelled through points, made visible through geographical points of support found and marked by man.
This is a way to pay attention to the birth of a metropolis through a formal rule and not based on an economic model. In fact, to set the rules of the games and their possible combinations means to deny the possibility that it's possible to say, "play your game ...", that should mean to permit the total liberalism. But, through the game, also the possibility to derive the urban shape from the myth, a dogma, is denied.

5 The need for new maps for the city. The two maps: topographic and mental

/* Finally, the construction of a new topographic map, which is the device capable of supporting a mental map at the metropolitan scale, is the most important apparatus that we had obtained (Contin, 2013). It is made up by a continuous and a discontinuous system (one local space within global scale) and by a stratified surface of the ground. It moves from a geographical scale to a local geography. Compared to the traditional structural urban paradigm, finally, it still wants to define the possibility of a value of a syntactic and communicative architecture (a cognitive value), through the definition of a statute of the architectural subjects, which is recognized as a tool for the construction and symbolic interpretation of the built environment but at the new scale: a landmark, as a new relay, a hinge point for the interconnections between the scale.

A deep ambition to the synthesis becomes preeminent showing a strong will to a geometric choice. After the synthesis obtained, however, the rule that results must be impeccable: changing the existing, the shape of the articulation of the fields changes, leading to a clouding of the existing relationships and of some fields that change their function. Hence, the need for a new dynamic map was born; it is capable of taking into account the urban development

that grows continuously on the basis of a multiplier that is equal to $1/5x10^n$. It is a map that must get a different way to join the contemporary metropolis, a different one, I mean, different from the way represented by the monument's one and from the whole Parisian island all conceived into a spatial determination of safety. We will not have more the isolates inside the metropolitan fabric, but fields of practicality that will allow access from outside and from inside a practice that goes to the outside.

It is a map that is already a project one, as it makes evident the reasons of the transformations of the metropolitan form; and it is a map showing how, as in a weather report, the relational phenomena, not static, change (such as the pressure that generates the perturbations changes in the atmosphere). Let us move, therefore, from the morphology to the presentation of the *field* through a strategy of sections, specifically, through the study of different degrees of relationships between tracks, practicality and readability that will allow micro-local formations to be included within the new plot of green and grey metropolitan infrastructure. No more, then, only streets and blocks, no more the com-penetration of a microcirculation in the centre, but an articulation between several orders of magnitude. The question of the project, therefore, will cover the definition of the unit of minimum intervention / the digit (the field of action of the architectural design) and how the micro intervention should be done to articulate the local context to the macro higher scale: what remains, what will change? Each project involves, then, the definition of a metropolitan potential (Contin, 2007).

Why a feedback to Metropolis

6

The metropolis is therefore a complex and interactive field of conditions. The introduction of a dispositive diagram as a tool for an abstract readability, a relational syntax, then, between the elements of this complexity, is unavoidable. The different surfaces, the fields and the bodies, so, the entire environmental sphere that surrounds the body that acts through different layers (we call it even χορα) are related together through operations that also include the definition of symbolic correspondences.

In fact, what characterizes the metropolitan areas is the high degree of diversity, which primarily denotes the transitional, overlapping and conflicting zones of the liminal landscapes; the accelerated processes that insist over there and finally, their "scalar/progressive" nature, which identifies them as territories and landscapes that have their characters different from the elements that generate them. The study of the geography and its tectonics, i.e., the syntactic knowledge of the value of the logical construction of the physical relation between the places that compose them, is therefore crucial.

The Metropolitan Architecture, then, must reabsorb, first, some of the characters that were already of the Mega-form as described by Frampton:
*/ a form capable of inflecting the existing urban landscape as found because of its strong topographical character;
*/ a form that is not freestanding but rather insinuated itself as a continuation of the surrounding topography;
*/ a form that is oriented towards a densification of urban fabric.

Then, it is an architecture that is located in dense points, in points that "bubble" due to vertical and horizontal intersections. It is a landmark of aggregation, bearing a picture of identity that rooted the uniformity of the grid to the ground level at the local scale. We are dealing with 1 km x 1 km mega-blocks that *as a park are an alternative reality replacing all "natural" reality*, but that do not define a dry archipelago of blocks anymore. These mega-blocks, in fact, rather define a new metropolitan fabric. This is a metropolitan city fabric as continuous and dense as that of the *Net-city* was sparse and discontinuous. A figurative composition generates its density: it is an attribute of the urbanity and of the relations of proximity and it must be re-established even when the intensity of the relationships is not directly connected to the site, thereby is creating a strong condition in the sense of the strength of the imaginary. The environmental value, now, is linked to a centre that is a new point of "power" into the metropolitan fabric. But the value of centrality will only be possible if we have a solid matrix like in the *poché* perceptual perspective.

The field of consistency of this metropolitan fabric is given by the intensity of flows (from strongest to weakest: "what of the city is not the city"), and by the new symbolic images. It is given by the principles of connection and heterogeneity (the machine a layers), by the principles of multiplicity (sizes, dimensions and different determinations) that changes according to the unit of measure; by a principle of failure of the connection lines that had bound the multiplicity of the past to the places that have stratified and given a meaning to the metropolitan fabric itself: the development of the city, in fact, continues through overlapping and rolling. And finally, the units' field gives it, as it is possible through the new maps.

The territory is now the *metropolitan body space* (Shane, 2005) and not only the background of the projects (so, it has its own figure that we have to reconceptualise) and needs to be studied trying to never lose its internal organization that determines, as in the section of Geddes, the position of its parts to each other. It is necessary actually, to take into account the particular characteristics of interaction that materialise the property of the places that otherwise would not appear. The metropolitan phenomenon must therefore be studied by framing the upper and lower level, locally and globally. The term environment, then, as a figure or body space, becomes more accurate than territory, which always includes something relating to management, because it is unrelated to the scale and rich in multiple dimensions. The environment becomes, for the metropolitan fabric, the variable element with respect to the apparent rigidity of the grid, because the environment is very important for the maintenance of the diversity of ecosystems in relation to the spatial and temporal scale. The environment is also defined by patch dynamics through which it passes through the city. Each patch disseminates information to local and global switching to the other in a "rhizomatic" way. The armatures of Shane, so, are converted into patches: in a temporary trade relations network.

The situation of the contemporary metropolis, then, gets a collective imagination changed by new images: the quality of the metropolitan space stems by the integration of a geographical fact, an historic and artistic one. In fact, the metropolitan fabric that forms the metropolis figure is a project of ground that introduces: a gradation of sizes and strips (such as the new geometry of the ground), new rhythms and partitions, which result in different types of liminal landscapes and finally, the value of what we call field or *campo*.

We are introducing, then, a notion of scale, primarily as a gradation of landscapes, in the study on the margins of the metropolis and its new identity. We are dealing with a notion of thickness of the ground; with a concept of a grid that marks the relationship between the large and the small and a discontinuity that marks the places and territories so as to make them "striped". The grids, then, introduce a new figurative experiment that is based on geological, historical, and artificial / technical maps: the segmentation of the linear geographical plots is carried out for another plot that determines the definition of the new context, through a characterization of its measure. The crosslinks, formed by linking together geographical instances to local contexts, indicates the value of a characterology [1] of the space, so not only a value related to its function or land use, which has to be resumed to correlate feelings with styles of behaviour, to transform the images / setting into something with a value for a lifestyle: that is to say, the definition of a possible new identity in progress, again linked to the geographical situation. The crosslinks determines the fields that we call *figural environmental unit*.

7 The task of the Metropolitan Architecture

/* The task of the Metropolitan Architecture, subsequently, will be to build the affective scene, the new shape of the metropolis; the task of planning will be to establish a close link between planning and real estate development, aimed at a strengthening of a *feeling of adequacy* between the places and the people. To achieve this, the metropolitan landscape must be increasingly seen as a value, also economically important, and in general must be understood as a built cultural and natural heritage, which is one of the most effective ways to

understand the deep meaning of the term “public good”.
The development of a vision project is therefore essential. It starts from a methodological study, which defines a new dynamic map of the territory; it recognizes the sites and their transformations through the recovery of their topography and geography; it enhances the entrepreneurship scattered on the territory, but also improves an ideal diffuse sensibility linked to the quality of the territories. Only this attitude can connect a sustainable development and an integrated policy, which arise therefore from a real coordination between the actors involved, participating and united by an idea of sharing values that not only directs the system creation, but also that of the network. The metropolitan architecture project able to involve such an important number of economic investments, energy and cultural development must become the “coat of arms” of this territorial vitality.

The emergence of new built form types of urban metropolitan entities

/* The metropolitan dimension determines, through the project, the creation of new types of metropolitan entities. The value of the functional complexity of the machine a layer that now characterizes the infrastructure projects emerges then. A sustainable approach of the urban planning-design is connected to a higher quality of life, accessible to all the citizens, who have the right to choose between different qualitative offers (business, leisure, sports...). This is a huge range of desires equivalent in terms of temporal issue and it is possible due to a continuous construction and deconstruction of places, incessantly, a fact that becomes also a significant representation of the social relations and of the preservation of a sense of a multi-ethnic and difficult identity against a globalization that evens out everything.

We consider, therefore, that the mobility is not the antithesis of the existence of places, but as a force, is also able to generate them, by linking to the genetic urban systems, nodes and districts of the intermodal exchange. The new ways/shapes of the movement (new linear infrastructure: highways and commuter trains, integrated BRT, subways, buses and mini widespread local transport systems) are important elements of the structure of the metropolitan scale (Lynch, 1980).

In other words, according to Aldo Rossi (Rossi, 1966), - who conceived that an infrastructure is always related to services -, an infrastructure, interpreted as what supports, enables and presents the functions of the city, is one of the core elements of the urban reality, along with the monuments and the anonymous urban fabric.

Today, in the "local areas of discontinuous islands (archipelago)", the new infrastructural facilities often articulate and dis-articulate the crossing territory and its landscape, interrupting relations and especially erasing the agrarian nature of the identity matrix of the territory, which is compromised. However, this matrix cannot be totally erased. The green infrastructure, then, becomes the continuous structure able to harmonize with the grey infrastructure, developing an interchange point, which elevates the scale of the local context, placing the new urban functions.

9 The metropolitan morph-type, such as a grey and green geographical skin of the infrastructure

The green infrastructure and the infrastructure of mobility (grey) obtain an urban and architectural *geographical skin* (Levy Strauss, 1955; Varela, 1991) close to the nodal point interchange among the different dimensional scales. These points are shaped by and shape the compatible form of the grey and green infrastructure, articulating the territory of the metropolis. The architecture of the metropolis (new metropolitan morph-type) inside the central mega block within its context (1km x 1km) inside of the UDE/BUD dimension, in short, becomes the skin of the infrastructure backbone of the metropolitan territory. It is a skin connected with the geographical structure of natural and artificial soils, as it becomes the place of the relations with the rest of the cosmos or metropolitan archipelago. ○

Notes

[1] Characterology is a method of character reading that attempted to combine revised physiognomy, reconstructed phrenology and amplified pathognomy with ethnology, sociology and anthropology… I use this term to identify the character of a place as the integral of the maximum variety of the elements of a place, which it's possible to detect in the figural unit of its landscape. The character of a place help us to define its *typical figure of landscape*, as in the E.N. Rogers thought.

THE POTENTIAL OF PARADIGMATIC KNOWLEDGE OF THE RETICULAR MATRIX: IT PROVIDES THE ABILITY TO MENTALLY MANIPULATE A MODEL TO INVENT NEW CITIES

1 What the matrix is

/* It represents the ability to think and imagine. That is, we can use something that relates to the instrument of thought that imagines the Cartesian triad. It is a prototype: a copy that has a mental impression, or that could be conceptualized (we can mathematize the element). It is based on the exercise of the mind that produces a model of the metropolis, which, then, becomes a prototype through the memory and the imagination. We do not start from the matter, then, but from its idea that sustains its ability to be scaled, to obtain a homogeneous cellular space.

The crosslinks, thus, implies an element of imagination (a mental one), which concerns a mental operation for a total syntax of space. Therefore it is an ideal operation.

The lines traced, then, refer directly to the infrastructure, in some cases, but not ever necessarily, namely, the line traced foreshadow the real or virtual tracking of what unites or separates things or parts of the territory (the lines, in fact, could represent some visual collimation lines for example: the distance also must be designed with architecture).
What we get is a cellular form (shape) infinitely large or small, homogeneous done by cells expandable to the infinity (in the large and in the small ... as the math infinitesimal teaches).

2 The diagram scaling principle

/* The diagrams produced, through the matrix for the different cities, which we are going to study, are figures of models - type declinable. This is, then, the principle of scaling already formalized by Leonardo with his figure of the square and the circle, that is a figure that could be scaled to infinity and which is divided until the infinitesimal dimension.
The question is: at the metropolitan scale has the principle of scaling been questioned? I mean, if we started with the actual measurements and not by the abstract lattice, could we manipulate the ideal model through the different scale, to get an overview of the possible relationships between the elements of an area?

Transformation is the word that connotes our method. We name Transformation (change) a structural change of the system and of its functioning, something that today takes place by nodal points, not necessarily linked by a systematic vision of a transformation of the whole system. The growth, in fact, linked to the scale jump is sometimes out of control, it takes place in different ways and discretely, in hierarchically organised points, that will become strategic fulcra not only at the scale of the territory, but also with regard to historic urban centres. In the big dimension of the exchange modes, our problem is to make the obtuse quantities of space, energy and material released by the new "civil" scale, that is, sustainable through a new symbolic organisation that is accomplished by means of an integration of the sequences of new landmarks and landscapes. In a transformational perspective of a stable system we have to determine, therefore, the coefficient of a possible modification to outline a different balance between what will be preserved and will change (hence the issue of the ethical problem of landscape). This is an important generational passage that must be safeguarded. From this perspective, then, the concept of decline is not comparable to the one of crisis, which arises, instead, from an interpretation of the potential (Magnitudo) of a place requiring a new project, that is, the enablement of competences and capabilities in a new configuration. It is then necessary to inscribe the crisis in a trend of change even in its discursive formation (metaphors), which for the human procedures constitutes the possibility of a paradigmatic morphogenetic invention.

The question of the program or the rule of the form

3

/* In the world of urban planning, first of all, there is always the program. But in reality, the question of the transformation of a region and a city is only a matter of form because the program can be programmed, but cannot do what instead the form does: to determine how all the places, which we need to live a map mental, stay together. That is, to meet everything that we need to live a territory and a city.

Then, the program, as a real program, never gives the syntax of the organization of the space / time. However, the diagrams cannot be dwelled: in fact we do not live the graph.

Through the mental mapping, then, we need to know that the spaces that should be used, with relevant equipment, have a dispositive distribution of the functions that is not a question of program, but of form. That's why the reticular matrix is to be understood due to its composition / form root and not as a program / duties.

If we speak of a mental model, however, then we'll need to think about the things that make up the reality that we have to transform: that is, their materials. So, the question: which relation between the figurative element conceived mentally and figurative one represented in a model that is a drawing at square of power, raises. This is the meaning of the plan drawing, which, in our case, is an urban design one. Starting, therefore, from a reticular pattern we can manipulate the shape, spacing axis and points, that means themed it with the reality of the context to which we apply it. We can do, that is, a series of operations that decline the shape of that model, so that, they assume the form in which the characteristics are such that which is more or less suitable to receive the appropriate equipment and intended to be inhabited in a certain way.

The model of each city, which derives from this method, then, is not a model to perform, but to manipulate. It is an intermediate and creative stage. The model, which is usually a copy, a copy here, however, it is not: now, in fact, the model is determined by the affordance of the copy to be manipulated.

In the history of city, planning always introduce examples of cities that provide a copy of them. For the reticular matrix, instead, we prefer to use the word prototype, than the word specimen that was the Madrid 2016 plan, in this case. In fact, the plan of Madrid 2016 should be seen as an element already capable of being decoded mentally and thereby from which to obtain a mental impression. So, we no longer need to keep going to see how it is done the first specimen (Madrid) to be able to redo it; generally this mental footprint or the way to operate over time, passes through the geometry of the element, so, through the relationship between memory and imagination that the geometry allows.

Geometrical and mathematical formulation (the right size), then, is crucial to define the characteristics of the element, which can convert it from a material object (program and functions) to a thinkable element. This mental footprint involves an exercise of the mind for looking at and thinking about the things; that procedure, indeed, really makes the Madrid 2016 plan a metropolitan model for our century. Madrid 2016 becomes a prototype model because, through this, we can make models as many as we need. So, exemplar and model are obtained through imagination and memory: first, we do an exercise on the thing itself, which operates by modelling (diagrams), and then, there is a counter exercise that does penetrate into the material this mental operation that conforms the geometry and the mathematics to the real territory. This is, actually, the work of the Laboratory Measurement and Scala projects.

The diagrams, then, invent the surface on which we draw, because this is not the same on which we write, since the drawing that we trace on it is in scale. Or, there are diagrams that, unlike the classical ones of the planning discipline, are designed in scale. This is the modernity: that is, the importance of the materiality of the real, of course, but also the awareness that without the ideas, the vision, the social capital, that matter can not be what claims the design in its scalability.

The real innovation, then, is the passage that this method performs from the model as mental element and as a knowledge of procedure - that, with the mathematics and the geometry, drives the process itself -, and the tool that allows us to operate on the real territory. The design of the Reticular matrix is always a model, which is tied up with things, but it is operable, then, through another design: the one that is at the scale of the urban design. It works, in fact, on the assumption that any square form in scaling (which in three dimensions become cubic) ideally portrayed, into the reality is a true square and a true cube that changes infinitely at all levels: it always multiplies or divides itself into many squares and cubes to infinity and the infinitesimal. We have, then, the possibility of scaling the square and the cube, that is to say, we could reach the definition of an homogeneous cellular

space and, for this, operable. This invention relates together the infinite and the infinitesimal: each diagram is therefore an operable model for the architectural design.

The nowadays-metropolitan complexity needs an instrument able to define a way to conceive, in a syntax of space, the relation between the big and the middle/small scale of the elements of the environment. So, we have to operate a strong abstraction from the urgency of the local matter. Our methodology is part of the studies on the cellular paradigms whose origin we place in the square of 9 squares, which, in the third dimension, is a cube made of 27 cubes. The model that gives us the Matrix is regarded as paradigmatically manipulated; of course, we are aware of all what the word manipulation on the model implies about the contribution to the definition of a potential of the form for a model capable of being adapted to that by which the form is done; so that, is not a problem of form, but of value.

4 The Mental Map for the Metropolitan Architecture. New maps to conceive and represent a metropolis

/* The Reticular Matrix is a system of axes: few structural geographical axes and some penetrative artificial ones, which firstly determine the development of the center along lines and secondly define hinge points of densification. The matrix assumes its value through the definition of the logic of settlement-distribution, which makes possible the localization of interchange nodes in peripheral areas. Today, we recognize that the urban elements having an active part in urban phenomena changed, due to the new process of urbanization and following the subsequent huge spatial and temporal measures of the city. So we have to admit that the city structure, its physical and temporal relations with the citizens, is altered due to the change of its scale; the temporality of people and citizens is particularly changed. It is because of this that the way too of marking places and territories is changed. Today not only the design and the representation of the architectural elements determining the growth, but also their effects on the territories, - spatial, economic, social - are limited and distorted by a lack of understanding, still placed into connection with a purely

functionalist and quantitative vision of the new value of the space as a built place / icon / landmark. Therefore, we assume that the built space must be considered as what determines the common sense. Consequently, it can be the subject of a participatory decision. This means that a change of the urban space from the current situation of urban sprawl implies and requires the transformation of the citizen mental map. Then, the first result of the above change is a new mental map at the metropolitan scale: it is related to the transformation of the topographic space and to its space/time dimensions.

The architectural metropolitan project, therefore, is about how to give identity to the places through a figure and a robust image, but at a new dimensional scale. So we have the following essential elements: both the places could be considered as strategic places and could be recognized as strategic by the new metropolitan citizenship. Nevertheless, the theme of urban quality is still too marginal an issue in urban studies, though is in a reasonable way linked to the complexity of the functions and it is closely connected to the question of identity and meaning of the image. In order to keep the physical issue as a focus of the design approach, the Reticular Matrix methodology produces a *metropolitan city model* through its maps/diagrams: we have in front of us a concept shape of the metropolis, that allows metropolitan architecture scenarios and studies their impact on the society and on legal and institutional forms.

The four pillars of the Reticular Matrix Madrid Model are: Geography, History and Geometry and the Denial of the historic city

5

/* Certainly, it can be a fatal mistake to impose a strategy of a metropolis unless its rules have been formulated in accordance with the territory.

The transport planning, in particular, suffers from a conflict between efficiency and equity. In fact, the great political powers often consider the adaptation of existing structures in the central areas more cost-effective than designing new infrastructures inside the metropolitan territory. We must consider, however, the important possibility of creating a

democratic balance, which means going to an equivalence between the times of the modern life within the territorial regions. The conflict, therefore, appears between the convenience and the compatibility of certain infrastructural works. We then have to set up a deep social sensitivity, that is, a culture, in order to limit the impact of economic activities and large infrastructure, which undeniably could transform the living environment of citizens.

The project, then, is a cultural project; it must be verified according to an ecological balance, which must express its sustainability according to an economic equilibrium, which must specify its feasibility according to the balance of flows, in order to clarify its efficiency. Therefore only thanks to a powerful vision like this is it possible to build a consensus and a virtuous dynamic of interaction between public and private investors, able to deal with the dichotomy between local / global.

We have been fascinated by Ortiz's interpretation of the organization of metropolitan fabric in Madrid that may be defined as the model of the metropolitan city paradigm. We can define the unifying engraving of Paris as a model of urban growth; the model of Barcelona as an integral expansion; the aggregator joint or joining joint the model of Vienna; for London, according to Shane, we could speak about enclave and armature, versus net-city and Archipelago, and finally the four pillars of the Reticular Matrix Madrid Model are: Geography, History and Geometry and the Denial of the historic city. Through maps it is possible to represent the concept of all these cities.

6 From the analysis of the reality to the 'means' of changing the reality: Madrid Metropolitan Plan

/* The Madrid 2016 Plan was a model for a development method for the fast-growing regional city. We consider the Plan Madrid 2016, made in 1996 by the Comunidad de Madrid directed by Pedro Ortiz, the model of a discontinuous reform: born out of the interferences from the new urban road system. The Plan Madrid 2016 was dealing with the instruments firstly of the plan-form and secondly of the

movement-form (new linear public infrastructural system: commuter trains and highways) as a meaningful element of the Plan, assuming that a new concept of territoriality, at the geographical scale, is based on the organizing principle of land as a meeting place and mobility (Lynch, 1981). There are four defining elements of the Plan: Geography, Geometry, Memory and the Denial of the historic city (to change and reactivate it). The Plan assumes its value through the definition of the logic of settlement-distribution, which permits the localization of interchange nodes in peripheral areas. It considers not only the inhabitants but the city-users too, according to the concept that what matters is the existence of an exchangeable organization along the space-time networks of the commuter trains (Cercanias), highways and airports.

Therefore we could say that this is a discontinuous reform: the creation of the interferences inside the new metropolitan roads: *a development method*. Actually, referring to Ortiz's methodology result, rather than a *formal model* we can better talk about a *development model*, which consists both of a *series of patterns that indicate a direction of the settlements growth* and a *series of maps or networks which suggest possible configuration and characterization of specific qualifying locations with a gradient of formality*: from the centre (new metropolitan morph types related to real estate development) to the countryside (new settlements able to evolve inside the urban agriculture). This aspect contrasts with the relative immobility of the traditional cities order, based on a now outdated horizontal system of traffic, and leads us to propose an *integrated model* that is also based on a capillary action, on the rapidity and the multiplicity of communications, which lives and spreads freely in space in any direction reclaiming the land for nature.

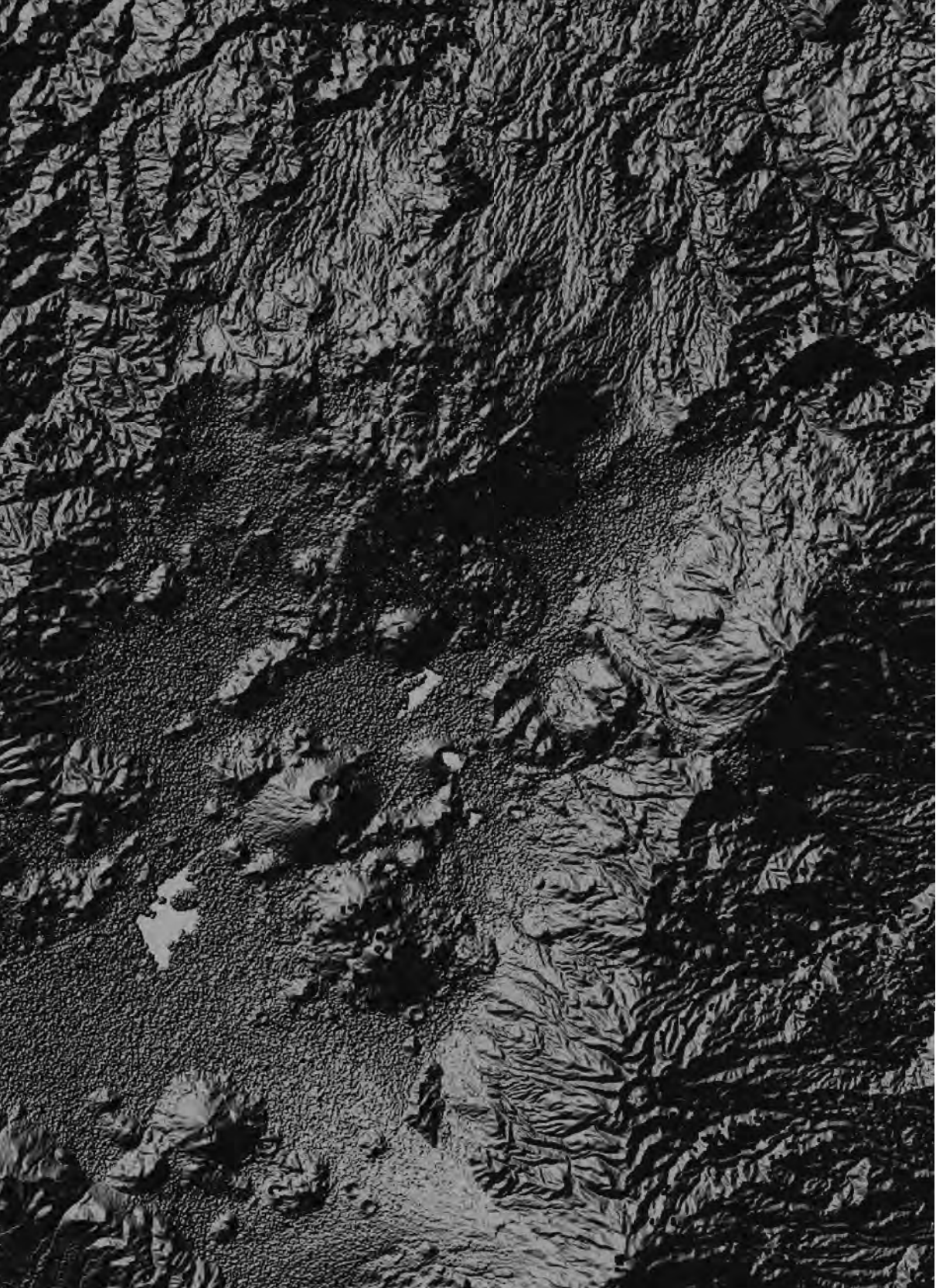
That Plan links to a simple square geometry. It responds to the geography of the region and the structure of the historic towns as well as historic urban evolution models. The digit of the Plan is a Figural Landscape Unit (named UDE: equilibrate developing unit or BUD: balanced unit development): every 4.5 km x 4.5 square km (JMT Thompson, 1986). This is a lattice topology, a sign of human presence in motion inside the territory.

The Map is not only a tool that mimics reality, representing it, but also an operational tool that must allow an experience of cognitive mapping. Geography, then, becomes the original archetypal form of Western knowledge (Febvre, 1922) and should be redesigned to meet the challenges of the globalized society. The interpretation of the new 'regional dimension' is achieved through geometric linear lines of grey infrastructures. The interpretation of the new 'local dimension' is a topological network that determines a new portion of the *body space* (Shane, 2005).

The grid tames the existing infrastructures, which become linear against circular. The new infrastructure model is conceived as an interrelated system between commuter trains and highways. Then the Metropolitan Architecture comes out from the location and integration of large-scale structural elements, which coalesce the metropolitan size and extend urban-style living standards to larger populations in sub-urban areas. Economic structures, including office buildings, factories, enterprise zones, corporate campuses, etc., along with Civic structures such as full-service hospitals, universities, stadiums, etc., are designed to accommodate ex-urban residents. Transport structures include commuter trains, high-speed trains, airports, freeways, etc. Structures that serve larger, remote populations and the systems to access them are the essential elements of Metropolitan Architecture.

Incorporating discontinuous infrastructure (Housing, Productivity, Social) around the strategic nodes increases and expands their strategic importance and, as a consequence, their influence on the surrounding territory. At last, the Metropolis becomes a patchwork of dynamic urban or semi-urban patches and interchange points, where people gather because of their natural attractiveness (Green infrastructure) and, being crossroads (Grey infrastructure), because of their convenience. Each district owns its distinctive character and it is similar, considering its structure and balance, to the infrastructure assets. These controlled territories constitute the basic structural form of the Metropolis.

The design of the Metropolis Architecture, thus, has to arise from a spatial concept that synthesizes the strategic assets of the districts in an overall form. Once the strategic form is recognized, then the tactical location of specific projects can be effected. Each urban and architectonic project must reflect the strategic concept as tactically applied to that district: the Concept takes Form through the projects. This is the art of shaping the Metropolis. ○



THE MSLab INTERPRETATION FOR THE ORTIZ MODEL OF THE METROPOLITAN CITY

/* Requirement of the Plan was to integrate Madrid in the competitive system of world cities, and for this purpose it became necessary to rethink the urban structure, giving a correct interpretation of the leap in scale that was running.
In order to reconsider the expertise of modellers urbanism utopia, thought as hypothesis for a redefinition of the urban paradigm, the Plan of Madrid 2016 came to life in a period characterized by the paradigm of a great urban research, as well as by a technical and pragmatic one, which eventually shaped its quite innovative approach.
In this perspective the Plan, in the first instance, must refer to an urban model that is temporally and economically undetermined: urban planning and architecture become contingent transactions, which must adapt to changeable political and economic aspects.

Therefore we can talk about an expression of an "idea of the city", i.e., a manifestation of an intention that turns to a condition for action, not to a mere abstract methodology of form. That is the way to design the new metropolitan city scale and its measure, a new spatial semantic, and to shape the figure of the contemporary time (UDE/BUD). In order to get to it, Ortiz inserts the balanced formal structure, memory of its territory (the quadricola), which can distribute and determine the position of the key elements able to structure and transform it.
The reform of the city paradigm starts from the interpretation of the urban geography of the area set in 1946 by the Madrid Regional Plan of Bidagor, who defined the character of the region, which essentially followed a natural structure similar to the one of its territory and developed itself along the lines. The Regional Plan of 1996 (Madrid 2016, Plan Ortiz) reinforces this character, so as to both counteract a kind of centripetal and centrifugal urban structure and rethink the urban area, in the perspective of another system of connections.
To switch from one old concentric urban form to a metropolitan linear form, JMT Thompson urban studies and the Milton Keynes project, British New Town (1970), are used as archetypal references for the new Plan.
As a consequence, the highway M-50 can be considered as

the strength-line that structures the entire Plan. This is the historical trace (Canada Real) of the geographical-region orientation (Plan Bidagor), which rotated the axis of Madrid and eventually released the planning of the city from the city reasons only: in fact it is a no more radial, but tangential line and represents the axis of development of the city along its territory.
The innovation characters of the model: the first topic addressed in the 1996 Plan pays attention to the status of the city-region, taking care of the relationship between paths and Regional Authorities, between geographical morphology and urban morphology. The purpose of the Plan is to unhook the areas that carry forms and textures of historical city fabrics, generating then equivalent environmental areas and connected by new joints that act as aggregators of new nodes of the structural centrality

The city model a city concept definition

/* As we said, this is the art of shaping the Metropolis that proceeds from Ortiz's methodology of development. We could say that every city analysed through the Reticular Matrix System becomes a city model. Starting from Lynch's definition of the model as: the representation of how the space could be structured and the representation of the shape and process description, which constitutes the prototype to follow: model as "to take care of the process through with to think about that shape". Passing from Choay's definition of the model as: an exemplar value with a reproducible character. Finally we refer our comment to Alexander's eco-morphologist patterns. The role of the model for the definition of the Groβstad is very clear starting from the models of Wien of Wagner and the Chicago of Hilberseimer. Hilberseimer, in his anthology Das Neue Frankfurt (1926-1931), commented that the complexity of the Groβstad has to be analyzed and solved through the definition of an abstract model and its diagram: a concept. This means to discuss the Reticular Matrix within the role of the theorist plans with a demonstrative character to face nowadays city's chaos: an implementation devise that would make the plan more "physical".

2 The great infrastructure and its strategic role for an exchange networks

/* To reach this aim, the Reticular Matrix approach gets to the heart of the urban disciplines the geographical territorial reading as a strategic tool for the definition of the routes of the large infrastructure projects, which are required for the development of exchange networks strategic for the metropolitan dimension.
Because of its size, immeasurable in relation to the human measure, in fact, the metropolis can only be imaginable. We can do this through the Geography, and the Geography is especially History. History of the representations of the territory as consensually recognized, through some correct maps, indicating anything that can interact with us. History that is written on what the settlements made by men return to us from the past of a place. Every city, then, arises from the representation of its geography so deeply that it is always a matter of the imagination that discovers and represents it (this is a statement that can represent a problem for someone who understands a place, departing for instance only from the economic or social matter). The development model of Ortiz through its diagrams is not only a way of representation of a metropolitan area, but it is the territory itself represented as a field of forces.

3 The metropolitan city: a city of intersections and mobility spread to small and medium scale

/* Through the geographical vision given by the Reticular Matrix, talking about the metropolis, we are witnessing the intersection in the territory of vast and diverse mobility. This feature, which makes the Metropolis always be one of the most attractive places, is determined by its geographical position and history. This condition allows it to be the centre of a capital flow, of an in / out movement of people, which produces forms of knowledge that are essential to understand the heart of networked flows in an era in which different cultures are articulating.
Such a city is a cultural deposit of the human capital.

A metropolis is not configured only to be the centre of a "global policy exchange", but it becomes a magnet capable of attracting talents. In this way, it outlines the development of unprecedented inter-city geographies, often composed by small and medium cities, which are on the network and introduce another concept of metropolitan city, as a physical exchange networks, defining a further reading of the paradigmatic model of metropolitan cities. This model, today, passes through a mostly virtual network to the more extended scale of the megacities or city network, which is not represented through a physical model, to a metropolitan intermediate network that represents an interesting novelty concern.

Generally, the model of the metropolis is constituted by:
*/ a city connected to physical and virtual global networks;
*/ a city exploded in a non-uniform way into the landscape;
*/ a city closely linked to its territory dimension;
*/ a city emblem of capitalism, uneven, unplanned and with a density with a non-constant intensity;
*/ a city defined by a network of relationships and processes (networks) no longer described by a physical model, which instead has to be reconstructed precisely at the local scale on which the global issue spreads its influence;
*/ a city that has an adaptive structure and changes itself through the logic of the recombination of the elements and of the "rhizomatic" assembly.

Through our interpretation of the Reticular Matrix we oppose to all of this a historical/geographical reading of a metropolitan dimension through which we can always find:
*/ the archetypal view of the complexity of the contemporary metropolitan city: its internal complex geographical and anthropological relations, and even the deep reasons of its open and closed public and private spaces shape;
*/ the geographical meaning of the old urban centres position inside the territory. The old villages and towns city centres in fact, change their use inside and take on a new symbolic one with not an efficient but a symbolic meaning. Therefore, they get connected to the new network infrastructure and then to

another concern related to the new dimensional scale, becoming the symbolic mediators on which the community re-orient their identity.

Consequently, we get the model of the metropolis that is the result of a state of settlements sprawl diffusion, evolving through polar phenomena, differently distributed in the territory due to the new linear metropolitan form model, which aggregate urban rare functions, while regenerating the areas in which they are located at the city-region scale. The result of these new metropolitan dynamics is the birth of a new policy that requires new tools affected by global commodity chains for the different productions, but also a new infrastructure and new cultural spaces.

4 The strategic significance of a geographical interpretation for the metropolis

/* A metropolis, then, is characterized by its geographical strategic geographical value for relationships. This powerful concern of the local place as a relational place, especially related to military reasons, in the Italian speaking of the 1500s was called "*facilità della condotta*", which means "*easy handling*"; geographically speaking, these points are, for example, the fords, the passes, the ridges. Once upon a time, cities developed / were built close to these geographically useful places. The Geography, then, that is drawn on paper, with all the consequent effort of calculating and measuring, has, as its background meanings, the need to mark these strategic value places for the relationships, which must let us know, also now, where we can pass from one side of the territories to another.

What can represent for us today a metropolitan city area that is in a precise geographical situation, in a place where we can find traces of its historical or archaeological past, and that, more and more today, invests uninhabited territory, or merely the countryside, which must be re-conceptualized at the new urban scale? To answer that, starting from a geographical interpretation, we must recognize that every great city has a strategic role in a relationship. And then, a history made by men intervenes: it roots the metropolis to a specific geographic point.

/* Geography, History and Myth in the past, and today a railway, a port and an airport which for the first time tie together the points of a territory, allowing modernity to determine the specificity of its interpretation and the meaning of the reactivation of the ancient relational value of sites and places that was established over time. For this reason, rail and air transport facilities are critical, as they are an artefact and not natural works and represent for us now what the relational value of the local point was for the ancient. Every place in the past was related to its topographical situation, and it is now determined by this either air or rail matter, that is a "more" technical issue regarding the geographic consistency and meaning of the metropolitan area.

Of course, sometimes the new infrastructures dismantle the local way of the old relationships. However, on a deeper level they always refer to the local site and place power of the relations, and this is what we mean by "easy handling". So, there is always a geographical and topographical situation that the men who came before us have understood as a value of what over time was a crossroads. That matter must be strengthened and preserved. Some territorial managers call location the power of the place for a business project, but in that way they translate into a very light word of a business plan Geography and History.

The profound criticism of the Reticular Matrix towards a vision of an only economic or ecological territorial development is especially represented by the way it addresses the matter: its empathy between metropolitan infrastructure and regional development. Within the discipline of the metropolitan project and the territorial analysis, we are often increasingly facing the implementation of the infrastructure, due to its resilience affordance, as the key to the structuring of the territory. This topic is an open wound. It has been the subject of some infrastructure works, which have a-selectively destroyed landscapes of greatest importance for local populations. The Reticular Matrix implements a sustainable infrastructure strategy. The territory for that strategic issue is fundamental because it is the context and the memory of

the inhabitants, but overall, because it is the framework of their experience and the space of their everyday life. Ortiz speaks about a territory and its landscape constantly changing and about infrastructure projects, which may pose a psycho-geographical knowledge of places, and therefore, the knowledge of an identity that for the territories is on process and layered in the ground, set on the traces of the history of the diverse cultures. But the past cannot always be preserved; yet, conservation requires an understanding that we must achieve every day, facing the lack of means to do so.

From our perspective the keyword to define the metropolitan strategy for a sustainable infrastructure project is conceived not only as context of the memory but also as the context of the day by day experience and valuable physical space. By that I mean, we talk about a territory and its landscape constantly changing because the landscape is closely linked to the economic vocation of a territory and is an active entity persistently re-built. This is not a static view.

6 The formal characterization of the metropolitan city-territory and environment: the shape of the movement as a new settlement code

/* The renewal of urban project instruments, until now, was based on an improvement of the existing one and not on a reform. But today, this reform is necessary indeed, due to the incommensurable urban dimension. The size of the city urban area, then, cannot have a traditional form and will be represented by this development method, which gives value to the fixed elements, which form the backbone of its general large communications networks, in which we have to implement the time dimension and the structures where the rare urban functions are concentrated and which become points of urban intensity and functional expression of urban organization.

In the new metropolitan environment, then, the movement, as a new settlement code, creates the space through the environmental qualification that it determines: an infrastructure, sensitive to the territory, allowing the ground to express itself. The landscape section (the Geddes Section of the Valley) and its strategy of levels, in fact, becomes the

dominant element of the project. The network mobility becomes an important and characteristic element for this purpose, which does not follow the model of the historic city, but as Gustavo Giovannoni had argued (Giovannoni, 1931), it is possible to preserve and develop the ancient city only if we are able to connect it to a new infrastructural network. This is an important factor, because the old urban structures, well-rooted into the territory, behave, on a regional scale, as well as structural elements of the new metropolitan reality allow it to be connected with the geography of the area, considered as a key resource at the local scale (Geddes, 1909).

A strong economic attractor related to the new public infrastructure system, therefore, should foster the reversal of old abandoned cities back into a world cities network as a values symbol, and should get the spontaneous settlements back into legality, providing them with services, which could improve the sustainable level of the entire city. For the Ortiz strategy, the attractor is a public commuter train interchange point. This is the central point of the UDE or BUD, which is the metropolitan urban digit.
Every UDE/BUD centrality within other interconnected centralities, due to a different infrastructure hierarchy, constitutes the metropolitan city fabric. It is an area that has become dense due to metropolitan functions; it is always related to the existing city and is the way to avoid urban sprawl.

Acting rules for the balance between the two continuous systems: gray and green infrastructures

/* Hence, studying the Metropolitan impact on the rural environment, within the Reticular Matrix we propose a system of eco-armatures: the landscape ecological infrastructure, a balance between the green and grey infrastructure. Then, we could refer this balance methodology for intervention to Alexander's eco-morphologist patterns: defining eco-green armatures as well as immaterial network infrastructure, we discuss the question of natural resources, which cannot be planned only on the basis of the model, but also on the basis of a rule: the rule of the particular local form. According to Geddes' Valley Section that defined a link between man's work and his territory (the valley, let us say the river and the

green infrastructure) we, in fact, present some of the methodology's acting local rules for the balance between the two continuous systems: gray and green infrastructures. That is the UDE (Unidad de Desarrollo Equilibrado) or BUD, which for us is a *Landscape Figural Unit*, which means a metropolitan city unit, defined by a structure-figure that is the backbones of the landscape. So we go beyond the land use unit concept to read the territory.

8 The compatibility between environment and urban development

/* The natural and built environment capital, then, must be integrated into the urban fabric. The flexibility of the model produced by the Reticular Matrix methodology allows the compatibility between the environment and urban development through the definition of the UDE/BUD and its centrality, which is the Metropolitan Architecture Unit, whose size is approximately 1km x 1km. The environment prevails when the two continuous grey and green infrastructures (the only two continuous ones, whereas housing, services and industry are not, and because of this cause sprawl) overlap. The natural environments, in fact, should have continuity to allow networking and biodiversity, which have to filter through the metropolitan urban fabric to reach the heart of the metropolitan urban system.

Ortiz's method proposes the quality of the shape (*forma* in Italian) as a tool. The new scale causes another form of settlement that encompasses the engineers' soils down to the artificial soil until the natural soil: each UDE/BUD, in fact, is not identified by its function, but by its geographical significance, which determines its role within the urban system. The model identifies the quadricola of 4.5 to 4.5 km as a geometric shape and a new dimension of time/scale, which allows access into the metropolitan areas and that is the surest guarantee for the establishment of new centers. It is a formal stable structure, memory of its territory, which distributes and determines the position of the key metropolitan city elements able to structure and transform the territory, creating a new urban fabric at the metropolitan scale.

The Urban Fabric is opposed to a type of centripetal and centrifugal urban structure, and also re-thinks the city system from the perspective of another system of connections. It's a true reform. The model, then, places the linear infrastructure networks as a characteristic feature and does not start from the historic city layer that does not interpret well the new infrastructure scale. Not proposing an addition, but a reform of the urban paradigm as a gap, Ortiz does not perform an operation to preserve the historic fabric of the city, as if it was expanded, but determines its new interferences with new urban highways and trains. These new centers at different scales must be conceived as new built form types. That is why I said before that the four pillars of Ortiz's method are: geography, geometry, history and the denial of memory to allow a cultural leap, a metropolitan reform of a city.

The green infrastructure system as a strategic asset for the Desakota mixed-use patches

9

/* Ortiz faces the problem of the green infrastructure within the UDE/BUD. The green infrastructure is the regional network of environment parks, which go from the higher level of national parks to the lower level of urban parks. They are all interlinked to provide for the fluency of the biodiversity. Each of them takes a different function depending on the role it has to play in relation to their rank and proximity. The peri-urban parks can perfectly well assume the role of urban agriculture.
Conceptually, this fact is very important because now, in relation to the fast growing Far East cities, mostly, we start to discuss a model of management of the city named the Desakota mixed-use patches. The city model called Desakota concerns a balanced and sustainable extended city, connected and interconnected, the city of consumption and services, with a streamlined and efficient built capital, dense and with a blocked expansion, attractive to tourism and historically and culturally interesting. It is an open model that conceives the metropolis as something in between the town and the village with a huge amount of countryside territory among the urbanized points. In that case, indeed, a green park system able to be efficient in order to produce a balance with its bio-potential power (ecological footprint) is very strategic. Through this system, therefore, it is possible to determine a

new condensation of agricultural land use in the middle of the patches and the interchange node is not in the centre of only one UDE/BUD but in the centre of almost two of them.
Inside the park (which could be also a forest, not as a European regional park!) the relations among the different functions and their positions are not so regular and the movements inside from side to side are made through lanes and channels, which constitute the second range armature. This is a metropolitan way to conceive, conceptualize and structure the territory body space (Shane, 2005).

10 The developing diagram as a physical representation of the Time. The new space – time scale of measure for the metropolis

/* The UDE is the physical representation of an abstract idea of time (how much time it takes to go through the new metropolitan unit dimension), so we can say that the UDE is a measure of time. It is a new Landscape Figural Unit within its Patch Dynamic (its surface), which measures the metropolitan city time, according to the landscape evolution during the time, due to the geographic/orographic site situations and also the times of Nature. Hence, Time is the abstract representation of the shape of the city, today. Time measures the form, i.e. how we distribute the elements of a city over time, passing from the 113 mt x 113 mt of Cerdà's plan and the 400 mt x 400 mt or 400 mt x 1200 mt of Le Corbusier's Urban Sector to the 5 km x 5 km of Ortiz's UDE/BUD. Today in the metropolis we are in a crisis of time. In fact, either the time is measured through the number, an integral serialism, or the element itself (the new metropolitan UDE and Its Mega-block, that is a new metropolitan morph-type) is the measure. This is important because the new measure of a Metropolitan Unit determines its new nature. The world is governed by a mathematical/ geometrical conception. And formulas are the shadows it casts. The global order is too complicated to comprehend entirely as already there are multidimensional objects: we can only guess through projections. We understand the models, but the reality escapes us. The lie is behind the mathematical

geometric reductionism: because it is so powerful that we believe that it coincides with the truth, in the same way as we think that a map coincides with the territory it describes. Therefore, the problem is that the demonstration of the model thought the Ortiz developing diagrams must better transfer the mechanism and the path of thought, which made it possible to get the UDE/BUD and how it works at the mega scale today, because it is a way to interlace the physical dimensions, the times that we use within the city, and it can be tamed according to every local context.

Methodological outlines

/* Actually, in fact, in the presence of the disruption of the urban and territorial landscape, this approach promotes the appearance of a new scale of the types of settlement and their interrelations, but, above all, a substantial change in the urban/rural relation: a formality-gradient type, able to capitalize, due to its city-centre proximity, some advanced services, which are determined especially in relation to new mobility structures. Such strategic typology of settlement should also be able to communicate with the agricultural landscape that has not only the potential to provide products for consumption and sale to local communities (urban agriculture), but also becomes an element of urban regeneration as it has always been: i.e. in the tradition of the Italian landscape as total built landscape.

For these reasons, the metropolitan projects made inside the Measure and Scale Laboratory of the School of Architecture and Society of the Politecnico di Milano have interpreted and followed the Reticular Matrix. Our vision, in fact, is working on the flexibility of a physical configuration: such a scheme guarantees, from one side, the connection of every settlement to the mobility system and, on the other side, the integration with the surrounding peri-urban agriculture through a local form-typology specificity. Such an approach may envisage a sustainable relation between green and grey infrastructure, where green is intended as the hydro-geological system of the territory.

This approach has allowed us to frame the design of a Metropolitan Architecture, highlighting:
*/ the soils, the waters, the geomorphology, the permeability of the territories to the infrastructure armatures, and the land use - especially as characters (variants and invariants) of the metropolitan context;
*/ the vulnerability of the soil and the water conservation, which means the capability to express an opinion on the constraints on the metropolitan project we wanted to propose.

The possibility to formulate, through this method, a prior judgment through a strategic geographical and historical analysis on the design assumptions of the interchange points between the metropolitan scale, then, also constitutes a figural index (UDE/BUD conceived as a Figural Landscape Unit) for the project, because it allows us to get a synthetic image of the entire territory: the development model allows us to determine our points of intervention, at the scale of a metropolitan architecture together with the synthetic vision of the metropolitan area.

In some cases, through an infrastructure-sensitive project, for instance, we might even get to allow a removal of the current confused image of the ground/landscape, which could be rewritten to a higher scale (through the design of a synthetic "plan of plans" at a metropolitan scale). Or we could aim for the reactivation of some old central points through a new infrastructural connection; or project the passage of a place from a neglected use, due to the fact that it is no longer working at the new bigger scale, -that is a typical situation of some abandoned city centres- to a symbolic one, a sign of History and of a link with the ancient territory dimension, by looking at the scene from another point of view. This is the value of the UDE concept.

/* For years when we start a new project at the Measure and Scale Laboratory of the Department of Architecture and Urban Studies of the Politecnico di Milano we face some issues, which the Reticular Matrix could help us to face. At the beginning, in fact, we must know what is peculiar to each developing city model, what size is optimal and how to support the local people and economies within the transformation of a territory. When, for example, new energy deposits are discovered or when a new infrastructure or settlement has to be built, we have to define what we do not have to break if we do not want to destroy a kind of sustainability that the local citizens have in any case attained by themselves, or what we have to strengthen so that the inhabitants can participate and share their growth movement.

For all this, the most important thing is to find the places of the interchange among the different scales where we can introduce the new developments so that we can reach our objectives: the possibility of an evolution of the local model of urbanity, and the project for the possible and realistic growth / transformation of the regional and local models. The Reticular Matrix methodology, then, gives us the possibility to define the backbones for a new mapping project through a hybrid map, which through the use of specific computational tools can help us to build a series of topological models, describe and bring into connection the main mechanisms, and generate the physical space, simulating an on-going reality, from which it is possible to obtain, through a critical reading of the pre-configured scenarios, forecasts and models of sustainable development, characterized by a close link with the physical and cultural context.
The critical use of this methodology has helped us to define in a logical sequence:
*/ the state of art of each project area as a matter of its growth / change of scale;
*/ the scenario of the project. It provides criteria for the evaluation of the elements of the metropolitan context: its potential constraints and invariants.

What I want to say finally is that a traditional sustainability model linked to quality "scientific" ratios must be respected, of course, but Ortiz's metropolitan city model gives us the rules for the possible presence of new metropolitan quantities, and for an urban and architectonic non-standard project. We have to try to think about a time feasible: for a development in the short and long term; and for a compatible development between the two times, that, not to forget one of them, deals with a strong concern about the physical/cultural space that is the only real guarantee for a participate development not imposed to the citizens.

In fact, the metropolitan architecture design regards today the metropolitan territories transformations with its diffusive urbanization characteristics, nets infrastructures, the vast land issue, so energy, matters, ground consumption. And also, cities' changes, interventions and renewals, evolution of urban space, memories and culture in order to retain the sense of place within cities.

So, regarding the metropolitan issue, it's taking form the necessity to promote the insertion of medium-small reality in the big space of flows; to study the effects on the city daily life, on the metropolitan space, environment and territory; to formulate norms and instrumentations. It means:

*/ to study the urban and morphological theoretical and practical evolution in the contemporary historic cities;

*/ to experiment and verify the new buildings form types and the land uses in relationship with the new dimensional net scale;

*/ to explore the landscape issues between ethics and aesthetics;

*/ to preserve memories and culture as significance of places, symbolic intermediary and spatial use to conserve the experience of a good relation between people and places.

Fostering a smart growth requires innovative interpretation of designing tools. The integration between the productive, transformative, exchange and distribution functions (agro-alimentary and energy) into a new metropolitan system makes necessary to rethink local identity and global inclusion between rural and urban economy, reducing and reconverting the expenditure of energy.

Taking the move from an in-depth analysis of the region at the metropolitan-urban-local scale the project produces a territorial vision for the energetic self-sustainment, along the

preservation of a common cultural and historical identity.
The purpose of delineating a metropolis as a network of medium cities and their territory, in fact, is achieved even by planning specific points catalysing urban functions and modifying the articulation of the city structure in relation to the geography and its economic structural data.
The metropolitan architecture project involves a plurality of issues, which are spatial, environmental, and energetic as related to economic efficiency, management and governance.

To shape a place again in the era of global cosmopolitanism, we consider the mobility not as the antithesis of the existence of places, but as a force able to generate new morph-typological structures. And then, when the population does not consider the territory as a container, the map is not static, but, identifies the linear structure as the large distances one, while at the local scale, tries to re-territorialize the vast in-between neglected territory, according to an areal (campo) conceive, creating so a new mesh topology. The green infrastructure, therefore, becomes the continuous structure able to agree with the grey infrastructure, giving rise to an interchange that elevates the scale of the local context, placing the new urban functions.

The cosmopolitan globalization, thus, does not negate the places, rather strengthens them elevating their scale issues: enhances ancient positions and creates the new ones; it leaves the other in decay, transforming them as symbolic mediators. So the new individuality of the medium/small cities results by re-readings related to their position, but read at a metropolitan scale. Our study deals now with the elementary structure of the settlement, both of its image and its use, allows to clarify the conscious-process that determines a self-composition of the essential and complementary signs, which, in every scale reached by a settlement, define the use of a territory by a population. It's thus possible to understand the quality of relations between the different elements; in fact, through the analysis of the hierarchies between the signs: structural, linked to the driving-areas and therefore consistent and durable, essential and complementary or marginal and fragile, we can identify the elements that set the weak images of the settlements, characterized by inconsistent dimensions that cannot survive the leap in scale, but that we

want to transform in durable identity element.
Environmental- terms between larger scales of national or metropolitan dimensions and the smaller ones of urban, local and domestic. Interface in Governance between formalized institutions and the informality of local social networks, but mostly we are looking for new interfaces inside the metropolitan architecture able to define uncommon spaces related to the functions, which the new cosmopolitan society of today needs. (Contin, Della Rosa, Ortiz, 2013).

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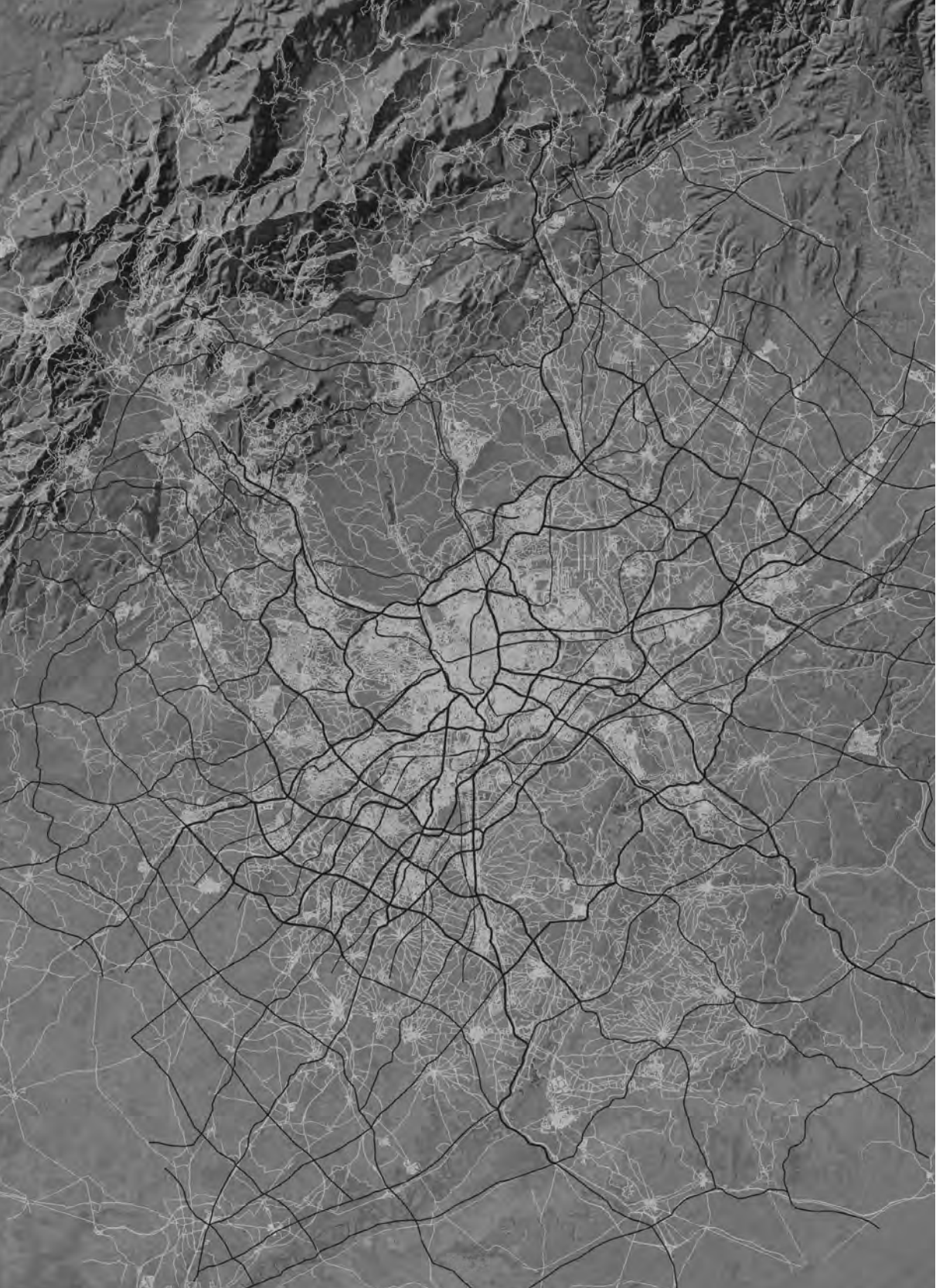


METROPOLITAN ARCHITECTURE. ARCHIPELAGO TO METRO-MATRIX: EVOLUTION OF SPECIES

PEDRO B. ORTIZ

1 Objectives

/* In the last century and a half, the growth of metropolitan areas has been of concern for some groundbreaking urban scholars. The social and economic processes of metropolitan growth produce a physical footprint, and that footprint has a "shape". It has a specific formal layout that must be controlled, served, or promoted for an efficient result, in terms of public and private investments in infrastructure and facilities.

Understanding that shape, and to make it the most equitable, efficient, and sustainable possible is the objective of Metropolitan Architecture: The Architecture of the Metropolitan scale. The aim of governance system is to manage the metropolis, its shape and its growth. The governance of the physical metropolis must be in accordance with the shape to fulfill the required objectives of equilibrium.

2 4+1 Paradigms

/* In the course of the 20th Century, four fundamental theories emerged to explain and frame the development of the metropolis:
*/ Orbital (Vienna, Otto Wagner, 1912);
*/ Hexagonal (South Germany, Walter Christaller, 1933);
*/ Archipelago(Berlin, Oswald M. Ungers, 1977);
*/ Matrix (Madrid, Pedro B. Ortiz, 1996).

To those four, we can now add a fifth:
*/ Moss (un-capitalized countries, do-nothing).

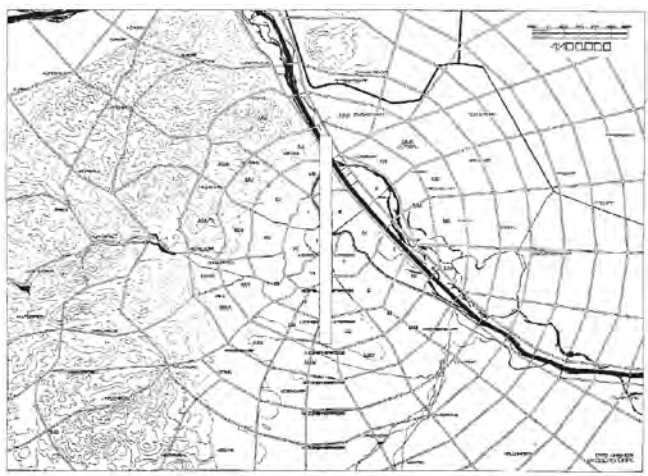
This is the model in practice in most of the countries around the world that have experienced explosive growth in the late 20th C. and the beginning of the 21st C. These urban areas have annual grown rates of 5 percent, and we call their de facto spatial management system the "moss." Growth takes place in unmanaged, "do-nothing" metropolises with little or no infrastructure investment, especially in "de-", or "un-" capitalized economies.

Orbital

The Orbital paradigm, defined by Otto Wagner for Vienna in 1912, is the result of a simple growth method. On the one hand, it enhances centrality in socioeconomic terms (radial), and on the other, it tries to manage the transverse movements in the periphery (orbital).

It is effective in small dimensions, but runs into problems as it expands. In other words, it has negative economies of scale that make it progressively ineffective as it grows beyond a limiting threshold. These negative economies of scale for the metropolitan phenomenon have been experienced at smaller scale throughout history for architecture and urbanism. From the circular hut and the orbital wall of the prehistoric village, substituted by a loose grid pattern, to the industrialized city, where circular onion-ring growth was transformed into the extensive homogenous grid, it has been the response of shape transformation to the limits of the negative economic consequences it engenders.

Circular metropolises are ineffective in the long run, and we are past the time for enabling them anymore. Mental inertia of urban managers, road engineers, and politicians alike, however, keep the paradigm alive. Many infrastructure investments are still run on it. The price that will be paid is not so much the actual cost of construction, but the dysfunctions and lack of competitiveness of those metropolises in the long run.



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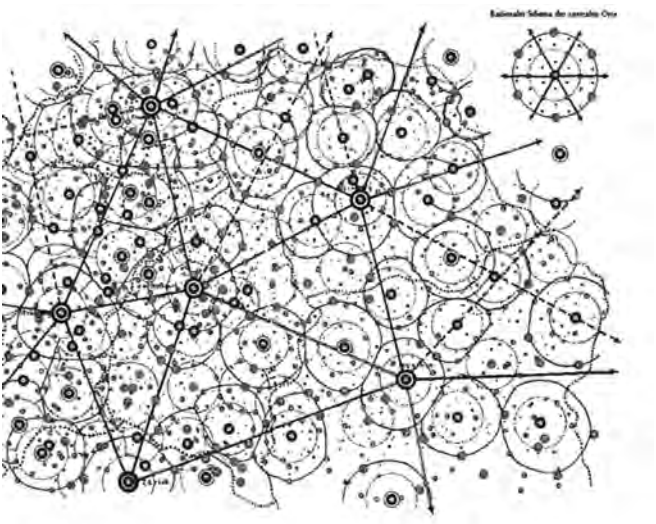
4 Hexagonal

The geographical location of urban nuclei in a system forming a natural hexagonal (or triangular) reticular structure was fist analyzed by Walter Christaller in South Germany in the 1930s.
The analysis depends on a premise. The system must be located in a "featureless plain" to avoid the interference of topography in the theoretical distribution of functions and settlements. If the plain is not "featureless" the mechanism does not work.
Unfortunately for this theory, metropolises are not featureless. Metropolises exist where they do because they have a locational advantage that they have been able to exploit in socioeconomic terms. Metropolises are metropolises because they often control the gateway between two ecosystems (sea and land, crossing of a river, passage of a mountain ridge, etc.). They almost always evolve within a strong topographic gradient. Further, most of the time, the border of the two ecosystems is linear: a seacoast, valley, ridge, etc.).

The defining topography, and the linearity of the border, and thus of the metropolis, make the Central Place Theory inapplicable in most, if not all, of metropolitan cases.



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Archipelago

By the second half of the 20th Century, after WWII, metropolitan expansion became a widespread phenomenon in many of the developed countries. By the end of the century, it has spread to developing ones.

The disjointed, incrementalist approach of metropolitan decision-making in the allocation of growth to the moment, in absence of a comprehensive development theory, brought about the archipelago morphotype analysis in the late 1970s by Oswald M. Ungers for Berlin.

The archipelago approach has a very strong empirical ideology. Metropolises are as they are, and they have grown as an interrelated set of individual cities that conform a socio-economic unit. Each located "randomly" in the territory.

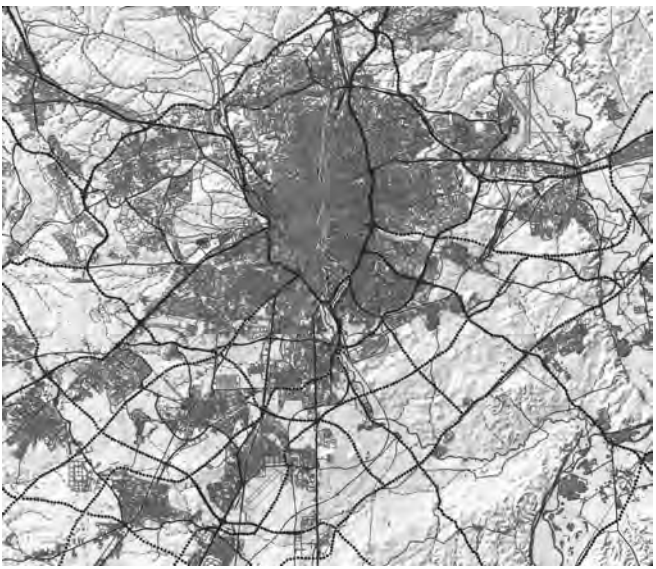
The approach to management is accepting the location and processes as they are, and just providing the necessary links (for private transport and public infrastructure) to make them work efficiently as a system. The individual "islands" linked together become a synchronized "archipelago".

3

6 Matrix

The archipelagic, “oil splash” phenomena of metropolitan growth, versus the orbital “oil stain”, produced in the long term a merging of towns and cities that obscured the green residual substrata. The green infrastructure, or interstitial areas, had to be protected and structured. The analysis of those green spaces, as well as the recurrent periodicity and location of the urban settlements were not random. They had a geo-topological support that had to be analyzed to understand the real DNA of the archipelago, and so provide infrastructure according with that pattern.

The strategic location of a metropolis, at the linear border between two ecosystems, provides the main directionality of the Matrix form. The transversal gradient provides the secondary directionality. Both are essential to the Matrix.



Coordination of priority green infrastructure and, subject to the latter, grey infrastructure is the framework for the provision of three other discontinuous systems: social facilities, economic facilities, and housing. The Matrix analysis provides the basis for integrated management.

Moss

7

The lack of a metropolitan analysis and management framework, coupled to the lack of economic and social capital (human and social resources as well as governance) confronts many exploding metropolises with challenges they cannot address properly. The political short-term priorities and the dimension of the task provide the basis for the "Do-nothing" approach.

Given the lack of a policy framework to provide upper-level urban and metropolitan functions, the metropolis grows the urban Fabric without the urban Form. Such is the Moss.

The Moss provides the basic biological functions, the immediate living necessities as access and utilities, though highly insufficiently. It does not provide for the higher needs of more complex biological organisms. The Moss is the very primitive living form, distinct from the full development of more complex living structures. The Moss extends the Fabric, but does not reach higher Form structures.

Such is the phenomena of explosive growth and "slumization" in under-capitalized metropolises. Its legacy for future generations will be a world of slums.

Archipelago versus Matrix

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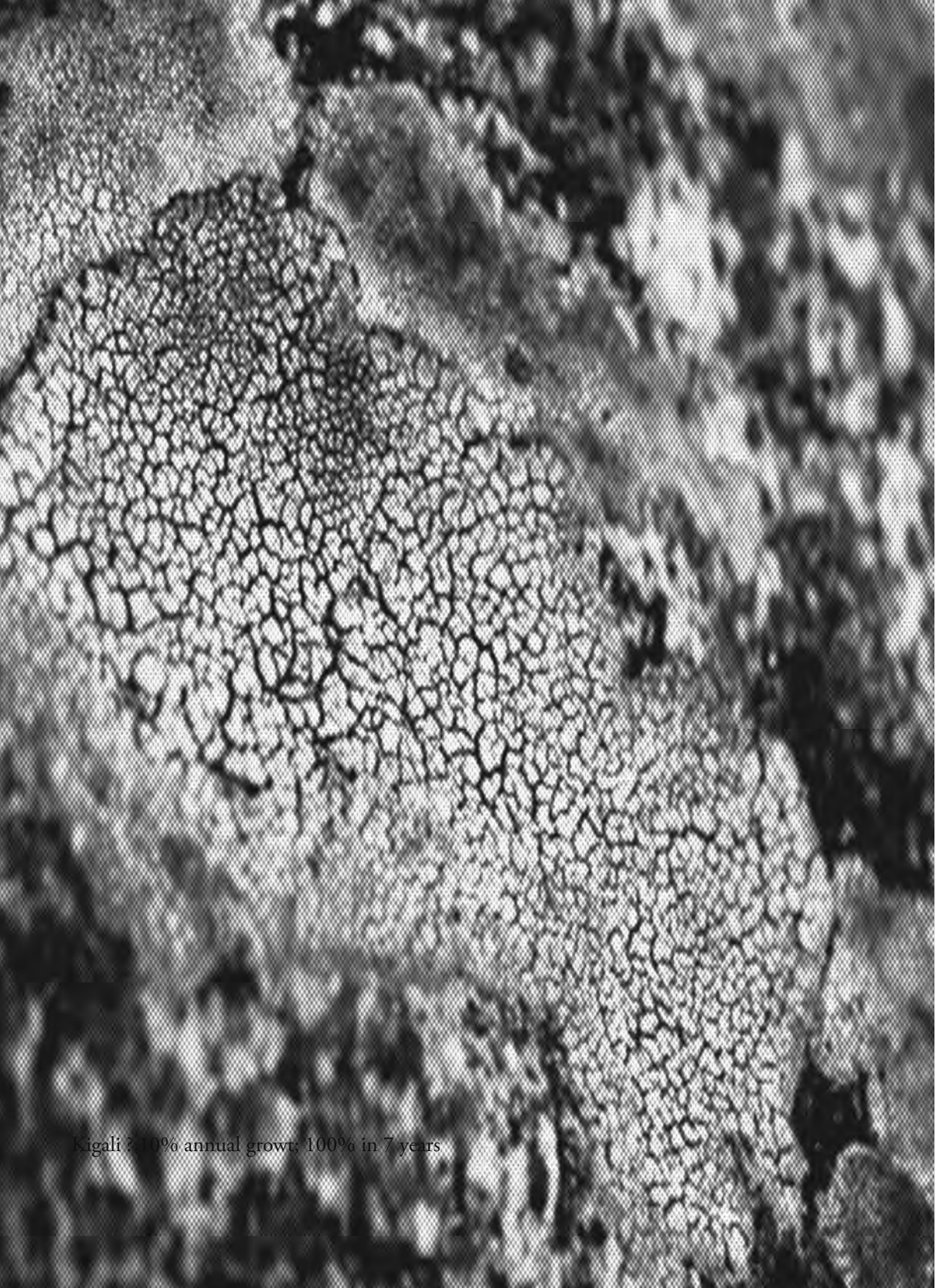
/* Of the five alternatives, the two most evolved and able to address metropolitan phenomena in the 21st C. are the Archipelago and the Metro-Matrix. What are their differences and strategic advantages to help us to prioritize them?


Kigali ~10% annual growt; 100% in 7 years

Both approaches have a theoretical background and cultural framework:
*/ the Archipelago approach is Empirical. It is just the acceptance of what there is. It is a description (with an "organic" analogy) of the empirical form. From that description, with no further analysis of the forces that could have produced that shape, derives a set of policies to manage it. It is disjointed and incrementalist. It is a summation. It is pragmatic: Practice goes before theory;
*/ the Metro-Matrix approach is Neo-Platonic. It goes beyond the primary perception of reality and tries to analyze the forces that produced it. Those forces represent a set of laws that can be formulated into a theoretical approach. Management is the application of those physical laws/rules to make the whole practice consistent and integrated. It is integral. It is in search the Idea, the Formula, as in physics, that will make it possible to operate afterwards. Theory goes before Practice.

Praxis, the blend between Theory and Practice, might be the answer.

London versus Madrid

/* The London Archipelago, as analyzed by Graham Shane, represents the empirical analysis/description of the location of the neighborhood units, most of which were built up by the wealthy landowners in their estates as the urban settlement grew. The scattered pattern of these neighborhoods, with the

former palace garden as the central square, is related to the previous peripheral road network. Palaces were located fronting the roads, with gardens at the back. The gardens become the central green area of the latter housing development.

If we superimpose the location of the Archipelagic Islands on the preexistent road network, we see a direct relationship between them: It looks like the leaves of a tree. Without the branches, the leaves on their own could be described as a "cloud," but when the branches are accounted for, the structure becomes a tree. The phenomena of clouds and trees are quite different, as would be the ways to manage them. Trees must be defined as trees if we want to manage them, not as clouds. Although maybe more aesthetic and poetic, the risk is mismanagement.
The Madrid Metro-Matrix develops from the fact that Madrid has a very distinct topography. Located at the southern slopes of the Central Spain Sierra, Madrid became a metropolis because of the macro-strategy of controlling the Iberian Peninsula from its center, and the micro-strategy of locating the capital at the contour line of water springs to feed urban needs.

6

Metropolitan Madrid follows the direction of the Valley of the Tagus and Henares. The perpendicular effluents (Manzanares, Jarama, Guadarrama) complete the topographical structure. Villages and towns throughout history have followed those patterns, and have been situated at an average distance of a 'legua' (lieu/league: medieval anthropomorphic-edaphological distance of an hour's walk). Together, the two phenomena form a natural reticulum.

Madrid is a natural Metro-Matrix structure, so the 1996-2016 Metropolitan Plan naturally worked within the structure of this metropolitan DNA. The result was a successful implementation of infrastructure investments.

London Metro-Matrix

10

/* The same type of metro-matrix analysis could be made for London. The Romans located London where it is for topo-geographic reasons: It is at the outmost eastern crossing of the Thames unaffected by the tides in the 1st C. AD. It was the most strategic place to build a boat-bridge.

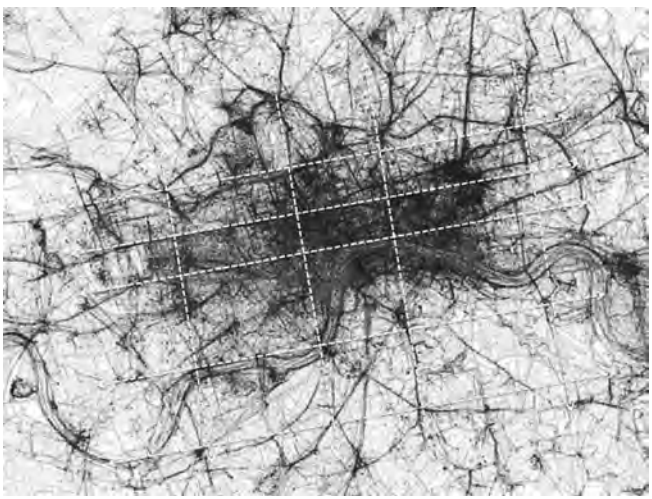
7

The main Roman road network paralleled the banks of the Thames, as can be seen in the case of Oxford St. This linear structure is complemented by the perpendicular network that reaches beyond the valley ridge, to St Albans (Verulamium-Edgware Rd.) and Lincoln (Lindum-Ermine St.). The topography, and the intelligent Roman adaptation to it, has framed the urban and metropolitan structure of London into a Metro-Matrix for two thousand years.

If we select high-intensity urban points (roads and intersections) instead of low-intensity ones (private gardens in neighborhood squares), the result forms not only the leaves of a tree, but the branches as well, and the tree becomes the Form. The metropolis is not a cloud, nor an Archipelago. It is a Matrix.

11 From Pre-history to Post-history (structuralism)

/* Which is the future of the metropolis: Archipelago or Metro-Matrix?
Many advocate for the end of space. The cyber city will take place in the cyber non-space, which has no, or only a tenuous, relation with the physical one. The "Smart Cities" movement pretends to respond to city needs with quantitative data in an empirical way. No conceptual analysis required.



On the other hand, structuralism thinkers such as Baudrillard have been for many years claiming the end of History. We are living in the ahistorical age. Does the Metropolis need a Shape? A Form? A Structure? Or it can be as informal as the Internet? Does it not need a physical Form with which to relate?

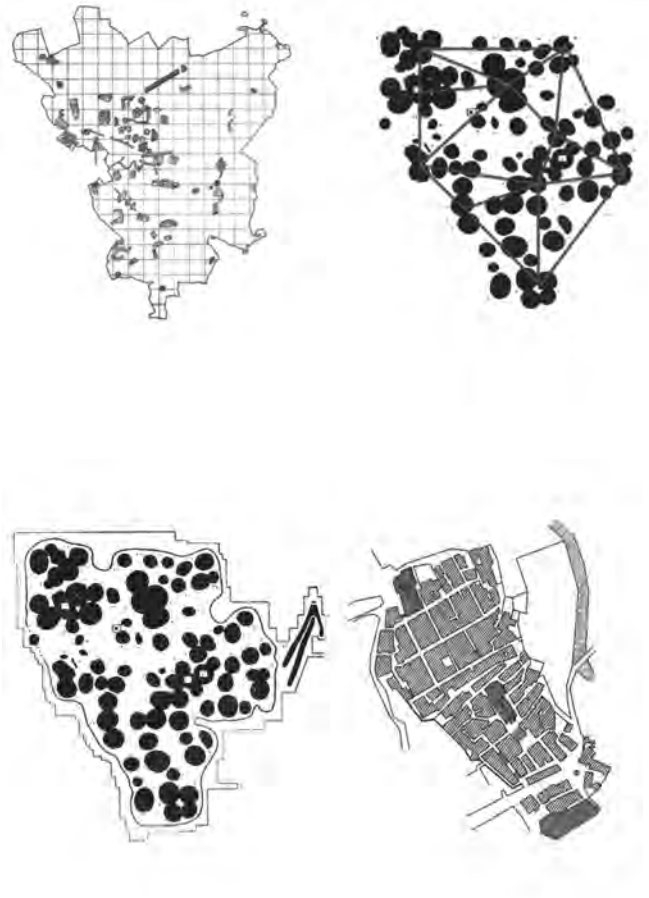
We doubt it. As far as the human being will not get rid of the body, it will need space to move and to rest, apart from a sense of place with symbolic and subconscious meanings. The nowhere/everywhere Commercial Center is as alienating as Sarcelles. Space needs to be quality-space, not junk-space.

As we are entering into the Age of Metropolises with two billion people moving from rural to urban areas in the next 20 years, we can decide either to produce junk/ghetto metropolises (the do-nothing, "moss" slums of many cities) or quality/global metropolises. Archipelago or Metro-Matrix: Choose the best for your situation. They could be complementary. One deals with the symbolic quality of spaces, the other with the overall structure. Still to come: the Theory that will blend them.

Implementation is the challenge. It is always easier to implement chaos than to implement order. If governance and investment capacity grows around the world, the natural tendency for the Archipelago's chaos management is to be substituted by the Matrix's orderly one.

This is not first time in history that the Archipelago may evolve culturally into the Matrix. We can present a model of the archipelago very similar to the one presented by Ungers for Berlin. Archipelago management theory proposes connecting those "islands" to create a metropolitan network, as shown in the diagram.
We have used for this analogy the Archipelago model of a prehistoric village plan. The circular-huts-bundled-inside-a-circular-wall archaic Form was substituted in history by a more efficient urban structure: the reticular village. The costly interstitial spaces between the huts could not be wasted, and the compact square grid structure proved to be far more efficient.
We can expect a similar phenomenon to occur: the pattern of evolution from prehistory to history in the Metropolitan Form. The substitution of the chaotic/circular to the reticular

patterned. Matrix might come out to be the natural evolved Form that will emerge and characterize the evolution of our Metropolitan Age. If we allow the metropolis to evolve from Prehistory, the Archipelago, to History, the Reticular-Matrix, we will have leaped ahead into a more efficient and sustainable future. Is Metro-Matrix the future of the Archipelago?



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Figures

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2 Walter Christaller, Central Place Theory, 1933.
3 Oswald M. Ungers, Berlin Archipelago 1977.
4 Pedro B.Ortiz, Madrid Reticula, 1996.
5 David Hume + Auguste Comte.
6 London Archipelago superimposed to preexisting 1660 peri-urban road network.
7 Madrid Metropolitan Plan, Approved 1st March 1996.
8 London '*Locals and Tourists*'.

GEOGRAPHIES OF FAST-GROWING CITIES

ALESSANDRA SAMMARTINO
ALESSANDRO MUSETTA
STEFANO BOVIO

1 Unstable territories

/* "Unstable" can be defined those territories, those areas, subject to frequent changes affecting their structure. All territories, all settlements, are subject to a continuous transformation process, but in some specific cases the transformations occur at a speed and in a way that greatly reduce the "times of stability", period in time when a certain state in order is more or less the same. Unstable territories are driven by a continuous transformative instance, with frequent changes, even difficult to map and predict, as they are dictated by internal factors, often spontaneous.

2 Fast-growing cities

/* According to the above mentioned idea of unstable territories, it is possible to include in the same concept those metropolitan areas with an explosive growing rate. The growth involves primarily the fringe metropolitan areas, characterized by a variable degree of informality, places with different close and relationship with the established (and planned) areas of the city both for space organization that for culture. For such a phenomenon of explosive metropolitan growth a new scale is required. A different scale not only in size, but first of all in relationship.

3 Geographical dimension

/* In doing that the first factor to consider is the link between this new dimension and the scale of the geographical elements, implying a comparison and dialogue with these. The new scale thus implies the need to consider the geography, topography and topology of the territory.
The concept of geographic dimension, moreover, has a duplex nature. In a purely physical meaning Geography contemplates what could be defined as the geomorphological and human sphere; in an anthropological meaning, Geography concerns socio-cultural factors, rooted in time and extremely linked to the specificity of the places, which describe the sphere of interest of a cultural geography.

Primary Landscape

To analyze the geographical elements an operation of selection becomes fundamental. The reduction of the geographical context to lower terms makes possible "to sift" the information inscribed on the map to produce a synthetic image of the territory.
In this sense, it is possible to apply the concept of primary landscape (F. Purini), which is not an attempt to bring the landscape back to a condition prior to human action, but, it is a critical operation that involves the interpretation of the landscape (seen as a summary of nature and culture) through the elements that form its structure and define its DNA.
With this operation it is possible to identify the primary type of the territory, related to the relationships between the human being and its environment.

Geographical Region

It is necessary, in this sense, to define a field of action, an interval set by territorial elements that physically but also culturally sustain, encourage and influence the settling of man in that specific environment. Signs, therefore, that link man to his land, and highlight the specificities of the places, the differences between landscapes.
This implies the need to interpret the concept of specific geographic region, as a "whole that stands out from the surrounding" (Gregotti), a recognizable ensemble, with its formal and structural features.
Some examples are the Sierra-Meseta system in the metropolitan region of Madrid, or the fertile area along the Nile up to the Egyptian coast. Structural elements of the territory that have produced the resulting relationships in each specific contexts.

Figural Units of Landscape (land use + landscape)

A large set of elements coexists into the considered territorial field and outlines the nature and the structure of those territory. The understanding of the figures which structure the territory concerns the recognition of the essential elements of its landscape. In this reading, the map's construction becomes a "moment of open production of meaning", through the ability to select and to relate with one another the materials of the territory.

So interactions between specific figural units of landscape permit to interpret the map and to get a sense of the territorial image and structure.
The ability to identify and select these figures allows to establish guidelines, urban and natural sequences that reflect time and rhythms through which a territory lives. To comprehend the traces belonging to the geological and natural repertoire and to the historical-cultural one, as well. To read, therefore, the landscape as a whole multiplicity of its narrations.
The knowledge of the territorial reasons permit to regard that place as a strategic point, pointed in its topological and anthropological relationships.

Primary trace

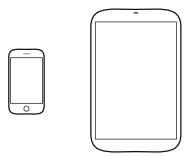
In this sense, it is possible to select the primary traces, which orient the specific place in its relationship with the territory. It is a deep territorial sign, which summarizes the interrelationship between man and landscape.
This concept deals with the ways in which man has inhabited the territory, building relationships according to his needs. Archetypal encounter between human action, territorial scale and the landscape in its conformation and morphology.
Some examples can be provided. The trace of Khalij in Egypt, strategic track to cross the desert, which has always been one of the most significant territorial tracks for the relationship between Cairo (along the Nile) and the Suez Canal, primary landing for trade. The Cañada Real, transhumance path through which the Madrid territory was crossed by seasonal transit of men and cattle, and today colonized by squatter settlements sided by the highway with the same orientation.

Topological Geometry

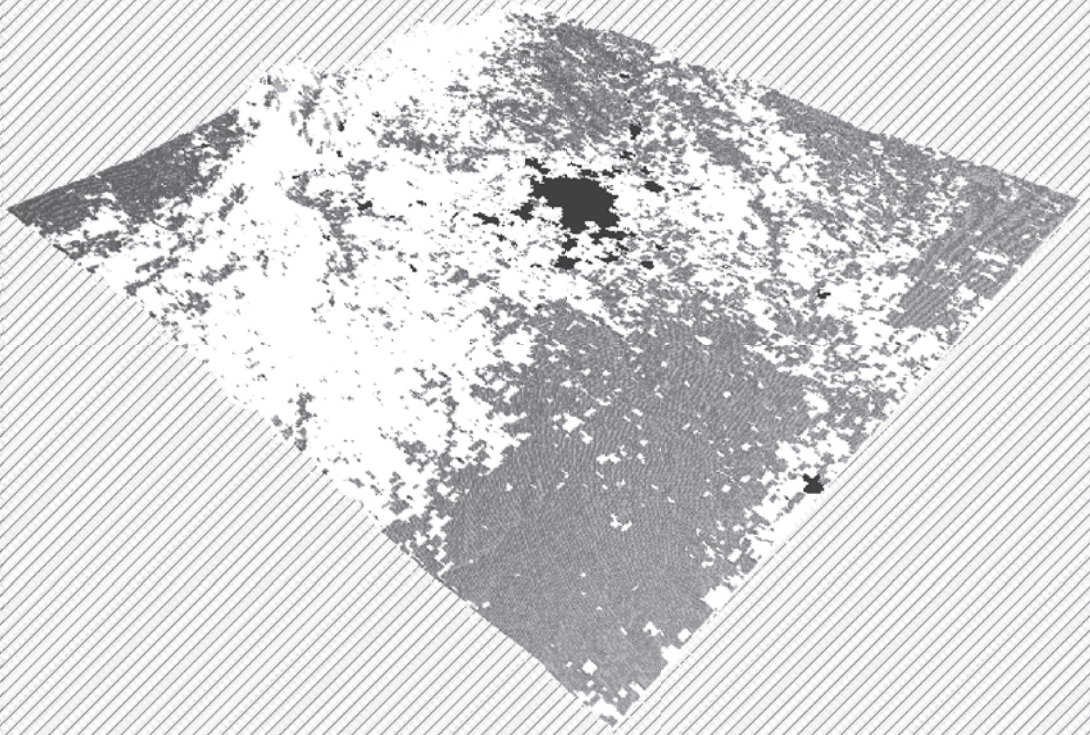
Once the elements of geography, specific to each landscape, are identified, it is possible to properly comprehend the Ortiz Matrix as a reticular paradigm for the development of cities in explosive growth. It must be regarded as a soft matrix structured on the territorial morphology.
The deformation occurs according to the forces of a topological geometry that links the mesh to the ground, the structure and peculiarities of the site; thus modulating the large dimension from the size inscribed in the landscape, catching contexts, establishing new relationships, and intercepting possible nodal points and interchanges. It is possible to strengthen the concept of territorial orientation

through intersection points, polarities that mark and measure the landscape in which local situations snap to the matrix, places where culture and local codes meet the global ones.
The matrix guidelines however, should be interpreted not as lines but rather as areas with significant thickness. In this sense, the matrix can be seen as both "full" (urban-infrastructure) and "empty" (porosity territorial system: macro and micro porosity) spaces.

The speed at which these settlements grow and multiply saturates the territories in a widespread manner, in a very short time. So, one of the primary requirements becomes the addressing of this growth, finding an agreement and a deep relationship with the landscape and existing ecosystems.

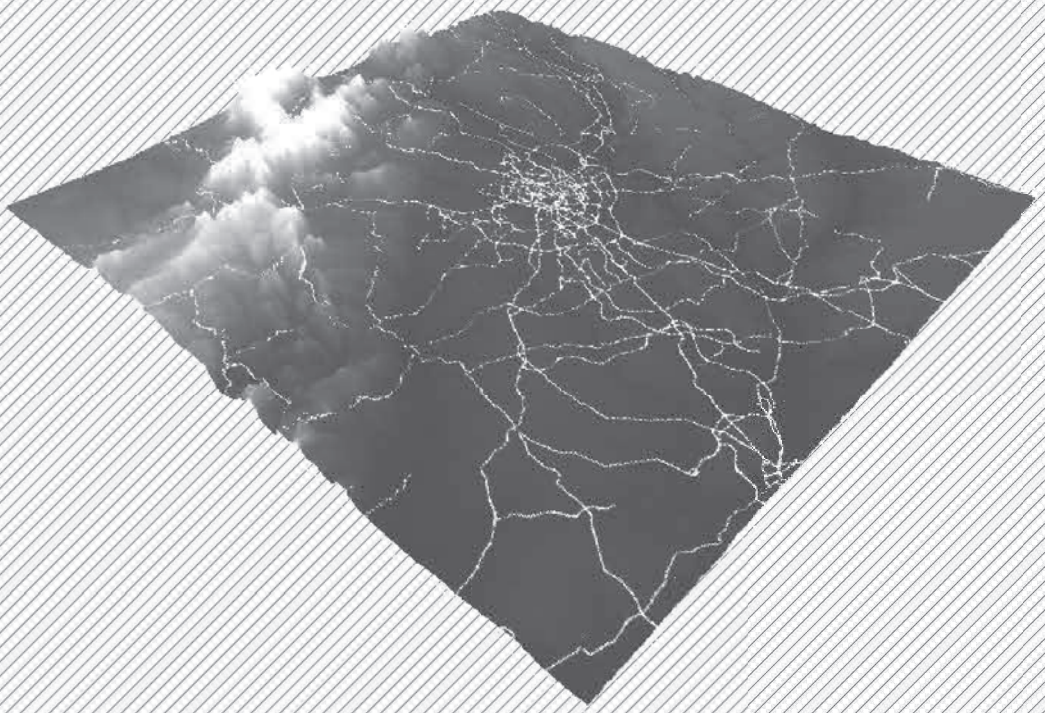


Scan



1

The map is a text that involves the representation of an identity; it contributes to the representation of some infinite worlds affecting the memory: history, geography, subjective experiences and emotions are combined in a different way. Creating /reading a map means be able to compose/ read an image.
A thorough mapping of territories through the integration between the dimensional scales and the building/coding of a meta-data repository that connect actions to spaces, multiplies the tools available to researchers and creates an observatory equipped with updated datasets almost able to report the real-time social and urban areas changes, and capable to act as an actor in the participatory processes and to build new aesthetics.



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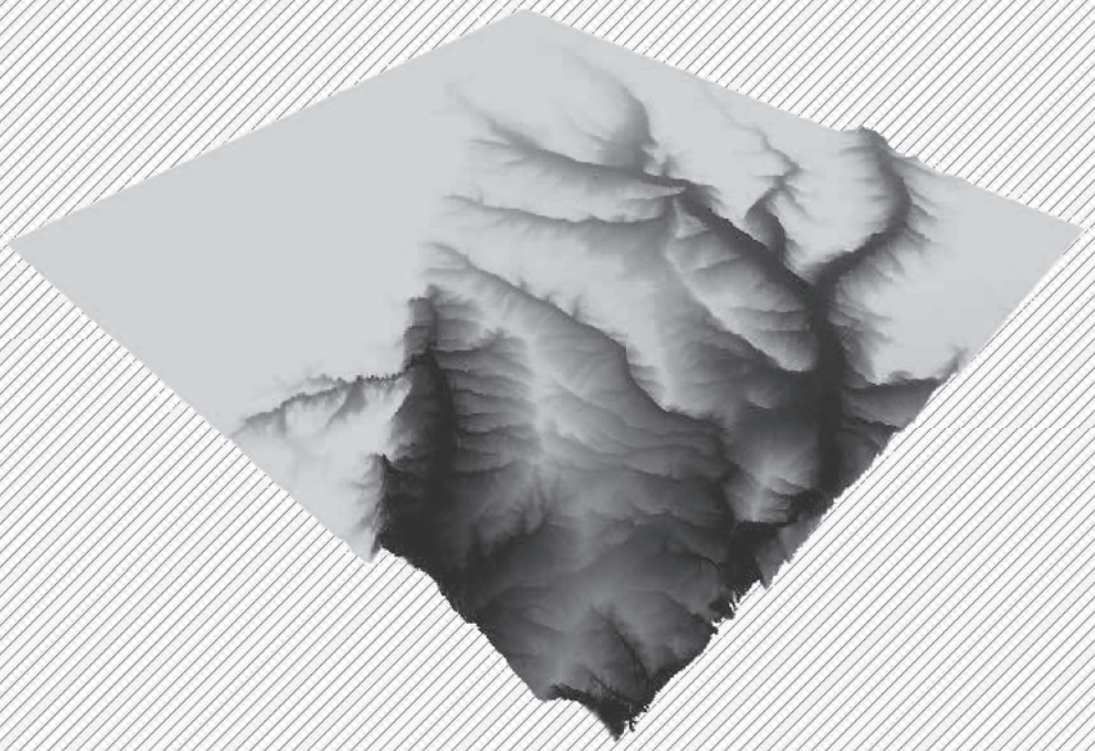
Geographic analysis and statistical processing of data, thus, help to make updatable, using cartographic representations, the spatial social and political transformations of our time. Therefore, it is possible to work on the development of technological applications that involve the construction of appropriate arrangements for the representation and display of information in each field of analysis, according to different cultural awareness and competence.
The results obtained with this mapping process is based on the digital exploration: geo-spatial informations generated through computational methods of knowledge construction, are represented with the design of interfaces for geo-visualization which are developed from the principles of



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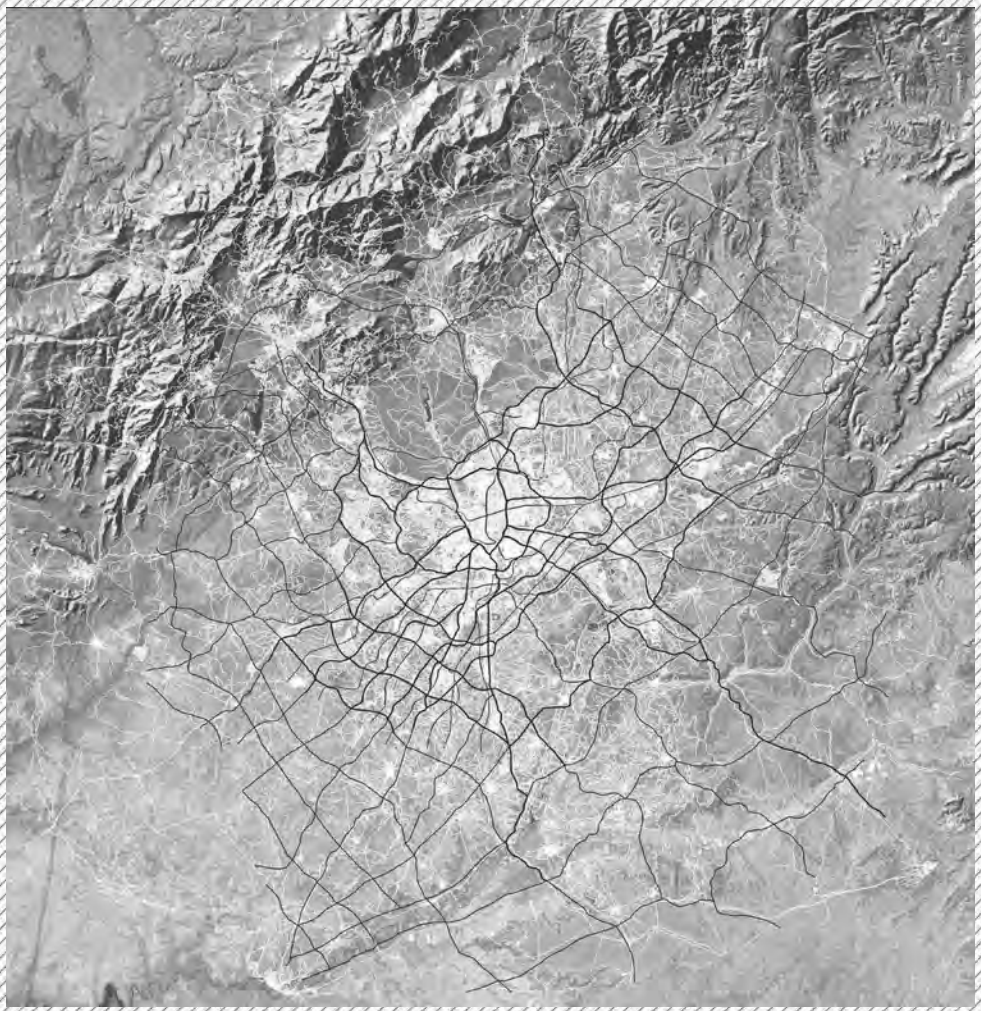
cognitive/usability. The generation of virtual environments (VEs) which follow the rules of the VISC (visualization in scientific computing), activate the control mechanisms of mental representation. The use of dynamic interfaces are an innovation in the field of the cartography tools. The new interfaces are constituted by high interactivity and animation in a virtual space with four dimensions: an interactive model designed with a computer language code, that represents a new way of understanding a territory.
This virtual environment is achieved through an extrapolation data process crossed between DEMs (Digital Elevation Models), satellite images MODIS (Moderate Resolution Imaging Spectroradiometer) and geo-located data from

4

online datasets. The maps are obtained combining images processed with automated statistical procedures for the recognition of land cover.
The scientific visualization of the geography data is obtained with the use of a coordinate system where abscissa and ordinate are corresponding to a geographic reference system; the elevation coordinate is variable. The profiles of the geographical elements are emphasized in order to be identified with the topological and topographic elements. The 3D immersive GeoVEs produce new meanings when they are combined with dynamic representations (that include interactive and animated maps), claimed that the principles of cognitive theory for the 2D static mapping are not applicable.



5

The informations displayed as space-time statistical variations are adaptable to technological devices from the personal computer to the immersive hardware. Every display model requires a specific interface with semantics designed for age, gender, culture and individual characteristics of users.
The theory-driven cognitive research in a geospatial context refers to studies that seek to understand how humans create and utilize mental representations of the Earth's environment, whether obtained via maps or by navigating through the environment. The devices of personal technology establish new common grounds for exploration and geo-visualization methods, that explore geospatial data where you show hidden patterns and relationships in space and / or time.

/* At a first glance the informal appears a maze of streets and houses, expansions and compressions, full and empty, a labyrinth that seems chaotic, without an order, without a logic. But if it is true that "chaos is an order that you cannot see" (Henri Bergson), then you will need to understand how tissues and places reflect an unique way to conceive the space.

Topological pattern

Given the rapid growth of the informal settlements, which proceeds through a gradual saturation of the territory, probably the first necessary step is to understand how the informal pattern evolves. In this sense, it may be useful to simulate the growth of a tissue during a certain period of time, in order to learn from the "primary cell" replication process (often generating cells different one from each other) which comes to compose the fabric itself.
Significant is the case of the informal fabric studied in Cairo. Depending on the requirements related to the ownership of agricultural land, the settlement has been developed according to the trend of the subdivisions of the fields. The basic element is therefore given by a linear strand. However, the process of aggregation of the different strands is not ruled by a simple addition of parts. A more appropriate term, in this case, could be that of "gemmation" because it suggests the compliance of the cells almost organically.
This process, therefore, generates a kind of topological pattern, in which you can see an inner logic.

Growing Space

Due to the role that cultural factors play in structuring the space in the case of the informal settlements, a morphological investigation about processes that contributed to the shape of a spatial pattern, cannot be sufficient. It might be useful to start from the assumption that the informal habitat is an environment re-built by man, outside the consolidated formal city's logics, which triggers mechanisms of different types. Indeed, to investigate the cultural factors is necessary to use other tools such as analogy.
The requirements dictated by necessity involve a forced re-construction of its own habitat and environment. This fact implies that, both on a conscious and unconscious level, people investigate the deep relationship (a cultural relationship) between body and space, in its widest meaning.

This relationship between man and the environment emerges, therefore, in its need to redefine and confirm itself each time, with its reasons and its logic. In this way, the re-contextualization of a body-space relationship occurs.

Critical dislocation /Analogical process

In this scenario, the role of the analogy may be crucial. The search for cultural and spatial patterns through the investigation of a traditional, historical settlement, allows to deploy the first archetypal reasons of the anthropological relationship between humans and their own space: the structural constants underlying the re-formulation of a spatial pattern. Thus the interpretation of history's traces is not a stylistic and formal operation, but a selective one on the spatial structure, which persists across time: what C.Norberg-Schulz called "stabilitas loci". To this end, the methodological principle established by Claude Lévi-Strauss says: "It is therefore far from being the case that the search for intelligibility comes to an end in history as though this were at is terminus. Rather, it is history that serves as the point of departure in any quest of intelligibility".
The example of Cairo can be emblematic in this perspective. The way of conceiving space of the ancient city recurs in some of its basic features within the informal settlement, confirming the presence of *structural constants*, which re-emerge, even if unconsciously.
So the relationship between social structure and hierarchy of the road network, the public-private relationship, the role attributed to the court or the street and so on, all these factors become keys to better understand the topological pattern, (typical of the informal settlement) attributing to it, meanings and hierarchies.

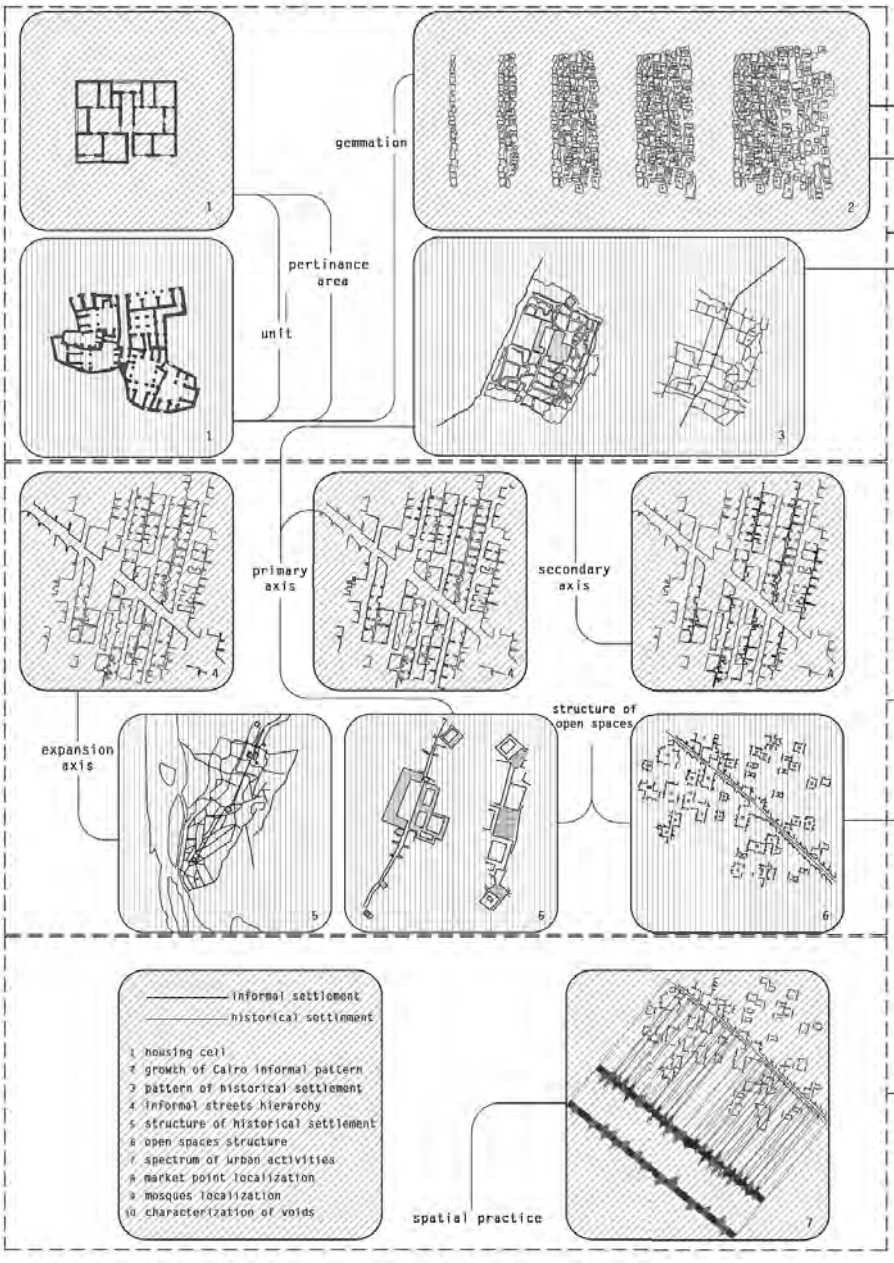
Spatial praxis/Relative orientation

"The intuition of space is not a reading or apprehension of the properties of objects, but from the very beginning, an action performed on them". As stated by J. Piaget, this finds a particular feedback regarding the study of informal settlements considered as a set of places generated by the practice of space itself, relating the shapes and spatial meanings with forms and cultural meanings.

The practice of space is therefore a simultaneous production and re-production of archetypes and symbolic imaginary that make the space, a place. In this sense, we can speak of "relative orientation" (F. La Cecla) a sense that belongs to non-homogeneous spatial, determined not by outside forces but from the bodies that act inside: the space is defined "by tracking of our intentions and our movements on it".
Thus, the time density often expands or compresses the space, leading to a variable reconstruction of the time itself, and intangible boundaries organize the space and draw the mind maps of its inhabitants. So a strong and thick social structure overlaps with the spatial structure, directing and influencing the shape.

Spatial Paradigms

/* A synthesis is required between the different relational scales addressed - only for convenience - separately, but closely connected. To this end it may be useful to find a system of paradigms that guides the reading of the places, in the presence of different scales. In this sense, it might be interesting to re-interpret paradigms, such as those proposed by F. Choay, through the concepts of: space of contact (local, neighborhood), scenic space (landmarks, symbolic places), space of circulation (space of crossing), space of connections (the link with the territorial dimension).
These requirements assume the value of archetypes, themes common to places and cultures, which answer differently the same questions and the same needs. These processes are combined with the psychological categories introduced by C. Norberg-Schulz: orientation and identification. These two functions are essential for man to live the space. In fact, the psychological function of orientation implies the need to know where you are, what relationship you have with the rest of the world. So absolute orientation (territorial) and relative orientation (topological-local) are connected in the experience of the place, and introduce the concept of identification.
The category "identification", in fact, refers to the need to know a place, to take possession of it, and to belong to it. Both of these aspects give sense and meaning to places as an existential, cultural and human expression.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primary axis
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expansion axis
structure of open spaces
informal settlement
historical settlement
1 housing cell
2 growth of Cairo informal pattern
3 pattern of historical settlement
4 informal streets hierarchy
5 structure of historical settlement
6 open spaces structure
7 spectrum of urban activities
8 market point localization
9 mosques localization
10 characterization of voids
spatial practice

topological texture

pattern

process of morphogenesis

structural constants

density gradient

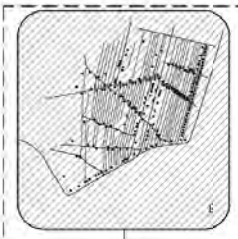
mental map

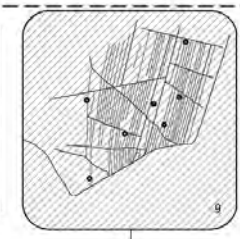
immaterial boundaries

relative orientation

variable reconstruction of time

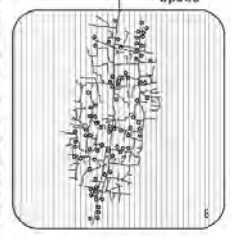
spatial pattern re-formulation

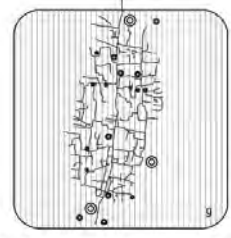




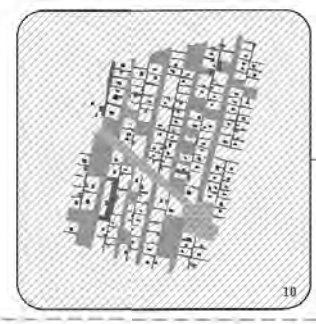
linear public space

focal points





public-private gradient



According to this approach, the design and plans are no more something static, but they rather become a dynamic system that works through density gradients, from the intimate space to the connections with the territory, linking the local scale with the metropolitan one, operating on the informal ecosystem at different relational scales, recognizing and interpreting the material and immaterial traces of the place, acting on cultural and spatial structures and meanings. ○

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Figures

THE IMAGIBILITY OF THE METROPOLIS

NATHALIE ROSEAU

/* Images, as well as metaphors or discourses, are taking a structural place in urban planning and design. However, their influence seems to be underestimated, both in the analysis of the sociotechnical process along which urban projects are conceived and materialized, and in the historical analysis of the fabric of the city. In exploring the roles of early twentieth-century panoramic and aerial views, Hubert Damisch pointed out the narcissistic structure of the urban environment, which constantly seeks ways to depict itself as a representable whole. "It is as though, at the moment when the great city, the metropolis, the *Großstadt*, was beginning to call for an image of agglomeration other than a strictly architectural one, it seemed indispensable to preserve its visibility or, to evoke a Freudian problematic, its *representability*." [1] The following essay will here explore the way images crystallized some key metropolitan paradox, originating from the need of representing new phenomena that previous views could not represent, and generating in turn new projections, also proving how important is the performative power of images.

1 City of flows and space representations

/* The airport example embodies a metonymic figure of the phenomena in progress and the difficulties of representing them through images. As an integrated exchange platform at the epicentre of intra-city flows, accumulating more and more functions and services, the airport's role in the metropolization is gradually making it one of the dominant figures in global cities. As they get bigger, airports both anticipate and underpin the distension of urban space, eating into swathes of outlying territories that are in turn invested with programs, buildings representing a mix of architecture, urban forms and infrastructure, sprawling complexes of air terminals and hangars, and transport and engineering networks. The numerous dimensional parallels which have been conceived by airport designers in order to make clear this change of scales as well as the appearance of new type of scales show how this strong process of both diffusion and intensification is one of the key issues in airport's planning and design.

Moving all of these new amenities further away, this process increases the absolute necessity of forging physical links between the airport and the city to which it is the aerial

gateway and this issue also shows how the relation between airport and the city is quite ambivalent. In order to counter the effects of placing the airport outside the built up central area, planning has constantly strived to compress or even ignore the intermediate space that separates these two attracting poles. Contemporary airport design has also refocused on the figure of urban air terminals. In the Hong Kong archipelago, the decision for moving on the airport from the centre to the periphery led to a whole new plan for the "refurbishing"of the territory. Polycentric city with high density peripheral urban nodes, linked by high-speed metros, has been settled in a very short time, combined with the building of very intensive nodes in the hypercenter, like Central and Kowloon, which are quasi-global cities within the city. These places welcome in-town airport terminals, exacerbating the thematic of urban integration and consequently introversion. They are not only airport terminals for the luggage check-in, but they also house commercial functions, cultural displays, office complex, hotels, residentials, and even public spaces, exterior or interior. Terry Farrell, the architect of Kowloon Station, argued he wanted to "urbanize the airport", also renaming his station "SuperKowloon". But we rather may see the urban station as being airportized, this artifact being a hybrid between airport and the city, transforming both imageries. [2]

Grand Paris, City and its exteriority

/* Launched in 2008 by the Ministry of Culture and Communication at the request of the President of the Republic, the international consultation on the future of metropolitan Paris gathered 10 teams led by renowned architects. In the course of this event, designers and planners were confronted by issues beyond the normal reach of simple project design: tensions between centre and outskirts, friction between forms and flows, the obsolescence or durability of urban installations, the polarization and atomization of power, and the sturdiness and resilience of local structures. [3]

In order to *visualize* the metropolis, architects made abundant use of aerial, satellite, and cartographic views, seeking to recover the legibility of the metropolis through those globalizing representations.
The more we go up in the air, the more we can encircle the urban fabric, trying to reconquier it as a figurable entity. However, this sensation of power stimulated by this apparent

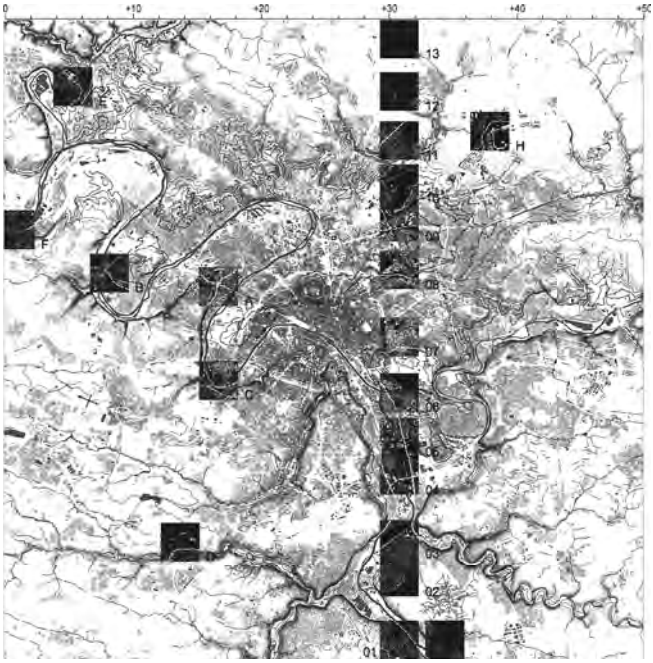
remastering of the metropolitan reality, is quite an illusion as this highly narcissistic point of view erases scales, articulations, obstacles which can be seen only from the ground or more precisely. A flat depiction of a megalopolis as fluid and practical on foot as Tokyo is hard to read for Westerners; the map of its public transportation is no clearer, while an aerial view of its endless, continuous urban expanse, interrupted here and there by clusters and spires of skyscrapers is no more explicit in explaining the main forms and structures of the city. Yet the effect of chaos sparked by an aerial view of the Japanese capital should not make us overlook its intrinsic urbanity - apparent disorder, hidden orderi. [4]

Given this situation, the structural vagueness of aerial views led the teams to suggest other modes of representation. High-angle views were thus complemented, amplified, or even replaced by various registers of imagery. The Italian team led by Bernardo Secchi and Paola Vigano employed sampling to free itself from the collective imagination of Paris as a city ringed by outskirts with its poles and fringes, and thus to convey a geography of *porousness* that can, above all, be *paced out*. Rejecting the illusion of a plan seen from above, Christian de Portzamparc's metaphor of *rhizome* presented the city as a multiple organism whose development needed stimulating. The *matrix* developed by the AUC team stressed the metropolitan potential of local perspectives, proposing a non-hierarchical organization whose ordinary components would provide the basis of its transformation. The *calculator* devised by the Dutch agency MVRDV, meanwhile, modeled the metropolis by working on potential paths to compactness.

These images - tools of discussion, provocation, and consensus- then served as the means to project a transformation of the *reality* they sought to reflect. The globalizing approaches cast the future of the metropolis around bold visions designed to counteract the radial-concentric trend inherited from the historic narrative of Grand Paris. Whether polycentric or linear, polarized or more diffuse, the proposed urban "networks" were designed to break with the logic of upward and downward pressure-points that shape metropolis. The emergence of this net-city was accompanied by an enlargement of either the physical extent of the metropolis or the size of the buildings comprising it. The transition from urban to metropolitan was materialized here by changes in dimension, the most emblematic ones being a conquest of

the west as far as the sea (proposed by the Seine Métropole scheme) and a metabolic resurgence of mega-objects in urban architecture embodied by *hyperstations* and *nodal clusters*.

However, sensing the limitations of a vision reduced to the emergence of a multipolar structure, the teams sought to explore alternative forms of locality that were more specifically contextualized if less immediately graspable. From this perspective, a local, narrow, sampled, and deliberately non-hierarchical representation likened the metropolis to something nebulous, whose situation and projection could not be reduced to a single system of rationalization. In a turning of the tables, the interstitial city here became the very essence of the metropolis, thereby reformulating the potential meanings of the notion of polycentrality.



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3 From plan to project, from project to plan

/* Operating from plan to project, the architects focused on one place in particular: transport stations. Given the crisis in planning programs now subject to uncertain financing and unforeseeable future, infrastructure has actually emerged as one of the last ramparts of large-scale urban development once it is viewed not just as a technical object for easing urban flow but is conceived in a more general way as construction project, inhabited building, urban system, indeed regional structure. Faced with increasingly massive flows and increasingly individual habits, stations have then become a key figure for projecting representations of the metropolis. However, the diverse terms that have designated a station as a site of urban convergence - hub, nodal cluster, switch point, technopole, microcentrality - have also reformulated the issue of its conception. The polycentric view of the metropolis favored stations as monumental blocks even superblocks, incarnating the urban aspirations of the day. Alongside these heroic images, the defenders of the diffuse city focused on the interstices of the net, redistributing the infrastructure and its hundreds points of convergence.

Thus we can see that, when projected onto the conception of a large infrastructure, the expression of polycentrality produces different systems of objects depending on how it is defined. On the one hand we may have a ring of monumental stations that assert their role as hypercenters along a multipolar archipelago. On the other hand there may be a more diffuse network of suitably sized facilities that seek to begin the process of redefining the suburban town. Each vision is to be taken into account, if we want to apprehend the alchemy between the local and the global, which is affecting each part of the metropolis. Each vision also produces a total approach that lends forms to the world of infrastructure, endowing it with its own identificatory, formal, and functional vocabulary, thereby channeling the changes of the region it irrigates.

The current Grand Paris process shows that urbanism is incarnated above all by an underlying narrative that it simultaneously helps to write: an open and multiple narrative of “images” that seeks to describe our metropolitan condition, a narrative of “places” that singly and jointly make

it inhabitable, and condense the diverse issues faced by the metropolis. The main point here to insist on is to reduce the risks of rupture between representations and projects. Thus, designing process needs to let opened all the possibilities for the project to retroact on the representations, which in turn could also modify according to the project living experience.

Notes

[1] Hubert Damisch, Skyline, La ville Narcisse, Paris, Seuil, 1996, p. 29.

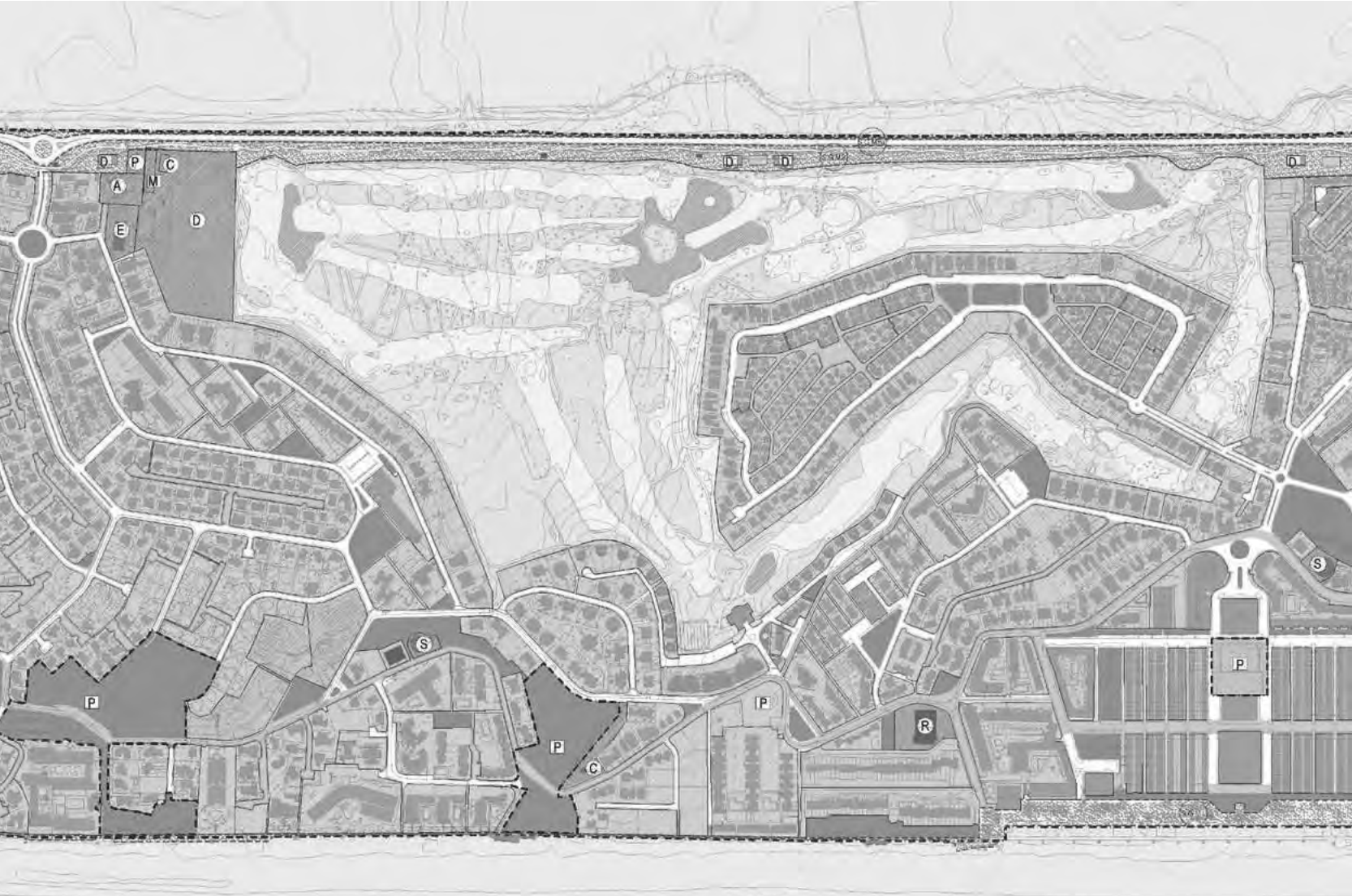
[2] On the role of images as both understanding and acting mediators on the forging of relations between airport and the city, read from Nathalie Roseau, Aerocity, Quand l'avion fait la ville, Marseille, Parenthèses, 2012.

[3] For a synthesis of the whole works produced during the consultation, read the special issue of Moniteur AMC, « Le Grand Pari(s), Consultation internationale sur l'avenir de la métropole parisienne », 2009.

[4] Inspired from Émille Aillaud, Désordre apparent, ordre caché, Paris, Fayard, 1975, title which has also inspired the tribune written by Paul Chemetov et Michel Lussault, copresidents of the scientific council of the consultation, in Le Monde 11th april 2009.

Figures

1 Studio 09, Bernardo Secchi and Paola Vigano, *Case study for Paris Region*, International Consultation for Greater Paris, 2009.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TOWARDS THE ECOLOGICAL REGENERATION OF THE CITY

DOMINGO SÁNCHEZ FUENTES

/* Contemporary civilization is fully engaged in a period characterized by insecurity and uncertainty. The Globalization process and the social and economic crisis have transformed the general context and, particularly, the paradigms of the modern urbanism discipline. In all this matter, the sprawl urban area is one of the main changes which have caused more perplexity and astonishment.

Although the city dates back to more than seven centuries, it is not until the 20th century that the numbers of urban inhabitants underwent a spectacular increase, causing the transmutation of the rural society into an urban society. This increasing concentration of people has produced *the materialization of a big contradiction: the most aggressive and chaotic places on Earth, have become the house of the majority of the global population* (Ojeda, J. Fl, Villa, A. 2009). Nowadays, the sprawling city advances towards our conurbations' outskirts and coastlines, incessantly gobbling up territory and creating more generic city areas, where the consumer culture inhabits.

This new model of occupying territory has deeply transformed the periphery of our cities, the rural environments and further places which also suffer, directly or indirectly, the collateral effects of a way of living which has no sentiment towards nature and ignores dependency on it. This way of colonizing the territory has increased the break between functions, social classes, spaces and landscapes, highly reducing citizens' life quality. Nevertheless, this situation is relatively recent, thus previous human societies adopted settlements whose size depended on the quality and quantity of the natural resources of the surrounding environment.

With the invention of the steam engine and its subsequent implementation into the industrial system of production, and particularly in transport, cities thought that links with the earth have been erased, but it was nothing more than a mirage. Since the industrial revolution, society has been kept subordinate to the economy, and the area of influence of our cities has grown to involve the whole planet.

The dominant paradigms of modern urbanism have become unusable due to the transformations suffered by our cities

and landscapes during this period, and particularly even rawer in the second half of the previous century. These paradigms, given birth to repair the damages caused by the industrial city, no longer answer the problems created by the contemporary city in its never ending expansion.
Modern urbanism models have been refuted from a neoliberalism point of view, and also from ecology stances. [1]

From the neoliberal complains, the aim is to establish and promote a deregulated business urbanism, driven in turn by global processes; it production appears as the predominance option. The idea is to replace social urbanism for another model which considers the economic market as the element to regulate the city project, encouraging the unlimited and permanent expansion of the urban areas, and the establishment of the new notion of freedom linked to the right of infinite mobility and the wasting of energy.

Is it forbidden to notice the evident?

1

/* There is no longer any doubt that the last century emerged a new ideology, based on the Club of Rome's Meadows Report about "the limits of growth". This report highlighted the contradictions between environment and development, and created the concept of "*ecodevelopment*" as an answer to the unsustainable economic model. [2]

However, this concept [3] was abandoned drastically and replaced by the one of "sustainable development", which based its success and acceptance in the mixture of two completely antagonist concepts.[4] More than three decades have passed and the evidence shows us that the majority of governments keep on wagering for purely developmental models with the unique spirit of neoliberal and globalizing urbanism (Sánchez, D. 2003), because *the deceitful simplicity of the term sustainable development and its meaning, apparently shown, helped to spread out a smoke screan around its inherent ambiguity* (O' Riordan, T. 1988).

For this reason, it is indispensable to clarify and identify what is the objective of sustainability, because it has turned into a rising paradigm which impetuosity impugns the paradigms of the modern urban discipline.

First of all, it is helpful to recognize two types of sustainability: the weak kind, formulated by the true rationality of the standard economy; and the strong kind, set out from the rationality of the economics of nature (Norton, B.G., 1992).

Secondly, we should assume that the new paradigm of strong sustainability has become an alternative way to refute impetuosity the development bases of modern urbanism and the models bases on the endless growth and the unlimited consumption of resources.

In order to finish clarifying the objectives of sustainability, it is necessary to remember what Rees and Wackernagel calculated in 2000: the ecological footprint of the planet depending on seven indicators. They found that the planet consumes more resources than produced: the ecological footprint of the Earth was 2.2 global hectares per person with an ecologic deficit of -0.5. The system has not collapsed because we are consuming the resources saved up for centuries, and due to the fact that this exacerbate exploitation of the environment has not been made uniformly in the whole of the planet. [5]

For this reason, the balance between the three dimensions of the sustainability [6] has split up and turning the concept to a more social side, because it has been scientifically proved that ways of living which do not recognize their dependences with the nature, creates negative and collateral effects in far-flung societies and places. This evidence has created the fourth dimension of the sustainability: the cultural one.

All these progressions in clarifying the objectives of sustainability have developed ambiguous models within the European Union. This ambiguity was born out of the fight between the weak ideas of the model, and others who defend the strong intention of ending the fragmentation of territory and the decline of our cities. During the last twenty years, since the publication of the Brundlandt report in 1987, until the Leipzig Charter [7] on Sustainable European Cities in 2007, Europe has improved defining the clues which must be incorporated in the instruments of defining the city, with the clear objective of encouraging the efficient and sustainable use of resources, even though it has not already assumed that "sustainable development" should concern development without growth. [8]

In the Leipzig Charter, countries are invited to promote points of view related to integrated urban development, coordinating temporal, sectoral and spatial aspects, and to dedicate greater emphasis attention to less favored neighborhoods in the global context of the city.

For the drive of these two actions, which are essential clues of the Sustainable Development Strategy of the European Union, directives must be established to promote innovation and educative politics, the development of an efficient and attainable urban transport, the improvement of the environment, the creation and consolidation of high quality public spaces with cultural components, the increasing of infrastructural networking, and the development of real energy efficient politics in our cities.

However, despite the progress made towards a more established sustainable culture in Europe, the contemporary city is still constructed under the paradigms of the continuous expansion and the energy wastage. Without question, citizens do not want to face the evidence of the facts, because they want to keep on protecting themselves under the shadow of the "urban giant", uninvolved in the conflict, and ignoring the impacts created by our daily way of life.

New ways of watching the city.

/* Aristotle established an obvious but forgotten distinction between the economy (the management of the house) and finance (the art of making money). This difference is fundamental for speaking clearly between economy and sustainability.

If we would have understood this idea, the complexity of the city would not have become chaotic, and we would not be immersed in the current situation of climate change. We have insisted on, at the same time, as impossible as categorical distinction between economy and nature that we are still trying to lock.

To move in that direction, we must abandon the ways of creating the city by the environmental economy (this model is a closed system which considers the relation with nature as

fortunate), and move closer to the paradigms of the ecologic economy, related to strong sustainability, the one which incorporate the laws of thermodynamics, the inside function of the ecosystems, the co-evolution idea of the socio-economic system and the environmental one, the precautionary principle and the physical flows. The goal is to consider the economy inserted in a biophysical system, which is the planet, and that must be regulated by the physical laws which cannot be ignored. [9]

If we accept that there are extremely close ties between the conservation of nature and human well-being, why are we still not dealing with the basic conflict among the ecosphere and the conventional economy model of continuous growth?

The establishment of the ecologic economy as a dominant system would mean the end of the hegemony of the economy dimension in the analysis and the diagnosis of our territories and cities.

Now it is necessary to rethink our lifestyles, the wasteful use of the territory, the energy and the water, the exaggerated mobility, the individual and collective concept, in order to reformulate sustainability regarding the cultural aspect. This reflection would allow the appearance of other city models based on the principles of the strong sustainability and the ecology.

We know now that is necessary to start thinking "outside the box" and to assume the conflict trying to solve the antagonism between economy and ecology, between cultures, between life and business time; new views capable of generating urban models which do not forget that the city continues parasitizing the natural environment, leading to those models which destroy the complexity of the social and ecologic framework.

The situation forces us to renew the concept and the future of cities, trying to turn them into spaces for life. It is necessary to increase the rationality of the system in order to design territorial and urban models which consume less resources and contaminate much less, without reducing the current quality of life. In order to turn this idea into a reality, we have to review the instruments of urban planning and think over

some issues about urban spaces from the threefold condition of the inherit urbanism: aesthetic-formal, scientific technical and as a means of social transformation.

We must address the urban subject integrating these last three aspects into the socio-ecologic point of view, in order to reinforce citizen's rights for beauty, equality and the availability of services, infrastructures and housing, all of them built up from the efficiency and the responsibility of the natural resources shortage.

Technology solutions are not able to efficiently answer the problems created by the global city in its process of growth. Indeed, it is necessary to embrace those territorial (*urbs*), social (*civitas*) and political (*polis*) elements, which once created the city in the past, in order to recover the original characteristics of the city as place for cohabitation holding different ecosystems, free people and ideas. [10]

This situation demands new points of view about the city which let rehabilitating its ecotone condition and cultural reality; new outlooks which help us to construct a social, politic and cultural project linking the environment and social relations. These new insights, which must be ethical and multidisciplinary, will allow the creation of a higher ecologic awareness and other ways of understanding production and life. Therefore, we could move beyond the energetic fascism period and begin to transform the sprawl city model into the regenerated city one.

Rehabilitating and optimizing obsolete urban areas: the existing city as a resource.

3

/* We must seek the solution in our own cities, as the Europe Territorial Agency express: "*with the implication of each region and city, we can contribute for the energy economy, decentralised energy supply and mitigate the climate change, supporting the development of low carbon emissions urban areas, encouraging new potentially renewable energy sources and promoting the energy efficiency, particularly the buildings one*".

Due to the intervention in the existing city it has become a public administration's duty and a citizens' right, because our

cities neither are efficient nor answer to the energetic requirements demanded by society, we have to concentrate defining the new urban models based on the rehabilitation, regeneration and recycling; abandoning, on the other hand, those which aim to colonize and urbanize new natural or rural areas.

The goal is to grow less, to live in high quality urban areas, to reduce the unsustainability of the consolidated city, transforming it through urban recycling. New models must consider the state city as a resource, developing the consolidated city with new proposals of housing, equipment and public spaces.

Thus, through rehabilitation we will stimulate the sustainability of our cities according to the principles and guidance of community policies. Also, we will get the reduction of territory consumption, the recycling of abandoned city areas; we will place strict limits on urban expansion and dense existing urban areas reducing obligated mobility; we will increase the required complexity of the city and optimize the infrastructures, the installations and the existing social networks. We will reduce the energy wastage improving the buildings and neighborhoods efficiency.

It seems to be a hopeful scene. Rehabilitating our cities, we could obtain savings in the energy bill, encouraging the city structure to recycle, increasing the re-using of generated waste, promoting the usage of eco-efficient materials, and finally, laying down the use of alternative energies as an obligated infrastructure for the daily working of the sustainable city.

The emerging contemporary cities must be able to find their own identities, singularities and strengths, in the complex, global and interrelated setting of contemporary civilization. In order to improve to more sustainable models, it will be necessary to define and evaluate sustainability from the cultural, the ecologic and the social profile of our cities. This would be the only way to develop a multidisciplinary set of interventions working the environmental, social, urban, economic, cultural and technological fields capable of renovating unstructured neighborhoods, which nowadays suffer from a high level of environmental inefficiency, lack

of equipment, deep accessibility problems and where people live with low salaries and risk of social exclusion.

Although we are convinced that "*the city is the entity most capable of dealing with all the imbalances in architecture, society, economy, politic, environment and natural resources which affect the modern world*" [11], we consider that the most useful figure to solve the problems properly, developing holistic and sustainable actions, is the neighborhood. It is the space where an individual is able to recognize his identity and also, in that area, to feel his belonging to a social group. "*It is the connection between the domestic environment around a symbolic element: the public space*" (Lefebvre, H. 1967).

As it is expressed in the Green Paper and also in the Leipzig Charter about the territorial cohesion in Europe, the public space must assume an important role in the regeneration progress of our cities. They have to become once again the main meeting points, symbolic scenarios where citizen culture, the practice of the right and practice of the participation and disagreement could develop.

For the sake of encouraging all these new paradigms, we have to urgently create methodologies capable of transforming our cities from strong sustainability statements. It is essential that urban planning instruments renovate and think about the appropriate targets in each scale of intervention, with the aim of defining the strengths and the excellences of the city element. These first beginnings are essential for identifying the strategic projects that could properly develop the interventions of conservation, rehabilitation and management in our urban landscape neighborhoods.

Analyzing the city heritage as the urban landscape could be a clue for addressing globally in a sustainable way the shape and quality of the public spaces used by the citizens, as an essential step to embrace collective and individual well-being. Technology will allow us to design urban settlement models which guarantee the functional and energetic efficiency. [12] The social analyses will help us to design our future city through leadership, citizens' participation and innovation, because the key to success lies in an active community able to organize itself and manage the new urban model in an open and continuous process.

We propose to act in our urban areas moving beyond the common sectarianism and poverty of the urban disciplinary. Actions which aim to balance with the natural environment rhythm and to reduce the production of waste and the large amount of resource consumption, recycling obsolete areas and promoting renewable energies to invigorate citizens' awareness, while, at the same time, rehabilitating the public space. These actions should be based on open participation processes in which all the social agents are be involved. This model of intervention should trigger a positive response from the citizen.

In contrast to the indolent pride which normally supports urban planning interventions, these actions to develop in the public space will increase the civic capacity in cities, creating without destroying our neighborhood's cultural landscapes.

The sustainable future project of our cities would never see the light without belonging to citizens' minds on a global scale. This would be the unique chance to create sustainable cities and banish urban models based on renewable energy resources as a means of guaranteeing the right of the alternative energy wastage. We must keep in mind that the ways we make decisions and who take them often affects the result.

Notes

[1] Peter Hall predicted the conflict between two types of interest in the city at the beginnings of the 20th century: the impulse toward the development, on one hand; and environmental conservation, on the other hand.

[2] The environmental sustainability target reveals itself incompatible with the development of an economic system which globalization process causes at once environmental destruction and total cultural homogenization (Norgaard, R.B., 1996).

[3] This term "ecodevelopment" began to be used at international levels linked with the "environment" and "development", giving rise to the Cocoyoc statement (Sachs, I. 1994).

[4] Unconsciously, one can connect the notions of sustainability and development because it seems to be impossible to define sustainable development in an operative way with the level of detail and control which presuppose the logic of the modernity (Sachs, I. 1992).

[5] Arab Emirates together have an ecological footprint of 11.9 hag/inhab. and a ecological deficit of -11. USA has 9.6 and -4.8. In contrast, Afghanistan has a footprint of 0.1 and a surplus of 0.2. Gabon 1.4 and +17.8, while Congo 0.6 and 7.2. In Spain the footprint is of 5.4 and the average of European Union is 4.8" (Fariña, J. 2007).

[6] Commonly the three dimensions are the environment, the economy and the social one.

[7] The Leipzig Charter about Sustainable European Cities was created during an informal meeting of ministries where the issues of urban development and territorial cohesion where handled 24th and 25th May, 2007, Leipzig.

[8] This is refers to the movement born in France called "décroissance".

[9] In this sense is quite useful the research made by the professor Aguilera Klink.

[10] In Ojeda, J.F, Agueda, A.A. 2009.

[11] Carta de Aalborg (1994).

[12] Gaffron, P.; Huismans, G.; Skala, F. Ecocity Project. Handbook for designing ecocities in Europe. 2nd book. Bakeaz, 2008.

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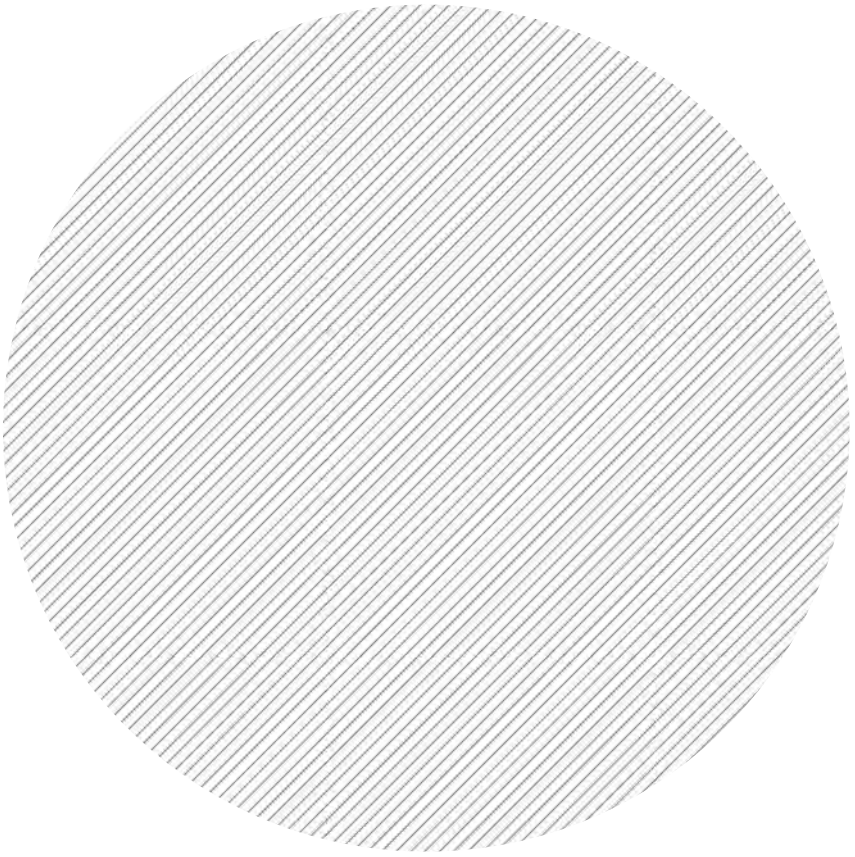

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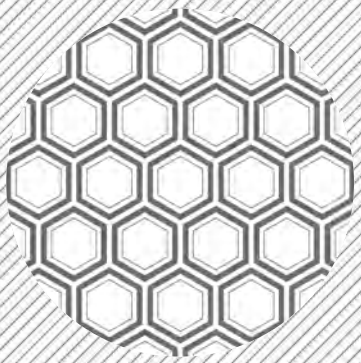


Michele Moreno,
Groundscape.
Geo- urban Transcriptions and Expanded Archi-tectonics.

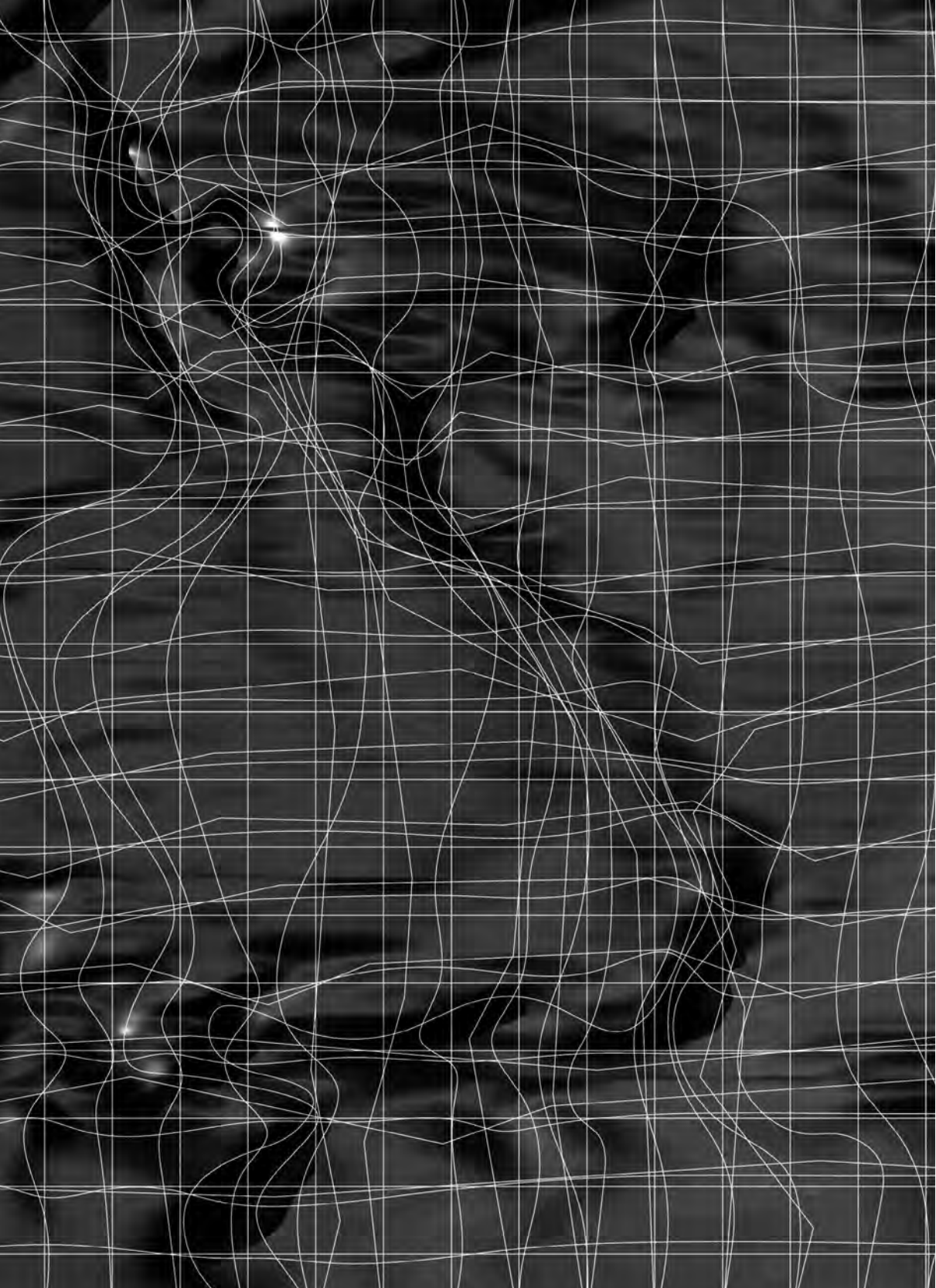
Matteo Fraschini,
Designing Between Scales.

Ernesto D'Alfonso,
Composition.

Michael Schawarting,
The S cales of New York.

Giovanni Santamaria,
Transforming Landscapes vs Resilient Environments.

THE METROPOLITAN DESAKOTA BLOCK. COMPOSITION AND PROJECT



GROUNDSCAPE GEO-URBAN TRANSCRIPTIONS# AND EXPANDED ARCHI-TECTONICS

MICHELE MORENO

Michele Moreno is a architect and an adjunct professor of Architectural Design Studio III at the School of Architecture and Society Polytechnic of Milan. He graduated magna cum laude at I.U.A.V. in Venice with the experimental thesis *"Fuga attraverso spazio e tempo. Tra le pieghe di una città invisibile e del suo sogno interrotto"* supervisor prof. Franco Purini. In 2006 he has completed his P.H.D. research *"Geo-Archi-Tectonica tra dislocazione critica e radicamento"* in Architectural and Urban Design, at the Polytechnic of Milan, with stages in Oxford Brooks University and New York Institute of Technology. His experimental research mainly deal with new approaches to contemporary urban design, through specific connections with theory and practice of action art. His exploration is also developed through a number of national and international seminars, lectures, whorkshops, studios and competitions. His work has been recognized with awards and publications: for example the Ephemeral Structures in Athens, 2004_Open Air Theatre Competition (first prize with exhibition *Athens-scape* in different cities like RIBA Gallery in London, Fondacion Hellenique in Parigi and Hangar Bicocca in Milan). He was selected to participate in the X International Architecture Exhibition of the Venice Biennale 2006 'CITY', *Architecture and Society* "curated by Richard Burdett, New Italian Pavilion *"ITALY-y-2026. Call for VEMA"* curated by Franco Purini.

In reference to the text published in "Geo-Urban devices" by Manuel Gausa, Area, n°79, 2007.

"…generally I believe that what I find is real… in terms of geography. Why? I say: all this facts have been proved hundreds times. But how I know that? What proves do I have? I have an image of the world. Is that true or false? First of all, that is the foundation of my searching and asserting."

Ludwig Wittgenstein

/* The space we move through has been changing in relation to our way of thinking and living. The development of technologies, of knowledge and procedures related to these, have given figure on one end to a *plastic environment* easy to use, on the other to an *existential one*, uncertain and characterized by multiple ways of been understood and codified, which underlines the need of clarifying new 'multi-aesthetic' conditions (ref. *Immagine Ambiente*, by T. Villani). The network of knowledge, of social alliances, of economic and political habits breaks the traditional consolidated paradigms of thinking, which are then obsolete compared to the current mutations. The present scene of dwelling, more and more renewed within the reformulated dimensions and definitions of metropolis, megalopolis and *mega-city*, has to find again a sort of genetic foundation in relation to its environment, considered as whole environmental system, in terms of dynamic space of relationships between *humans*, *territories* and *technologies*. This line of thought follows the necessary *new alliance* with the natural dimension as introduced by Ilya Prigogine in the '90es, which also highlight an irreversible and undetermined relation of each part of this world to its initial state, not totally known but potentially completely knowable, which is at the beginning of several *spontaneous biological organizational processes.* [1]

To reformulate the meaning of dwelling in relation to its environment becomes a sort of recombinant action between notions of *ecology*, *technology* and *symbolic* value as supported by Felix Guattari. In this regards, he claims the necessity of a new design opening, as act of freedom but also of construction. This acts as cure against the discomfort of the present civilization: "*the common basics among the three ecologies, then, it's the fact that the existential territories that we compare ourselves to, don't offer themselves as a self-referential closed element, but likea temporary one, completed and singular. It is able to bisect itself in layered and lethal reiterations, or in an opened process starting from strategies that make it 'inhabitable' for a human propose. This operating opening it's the essence of this art of '-eco' which uses all strategies to domesticate both kinds of existential territories, the ones related to the intimate ways of being, body and environment, and also the ones related to the vast contextual whole concerning ethnic groups, nations, or also general human rights.*" [2]

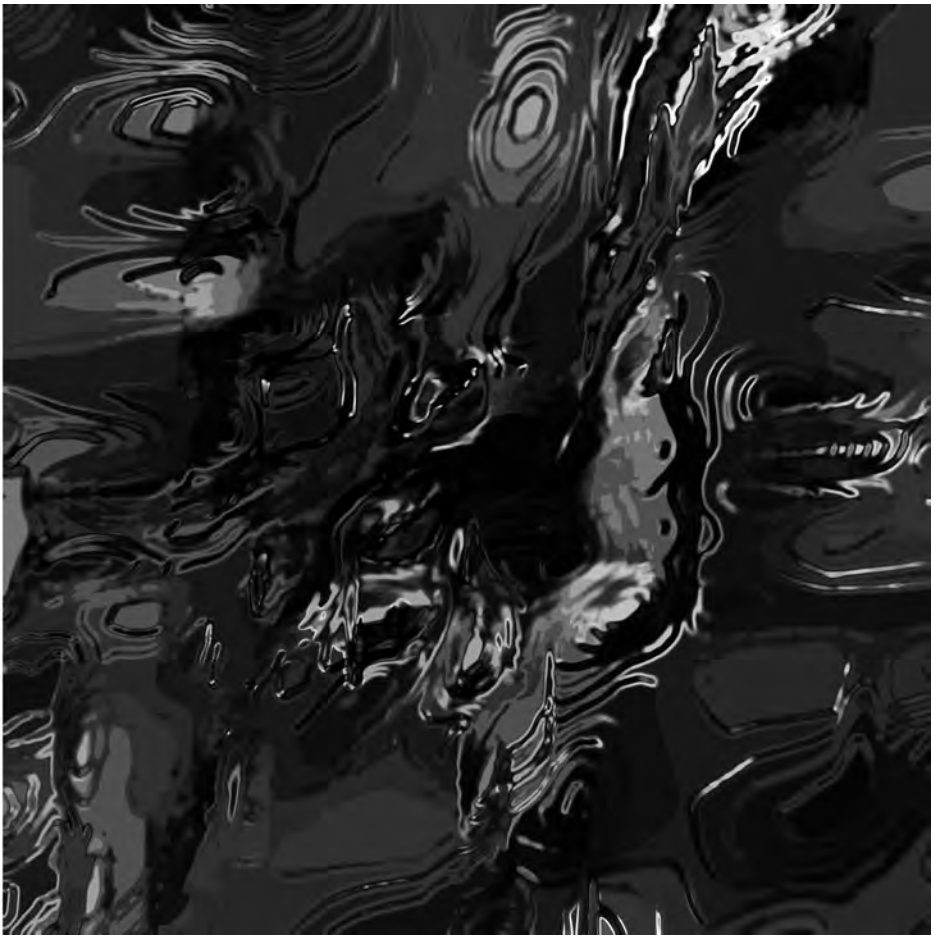
The in itselfhoped by F. Guattari defines an active practice of 'oikos' (dwelling) where the several existential and material territories of being, are oriented to multiple daily practices, and towards an evolution of complex spaces which already reached a level of externalizing of their own prosthesis so elevated, that it changed not only the traditional models of environmental configuration, but also the concept of time. This is not defined anymore by linearity and cycling behavior, but form *multidirectional proximity*. This is an ecological crisis that relates to a more general one which includes society and politic, where "…*the issue is not only related anymore to the establishment of democratic rights…it's responsibility of the ecology to reinvent new way of being into the world and new forms of sociality. Ecology will be first of all mental and social, or it wouldn't be at all…*"

The crisis of the environment in terms of its image, means crisis of its imagination, then also of the technique of montage and of its memory, as George Didi Hubermans says. This highlights the status of the environmental image as opened towards an anthropological approach to the physicality of the space beyond every idea of anthropomorphism and figural representation. Beyond every settled definition, the image of the environment and its fantastic projections have to find their *optical subconscious* and rediscover their *basic substance* and the *horizontal perturbing impulse* (irrational) which destabilize the current ontological premise. This will lead to recurring events and visual obsessions that re-emerge in a sort of *lacerate image*, which is upside-down and oriented towards a subtle perversion, following the definition of G. Wajcman. He underlines its aesthetics related to the *ecstasy of simulation* in relation to Baudrillard's point of view, still existing in our culture, and the origin of which is traceable in the second half of XX century, where the global development of informational networks and of communication processes determined a shift in favor of an aesthetic condition characterized by *forms of simulation and hyper reality*. This process is oriented more then to a de-realization, to an inclusive hyper-realization, which doesn't leave anything beyond itself, moving towards an excess of analogues realities defined by the possibility to become signs in themselves, and reproducible codes oriented to commutation and substitution. The *idea of representation* of the architectonic space has been replaced then from the idea of *simulation*, which destabilize the idea of *structure* of

architecture in itself, as '*tektonicos*' (knowledge of the process of the art of building), and in terms of environmental relation between *topos-typos-tectonic* (place-type-tectonic) which represents typology of settlement, architecture and structure. Here the integrity of the "*tekné*" [3] (technique) tendstowards a conflicting separation between technique and art, between expression and objectivity, following the thought of V. Gregotti [4], going beyond the dialectic opposition between *construction as ontology or as symbolic representation*, towards the awareness of the total loss of the aura described by Benjamin during the past century.

In this aesthetic and material dissolution, the architectonic and urban project has to rebuild its own vision and image, through the recovery of an "*eco-philosophy*" which defines new "*geo-morphologic*" conditions. These are the A*daptive Ecologies* resulting from the recent researches included in the book "Geologics" by Vincent Guillart; in the book "*Geography Information Architecture*", in topics *Architecture's Adaptation* by Theodore Spyropoulos; in the one titled "*Structural Ecologies*" by Tom Winscobe; or within the researches collected in "*Landform Building*" by Stan Allen, who highlights the theoretical-practical shift from *biological to ecological*; the organic metaphor is applied to the construction of new environmental structures also in the work of Michael Hensel. In these experimentations urban design finds again its connectivity to the *geographic memory* of the territory, trying to rethink the meaning of *tectonic* connected to a geologic approach, as study of the process of change of the earth crust and its expressions. That reactivates one of the most important elements as revealed by G. Semper, which can't be erased by any process of simulation or aesthetic dissolution: the *base-foundation*.

To reveal the "tektōn" of architecture as foundation of the artistic practice, means to pay attention to the relationship that architecture has with the earth end the specific place where it's located, in a sort of *critical continuity* which highlights its rule as *origin* and substantiates it through renewed expressions.These derive by considering history as invention and modification of nature, transformed in a recognizable *landscape*: "[…] *landscape* [… *is*] *useful to specify something and at the same time the image of it*," as Franco Farinelli wrote. The construction of the ground becomes an



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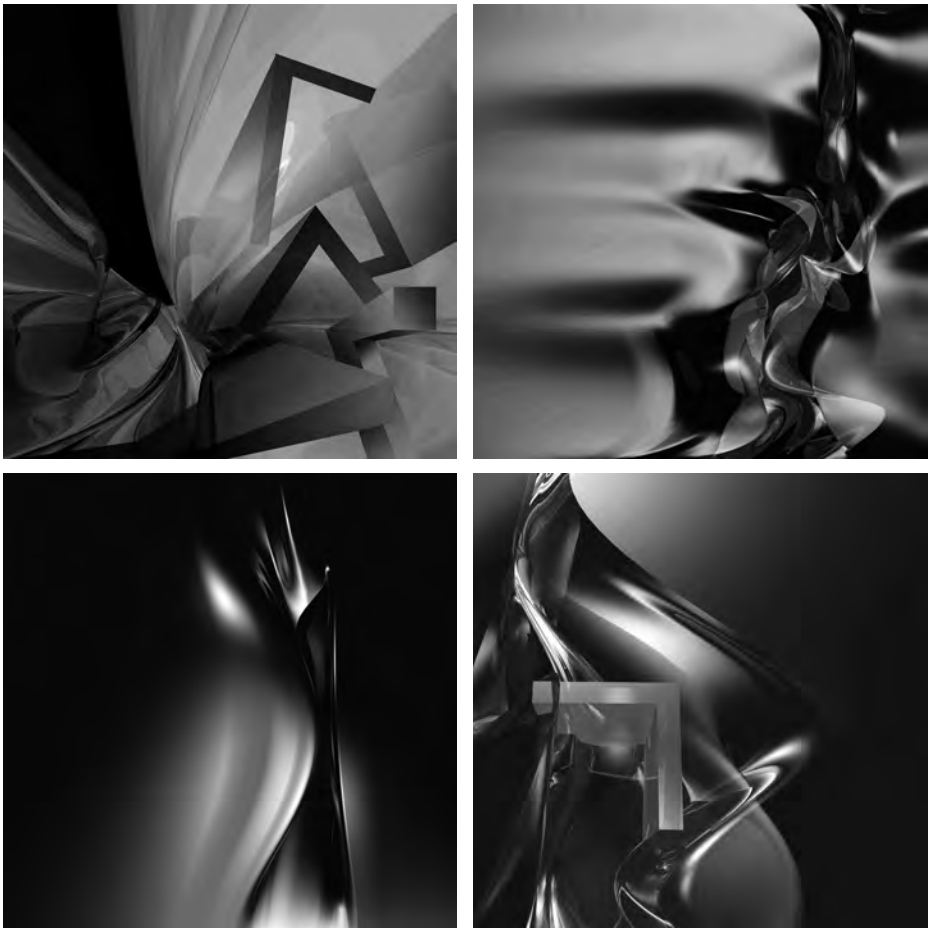
inevitable element belonging to the culture of dwelling, its starting thought, the process of genesis of the space, a tectonic action that specifies the primary one of digging, and that reveals the thickness of a geologic environmental substance as dialogically related to the geography of the context. Within the several app roaches of the nihilistic culture towards the concepts of "*becoming*" and "*informal*", which the current culture produced with its idea of *fluidity* and *lightness*, and that are dissolved within the autonomy of nomadic individualism, the design project has to claim its "tektōn", as a sort of internal and essential coherence. It has to develop an osmotic relation with its environment which becomes scene, foundation and construction of its mutation and then, of its destiny. [5]

"*…being connected to the ground means integrity of urban landscape, strength of architecture and plastic firmness of forms…* "so "*… all the ideological approaches will be confirmed or destroyed in relation to the possibility to read the territory as real and operational structures…*" [6] Architecture with its inevitable tactile-material and aesthetic-visual changes becomes simultaneously symbolic space and operational ground, recuperating its tectonic dimension as system of interior and exterior relations to the place, and therefore creating a dense territorial matter. In this new condition nature and history are less and less distinguishable within an homogeneous accumulation of elements. In opposition to a unique and static prevailing interpretative model, the territory presents itself in its plurality, where center and boundaries, exterior and interior, above and below, real and its imaginary transposition, are obliterated by transversal and dynamic fluidity, and where finally the democratic hopes of a new system of living find their place, as aimed by Zygmund Bauman. These are smooth and striped scenes, opened to the *unpredictable* and *formless* [7], as from Rosalind Krauss's researches, which bring the project on one end towards instability and variability, temporary and ephemeral; on the other one to new rooted forms of connectivity to the environmental context, with its vital metabolic change through categories of *transformation*, *substitution* and *maintenance.* [8]



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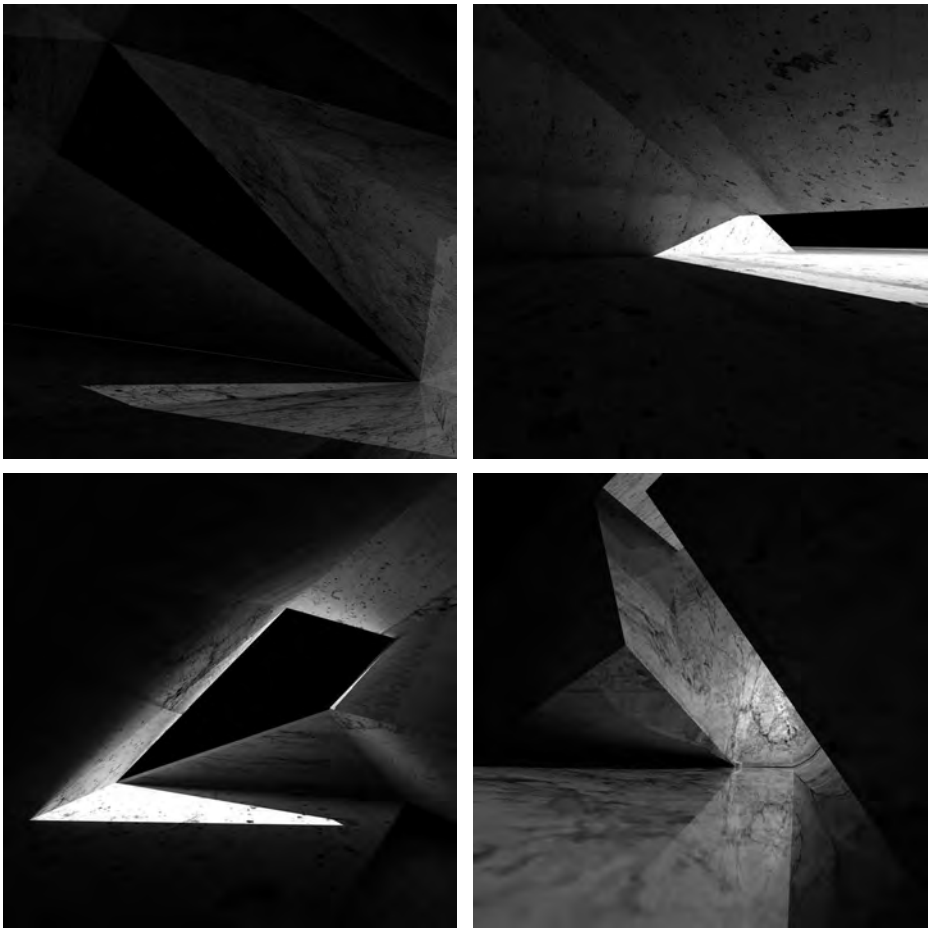
This vision leads to a critical design methodology which, representing the idea of landscape as fragment of nature, would make it visible and recognizable through the synthetic image created by the architectonic action. It becomes part of the figurative process of the project, recognizing and giving new forms of expression to the poetic dwelling described by Heidegger. Landscape is subjected to a sort of drastic manipulating-depurating process, and it recuperates the potentialities of the ground as native environment, the morphologic textures of which create architecture forms. It becomes matter of construction, rediscovering the *layered complexity* of the *meaningful thickness* of the ground itself, in which the figures of the empty space, acting layer by layer, give new qualities to it through the power of the unknown, and defining also the landscapes of distraction and of relations described by Willem Jan Neutelings as inventive breaks of territorial activities. [9] These ones, replaced by multidimensional and performative structures derived by biology, define the ground as *operational topography*, and in relation to a critical analysis of the basic characteristics of the previous genetic order compared to the current and to the future one. The design proposal becomes therefore a sort of stitching strategy within a dismantled geography, enable to reach in this way a new operational system in relation to the formal structures of the place. *Beyond every urban logic*, the territory would transform itself in a new geological level, where architecture and urban scale are combined in what Bruno Zevi described as "*urbatettura*". This opens to a process of morphological change of our fluid territories which is founded on elaborated linguistic and biologic metaphors that will make understandable the *theoretical landscapes* described by Franco Purini, through the sequence of their formal creation, more than through the description of their programmatic aspects.

The project evolves inthe re-thinking of an "*artificial and undefined spontaneous magma, in which are contained the unrealized plans of an architecture without architects* (P. Rudovsky)*or the forgotten ones of a failed urban design* […] *where undefined boundaries mix and expand* ", what Gilles Deleuze defines "*common place*" between geometry of the building and topography of the site with its plastic and tectonic characteristics. The design project becomes *thinking about the ground* (M. Fischbach) regenerating the city starting



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from its genetic patrimony, and introducing a new creative process of form, related to the organic expressionist one[10], where a different genetic codifying logic replaces the semiotic culture obsessed by the representation, through a shifting from sign to meaning. In this way has been defined the *figured ground* formulated by Peter Eisenman, which implies an action of blurring in which the process of forming, without narration, leads to a project which it's not composed adding form to form, but proposing instead complex structures originated by engraving [11], manipulation and deformation of the ground. A "*geoarchitecture*" is then defined, in accordance to the concept of "*geophilosophy*" [12], as reduction process towards the "*ground zero*" and re-founding state of the space aimed to understand the *original landscape* described by F. Purini. It is a reduction of the scene to its previous layered structure, through the ideal elimination of the historic-cultural over imposed structures, to relocate each layer and rethink its connectivity to the others. A sort of "white writing" (R. Barthes) would made this elimination a possibility for a renewed creative process, leading the architect to erase completely habits and cultural traditions (C. Rowe). This will happen not to drastically change the landscape, but to understand it in relation to new meanings and attributions, to individuate new sensitive nodes *in which to operate intentionally* (V. Gregotti) through the design proposal itself: this is the creative commitment with the ground of Bruno Zevi, who also considers the thick ground surface of the territory and its layers as subjected to a process of reduction of the gestures.

The architectonic intervention could be understood then as "*whole figurative invention*" (V. Gregotti) blurring its figuration within a background which is difficult to delimitate, originating the dialogue between rethought archeological strata, geometrical traces of human settlements, visual sequences and relations, network of connectivity, symbolic presences, and at the same time natural morphology of geographic textures. The geographic and historical-symbolic interaction among differences, would be translated in an higher appreciation of the unpredictable and unknown, which is understood and constructed thorough an operational strategy that works through *identification-decomposition* (synthetic map-diagrams of the basic scene through a selection of spatial relevant components); *rename-*

transcription (synthetic maps-diagrams as relationship and critical overlapping of the previous prevailing levels through the insertion of a strategic spatial plan as pre-figuration); *composition - figuration* (construction of the first strategic macro-figures of the design proposals at urban scale through the premonition of the prevalent spatial relations of the new vision); *rewriting - spacing* (construction of the architectural space as a testing out of the general strategy and its first linguistic formalization).

Through the design of the ground a new consciousness of the deep and experiential connection of architecture to the several involved landscapes, personal and collective, would be identified and described. Beyond logics of flows and of linguistic anarchy, that same awareness would lead towards an indissoluble poetic content which would make of the global diversity and plurality, a fertile and renewed dialogical order, instead than a distance, in which both geographical and historical interaction between the heterogeneity of the elements involved, would be translated in creative values, to finally conceive an architecture as substance of *what we hope*.

○

Notes

[1] "*The world of classical physics consists of reversible phenomena, in which temporality is an illusion; Ilya Prigogine and Isabelle Stengers argue in this book that the physical laws have a direction in time: the characteristics of all parts of the world system are immutable, and the parties are the consequences of an initial state, imperfectly known but perfectly knowable [...]* ", Prigogine, I.; Stengers, I. (1999) La nuova alleanza. Metamorfosi della scienza. Torino: Einaudi.

[2] Guattari, F. (1991). Le tre ecologie. Turin: Sonda, pp.33-34. In this essay Guattari emphasizes Ecology as a privileged field of research in relation to the current crisis of the society development process.

[3] *"... with the advent of the technique the 'figure' ceases to follow an immutable rule, being inscribed in the becoming of the world."*; Severino, E. (2003). in Tecnica e Architettura. Milano: Raffaello Cortina Ed.

[4] Introduction text written by Vittorio Gregotti in Frampton, K. (2005). Tettonica e architettura, Poetica della forma architettonica nel XIX e XX secolo. Ginevra-Milano: Skira, p.9.

[5] Introduction text written by Vittorio Gregotti in Frampton, K. (2005). Tettonica e architettura, Poetica della forma architettonica nel XIX e XX secolo. Ginevra-Milano: Skira, p.12.

[6] "*We do have as a source of guidance a precise reference: the results of our work[...] as sense of the limit of the man and the world*", Muratori, S. (1967). Civiltà e Territorio, p.24-25.

[7] The word "*formless*" is inevitably linked to the philosophical significance of "*form*" (substance and essence of what becomes material , the beginning and the end of its development as a substance in movement. In this context, we must highlight the research of R. Krauss in his text *Formless, a User's Guide with Yve -Alain Bois* , Zone Book: an action (form) of *editing* , a transition , which highlights the plastic metamorphic characters of the form , **ειδος** (*frame in a time of transformative flux of morphogenetic scrolling*, F . Wright) rather than a notion of *form* , **μορφή** , such as semantic figure of formal characters. In its philosophical sense the word form means the essence, the substance of things that become material. Could be "*Form*" a natural substance in movement. *Form* is the cause or the reason for existence of a thing, the reason why a thing is what it is and also the beginning and the end of its development. From Abbagnano, N. (1993). Dizionario di Filosofia. Torino: Tea UTET, p.415 .

[8] Urban "Metabolism", a key term in the calls of the European Community's Seventh Framework: *Transformation* (Action for radical change of the system and its internal device in relation to the dimensional mutations), *Replacement* (action for improvement and re-syntactic definition of the scene), *Maintenance* (action whit immediate effect that is applied in all urban environments).

[9] *Inventive breaks* of territorial activities that are related to the dead time of Deleuze:" The void (relational space) would be as the dead time, the dominant part of the event […]it is the depth of the event, in this huge expansion of the time that is indistinguishable from the instant of the brutal incident. "

[10] Research on the topic "Landscrapers, building with the land" by Aaron Betsky, Thames & Hudson, some projects of F. O. Gerhy; of Peter Cook (melting architecture) where megastructures dissolve itself in the landscape, while rock and vegetation become all-in-one with the landscape; waterfront's project of Peina del Viento of P. Ganchegui; Endless House of F. Kiesler; contemporary experimentation of Nox, or Asimptote and of Greg Lynn ect.

[11] The topic of nature-architecture-environment is developed and experimented through projects by: the Makovecz, Sote, Ekler, E. Ambas, R. Erskin, N. Grimshaw, L. Kroll, J. Wines, P. Soleri, and it could also be find in some projects of C. Ferrater and of the Foreign Office.

[12] Deleuze G., Guattari F. (2003). Millepiani: Capitalismo e schizofrenia. n. 1, Cooper & Castelvecchi, p. 72-112; "*Geophilosophy: philosophy absolutely linked to the environment, to its geography, to its visions: the importance of philosophy is no more historical, but today it grows out of the realization on the territory with its connections. It pertains to a geography that [...] is not only physical and human, but also mental, as the landscape [...], linked to the irreducibility of contingency [...] the power of an environment*", p. 88.

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Figures

1 Formal structures, landscape of Oxford, Michele Moreno, London 2003.
2 Sequence Tensions, Michele Moreno, Venice 2004.
3 Sequence Archi-Tectonics, Michele Moreno, Milan 2013.

DESIGNING BETWEEN SCALES

MATTEO FRASCHINI

/* The work presented here has two main purposes: firstly that of expressing a point of view able to feed a debate on the specific topics that the contemporary city leads us to face; secondly to explain an operating methodology on the discipline that animated the Measure and Scale Laboratory launched By Ernesto d'Alfonso and now coordinated by Antonella Contin within the Department of Architecture and Urban Studies of Politecnico di Milano. The variety of themes studied so far are complex and difficult to explain and cannot be explored all in depth here; instead this essay will focus on some specific didactic issues and research positions. First of all it is important to highlight the deep relationship and continuity between them; wherein teaching activities and research have always been seen as synergistic actors with workshops and theses that have played the role of activating new developments and questions. This publication offers the result of the work and the passion of the students in different shapes (design, thesis, phd researches…) as they are absolutely aligned in this framework on themes related to contemporary architectural and urban design.

This text is the result of studies, writings, courses, workshops, and thesis developed in the last years between the Department of Architecture and Urban Studies of the Politecnico di Milano and the web magazine Arcduecittà.

This theoretical framework is based on the awareness of a new dimension and scale of the city that has deeply modified the meaning and conditions of inhabiting a place: Misura e scala della citta contemporanea, Paesaggi e grandi contenitori. -Measure and scale of contemporary city; Landscapes and Big Containers- are the keywords that link together all these experiences. The approach has always started from a regional scale inserted in today's global dimension made up of urban fabric, inhabited landscapes, and infrastructural networks characterized by different scales requiring new combining strategies and ways of interaction/relation. From this point of view the territorial dimension becomes the necessary substratum and size from which to approach the project. This starting point requires a deep reflection on what tools are able to read and understand today's complexity and to give an articulated reference system that will superimpose, enrich and give values and identity to a place in the new dimension of the net city.

What architecture for which kind (scale) of city? And, as a starting point, considering the sets and fields of relationships and contestation within space at the metropolitan scale, how architectural design can face this change?
Often opposed to the concept of scale the need of Identity and a sense of belonging to and ownership of a place emerged as a nodal topic for the contemporary city. How can we deal with and give value to those matters within multi-cultural contexts that characterized by various lifestyles, ages, agendas or just different feeling of spaces?
Francoise Choay, in her book Espacements quotes Haussmann about Paris in what seems nodal to understanding the topic of scale changing in the city: *What is the main link between two million people that crowd Paris? Paris is for them a huge market place, a huge workshop, an "arena" of ambitions*.
The change of the Industrial age brought to the city an enormous amount of people and for the first time the problem of Identity had to deal with a superimposition of cultures, ways of life that would have lead to the disjuncture of the four main CIAM activities; as work, sleep, leisure and transportation.
From then on the traditional relationship between the City and Country has deeply changed, bringing about a consequent lack of meaning of a place and thus stimulating research for new tools enabling us to read this complexity from a conceptual underpinning that the metropolitan scale is a superimposition of a host of different actors displaying particular behaviors.
If Landscapes, Fabrics and Infrastructural Systems are the three main reading and also design categories of this complex territory at the metropolitan scale, the problem of understanding how they are and can be combined in a synergistic way becomes pivotal. The awareness of this new dimension cannot disregard the presence of an existing structure and meaningful "image" within a territory seeking new values able to interact with this new community.

The story of Les Hall, which has been studied and often shown to students as a paradigmatic example, somehow gives testimony of this change: from a marketplace to a huge cast iron covered structure to the Forum Les Halles to something which is going to become the central hub of an entire metropolitan area.

The place is still the same; a sort of Piazza/megablock in the very city centre of Paris; the shape and the scales of its relationships have changed whilst they remain integrated in an ever more complex urban environment facing both the fabric of the surrounding city as it is now connected to a much wider system of transportation and urban/landscapes.
We've often looked at this paradigmatic example of a Building, Urban Morphotype, Megaform representative of the Parisian Urban Biography as it highlights several related topics dealing with contemporary Architectural and Urban Design:

*/ relationship between points, networks, and surfaces;
*/ contemporary shapes/figures of public spaces;
*/ identity, sense of belonging for a global community;
*/ meaning and sense of contemporary landmark and monument;
*/ megablock heterotopias hybrids;
*/ layers/multiplication of grounds;
*/ continuity-discontinuity of internal and external landscapes;
*/ design strategies dealing with complexity.

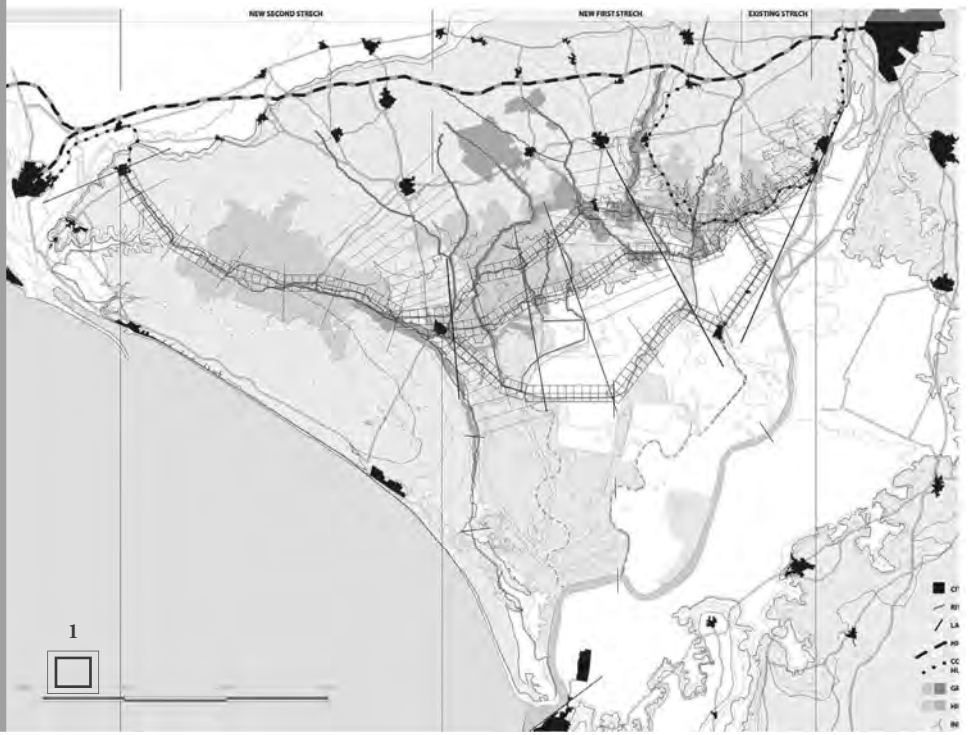
These concepts and elements offer us a possibility in organizing a discourse that links these relationships within our design discipline.
Space of flows, rhizomatic city, metropolitan region; the size and scale of current spatial and social relationships call for a look at the built environment that must be capable of registering the complexity of this articulated geographic structure that collocates large and small, dense and sparse, slow and fast into a physical and mental structure.
The broad gaze that the contemporary metropolis requires often tends to consider the territory as a substrate, a tabula rasa, onto which roads and nodes, once assembled, give the structure of the network of flows that describes the hierarchical structure of the territory itself.
The definition of a new mental map related to a measurement of a built and inhabited landscape (open, or dense) might find references in historical traces of a place, in the intelligence and "know how" useful and necessary to the definition of these references; the listening of traces and signs coming from the past become operative materials for contemporary design. It can re-define the relationship

between geography and geometry as selection tools of elements that order relationships between different actors characterizing a territory. Territory that can't be seen without an idea of development that modernity often connects with sustainability and where the co presence of urban fabric, landscapes and infrastructural network, once again might refer to history as "building proficiency" to play a nodal or pivotal role giving a new sense of belonging to humanity within the (global) territory, seen as sets of inhabited landscapes held together by a common artificial ground as necessarily linked by infrastructure. Nowadays the duplicity of scales, societies, production systems and the needs of the global community are so various that they can't be sublimated into the urbanity -countryside - natural landscape set of relationships; but still, a strong identity exists in those relationships which is now seeking to be re-defined.

This is a departure point for a necessary selection of points, lines and surfaces representing a proper image of the complexity underlying and giving value to those different environmental features. In a sense giving new value to a "field" may mean a wider characterization to a complex structure such as a metropolitan region. From a design perspective landscape is a crucial topic since we are asked to look for new figures and shapes able to identify our society.
Metropolitan areas are looking for spaces that can really identify a multicultural community made up of different lifestyles. Landscape has to become a real "green infrastructure" that from being a residual backyard of an urban fabric can become the real connective tissue and multilayered space.
The problem of its relationship with the ground and with the local or small scale must be seen as complementary to L and XL. The different ways of perceiving the (built) environment and of "staying" in space are consequent to the recognition of and identity that faces the different scales of design. When we deal with this issue from the concept of the Landmark it raises some questions for the project that require new tools for the management of complex forms making it possible to define a system of readable characters that are recognizable and "operable".
Specifically, to speak in terms of landscape can mean on the one hand an attention to continuity of enjoyment and views but it also points to the difficult relationship between densification and rarefaction of space and "stimuli" intended

both as key elements within the metropolitan dimension. At the regional scale it becomes important to identify tools of reading and the interpretation of this delicate richness; through architectural scale it is fundamental to look for an approach that clarifies the complexity and for the way in which this continuous surface becomes a three-dimensional node.

The architectural design is confronted with *extension* and introverts the characters of the landscape in its own language as being enriched and engaged with the hybridization of typologies, space, and functions and a structural image that such a process requires. In this dimension the ground, the horizon, becomes the first term of reference and comparison of design requiring a clear, though complex, choice of what is below and what is above, what is heavy and what is light. Every formal element continues to have its own ethical and formal code of conduct. Viable Surfaces become at once



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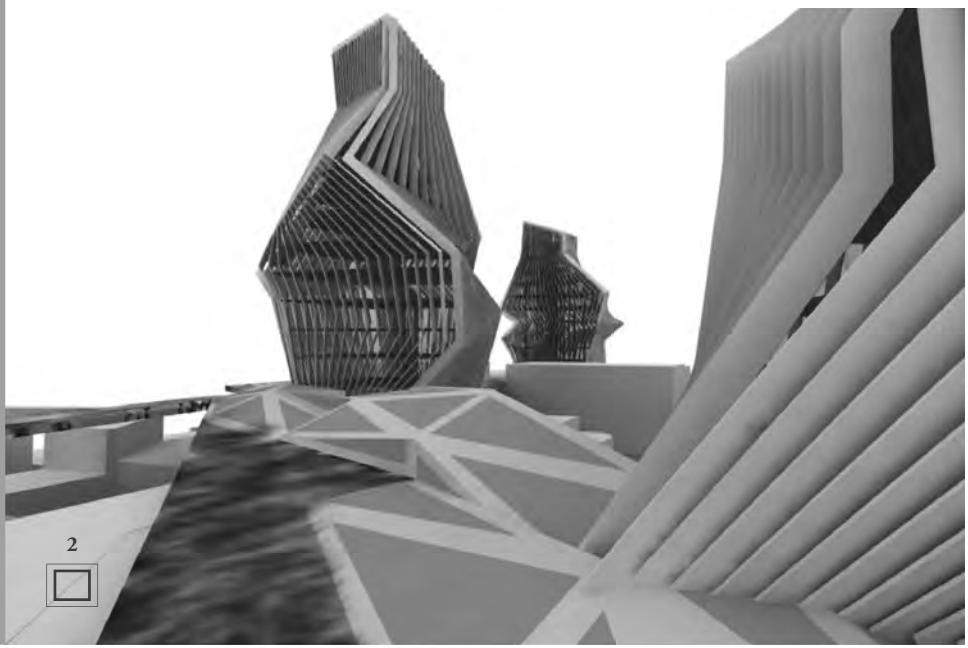
interface (new facade) and envelope of complex organisms, wherein overlapping binds fabrics, networks and landscapes. What we call layering of practicable soils where the image of the landscape is combined and compared with the urban theme, continues the argument of a broader vision related to the concept of urban morph-type (megastructure/megaform). In this sense it is possible and reasonable to see and read continuity between measures proper to the city, as blocks, series of blocks and avenues; and landscape as a dense void. The restatement of figures of space, stratified in our culture, hybridized within urban bodies that re-interprets articulated composition, is enriched with new types of space that may mediate the relationship between the extended and the dense.

This overlapping of grounds, times and ways of living, renders a complex space difficult to be read and makes the role of Landmarks very important. Landmark seen as inhabited figures, references in the new mental map, where symbolic value is enriched by several meanings and a sense of identity for the net city. Not just an obelisk but also something that has an inner and experienced space.
Read as the multi scalar contest linked to different modalities of moving through space from different access points, as several ways of being perceived depending on speed and transportation means (foot, bicycle, car, train, subways, airplane). Through design these ways of inhabiting the space are related in a functional, typological and structural complexity that requires new tools to approach the ordering, design process and analysis from. Typical Figures of spaces of the ancient city (streets, squares but also parks) are reproduced and mixed in this "machine" and combined with a vertical juncture to allow the effective connection and interaction of the different functions. This complexity often detached the design process from the layout, a sort of scheme defining how parts have to be connected in terms of hierarchy, fluxes, and economical interests etc in a predefined structural layout. For this reason it's been important to look for design strategies that would link those different aspects from the very beginning of the design process. The Concept can be considered a sort of "rule" that links together the different actors/needs/ingredients giving them an image that guides the coherence of the process through to the realization.

In speaking about scale and big dimension, about techniques and references to which those organisms are somehow related, it is important to refer to the idea of heterotopias as Foucault described it and Grahame Shane developed it as a contemporary actor of the net city. It highlights the necessary character of autonomy and independence from the contest making perspective as it becomes a series of interlaced movie sets and furthermore focuses our attention on the ways they can be "relocated" and be Monument, really and deeply rooted in their territory.

From this point of view the section becomes a nodal tool to clarify the complexity; sections become the scenes in the storyboard, which is the plan that organizes them and makes a reading possible.

Rem Koolhaas in his manifesto, Bigness points out, some remarkable features or rules a big building must have. In particular the dependence/independence between the parts and the whole and between the interiors and the skin. To understand how this complex set of relationships becomes somehow explicit and becomes an image.



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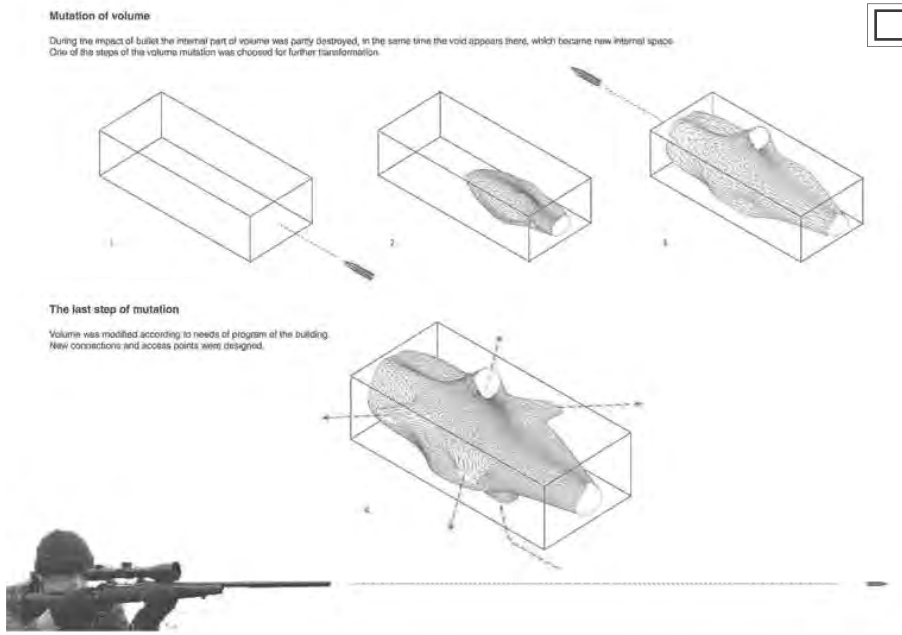
Ernesto d'Alfonso overlaps the word "montage" to composition, this highlights some topics useful to understanding the new techniques, processes and strategies that contemporary architecture is using to handle this complexity; the idea of a contamination between different arts and between art and other worlds is something remarkable and leads us to speak about the Concepts. The aim is not to prove a certain unsuitableness of the traditional tools for design; it is rather a way of clarifying and enriching this field. The architectural design process often starts from a suggestion, something that makes the process start; and this more and more frequently happens with the use of these metaphors. What is important is that this "useful" image must become a logical structure able to manage the development of the process to an image still somehow linked to the "suggestion".

Metaphors, models, patterns and diagrams that generates a series of "illuminating" concepts can't be just inspiration but require to be studied from a scientific approach; a process rooted in the studies of Alberti, Brunelleschi and Piero della Francesca on Perspective that remind us how a technical tool to represent the "real" was deeply linked to that design process and became a cultural (symbolic) way of looking at the world.
It reminds us also how closely related the disciplines of design and representation are and how likely the contemporary tolls of representation are to become a conceptual and cultural heritage.
Once we define the size and scale, the distance from which to observe the project, and have problematically defined the theme of legibility, that of recognizing not only of complex "forms" but also of the built space that has to play the role of guiding human action in its many forms, it must be specified and become character, or a set of characters, defining identity, capable of relating and establishing a system of overlapping patterns.
The metaphor of the rhizome used to describe contemporary urban phenomena renders the complexity of the idea of the network (disconnected, aerial) as something deeply rooted in the ground, which allows for the punctual growth of elements that are similar but different (identifiable) and deeply interconnected.

On the other hand, organic metaphors/references to architecture have always been widely used, enabling us to specify several key concepts that appear particularly relevant today and reaffirming the fundamental problem of identity/character within a global context and scale that often struggles to find its multi-scalar points of reference.
The complexity of the contemporary architectural and urban scene requires an investigation into the tools necessary to handle its expression and interpretation. The metropolitan scale of our built areas requires of us to look at architecture, city and landscape transversally as a unique theme made up of different actors that have to work together.
Human landscape is shown as a series of movie sets organized in a complex and multi-scalar system where the recognition of shapes and patterns that can make complexity readable is a crucial matter.
The works shown below, a selection stemming from the Course Contemporary architectural Design Methods held in the School of Architecture of Politecnico di Milano during the last few years shows experimental point of views centered around the theme of a visual reading and interpretation of contemporary architectural, urban and landscape design; from a methodology that focuses on a shared approach enabling us to develop design themes that the current architectural scene confronts us with.
Drawing (representation) is the necessary tool for any discussion about design: it brings symbolic meanings that can communicate an idea. Drawing makes it possible to find a path, a dialogue between what we express and what we think. It is, mainly, a mental process, not only a manual/sensorial fact; it is a moment of synthesis, visual reading and interpretation that makes an abstract thought and the procedure used to reach that task communicable.
The course started from the hypothesis positioning the existence of elements that make a complex shape or system readable and capable to be manipulated and modified in a "mental way" by creating a possible shared grammar; a clarifying mental instrument and construct, that assists the development of design practice from the step of the "possible" (diagrams, concepts, sketches, schemes...) to the geometrical definition; a language, a series of references that can structure a design methodology within the didactic field. Seen in this context, the use of computer-aided design and modeling can then be ruled by mental "know how" that can find and manage a clear scheme within complexity. ○



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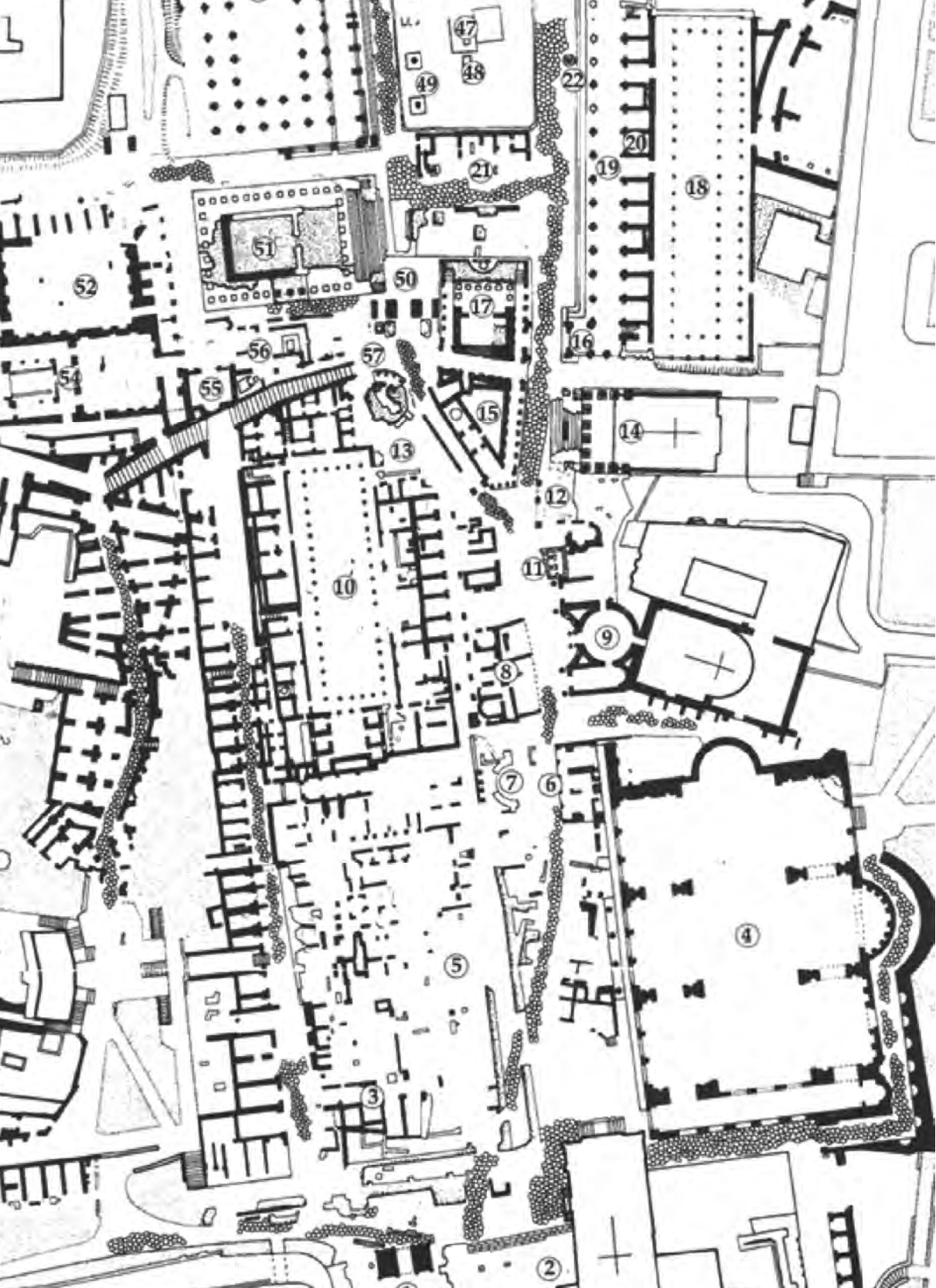
Figures

1 Donana - Seville (graduation thesis MSArch Polimi. Student Adriana Yong Velasco. Supervisor M. Fraschini) Landscape at the scale of the netcity.
2 Chingiz Batyrbekov: the process from organic to architecture. Landmarks in a mental pattern.
3 Anton Kotlyarov: From a dynamic gesture to the concept of a space in between exterior and interior skin.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COMPOSITION

ERNESTO D'ALFONSO

1 Composition.
The inscription in the firmament. Herm, stele, gnomon. Temple, theatre.

/* *The very beginning was completely ingenuous, its seed was to com-pose; to "pose together", the irrevocable conjunction in time and space of things which would otherwise be separate. And the primary, primitive gesture was to join something (possibly a menhir or herm to mark the spot) to the soil of a site, in other words to found a gnomon or stele. This formed a horizon, closed at its base and open at its apex. Stele or gnomon, the act of laying a stone evolved in complexity until it reached the point of becoming an actual building, using a multiplicity of materials, construction techniques and architectural features. And then, finally, buildings grouped together to form urban conglomerates.*

A stone raised on a site, whether a menhir, a herm, a gnomon or a stele, intercepts the horizon and links it in a visual sense to the ground it rests on, unifying both, as Le Corbusier famously observed. It allows us to grasp the effects of the stars in their firmament with their endless march through the skies, marking the annals of time on the ground: days, weeks, months, seasons, years…. A stone (*herm*, *gnomon* or *obelisk*, *stele*) elevated against the horizon is a primary sign and a principle of measurement on the basis of the relationship between the ground and the heavens, time and space, presence and absence, and thus between life and death. A single point. An elevated equilibrium anchored to the ground, the origin of the direction of our steps and the shadow at its base. It serves a dual purpose: measuring circular astronomic time and linear distance in space.

Herm and menhir mark things or are symbols of concepts innate to things, they mirror reality and its facts, in terms of art and thought and manifest the effect of an inner and outer path leading to contemplation of what is real (the facts) in the light of concepts, and reciprocally to verify concepts (the ideas) in the light of informed reality (the facts informed by the concepts).

I think the extreme example of a herm must have been the statue of Athena on the Acropolis in Athens. No more need to be said.

Herms replace the human body (for example an augur's) on sites scrutinizing the horizon in the traditional six directions (up and down, forwards and backwards, right and left), and rising from a foundation to mark the site; with the cardinals,

the rising and setting sun and the morphology of the ground in level and slope.
Arrangement and orientation obviously depend on the observation standpoint and direction of approach, as well as the conformation of the terrain moulded by water warmed by the sun or dried by the wind. This triptych of reciprocal relationships: the six directions of the body (disposition) the four cardinals (orientation) and attitude, or strike and dip, of the terrain; is the *fons* et *origo* of the principle of measurement in terms of time and space in architecture.
The primitive union is the conceptual effect in the concrete sign it manifests and a primary act of composition in the symbol it manifests.
The symbolic value persists in both the most complex and monumental, as in the most utilitarian, of compositions and erections, providing a link to all the features and components of any building in the broadest sense of the term: materials, construction techniques and architectural features. Indeed it is true of the whole of the building vis-à-vis the horizon, its reflection, as Le Corbusier affirmed in his Precisions.

To understand how an archetypical building encapsulates this primitive value of visually joining the earth to the sky, the profile of the horizon to the posture of the terrain, a good example is the temple, in this case the Sicilian temple of Segesta. Segesta is unroofed, which means its entablature constitutes a perfect artificial horizon, making it a simple matter to accurately mark the points where the sun rises and sets.
The temple is the theatre of the manifestation of the non-human world in its local totality. In particular of its temporal cycles of seasonal and annual inversion in all their guises, both earthly and heavenly. Thus the temple accomplishes the original purpose, or "signage", of the site in the firmament and vice versa.
It is the entablature in particular that is the determining feature of this temple. Under the gaze of the onlooker this artificial horizon fulfils for the "actor" its primeval purpose of observation, memorisation and the echo of thought in the manifestations of the non-human world. And lastly in terms of judgement and measurement. The entablature also encompasses an upper part that is purely visual and a lower part that is both visual and tactile, that can be inspected by the whole body, or rather that the whole body can experience.

The columns raise and separate this square circuit of stone from the base of the temple. Which is the area where the actor body retires to reflect on the things observed, high above the entablature or down between the columns.
It is also true that the horizon created by the entablature indicates firstly the totality of the "firmament" in its upper part, over which man has no power, while in the lower it marks the precinct surrounding it, visible through the columns, the field of human action. By exposing itself to this outer space and thus marking its presence in the precinct, by exposing itself openly to the world, this duality is rescued from oblivion, assuming an identifying value as both habitus and habit acknowledged and recognised by all as such, not only in common with, but also in collaboration with that over which there is no power.
This cosmic inscription therefore takes place in a theatre of frameworks delineated by columns, equating to spaces which can be physically occupied to carry out functions essential to life and which can thus summon the collaboration of the non-human world.
The temple is the temenos which separates and consecrates its precinct and the area around, ensuring that events taking place within them are memorable inasmuch as they are reflected or informed by the "being" or the "knowing" springing from the being.
The temple is flanked by the theatre. The theatre is another site separated and informed by social and anthropological concepts, designed to contemplate life and learn its rules. It is the cavea, chorus and stage, a unifying conjunction of the past and present of the ethnos enabling the public, the citizenship in its entirety, to observe, reflect on and judge, to measure in the moral sense, those manifestations of the human world that take place before their eyes on the low stage. A stage cut from the green slopes of the earth encircled by the horizon representing the local totality of the non-human world, also witnessing the actions of man. Within the bounds of this totality of non-human landscape the theatre inscribes the history of the founding fathers and their mythical deeds to the entire populace seated in the cavea as they listen to the exemplary events from the customs and laws, while the progeny of the people manifest their comment as both witnesses and judges by singing and dancing in the orchestra. The principle of measurement in human affairs.

The temple and theatre buildings foster the evolution of the concept of measuring facts they bring attention to. And, like the urban architecture modelled on them, they are concrete manifestations of the world's "knowledge".
Temple and theatre are marks, symbols or things informed by ideas to confer an ideal temporal value on human events whose (somatic) relationship with places shaped by architectural concepts, they receive inter-subjective value. As marks of ideas in the things of the world, they were set on the rock of the acropolis to be contemplated from the agora, separate from it but bringing ideal information (the articulation of thought and art) to bear on daily affairs or the inscription of everyday life in the world of the gods.

Temple and theatre are also built thanks to perfected measurements, the influence of geometry and mathematics on construction, starting from the materials; rock transformed into dressed stone.
Only when re-shaped into geometrical entities [1] can the materials be considered elements, parts, sets of parts in totality. So a totality can be conceived where every part and element is necessary and sufficient in its being, this is what we mean by unity.
Again the temple is an example of this incarnation of the totality: the conformity of each part to a single relationship with the module, the radius of the column, so that each element and part, from the smallest to the largest, is linked to a proportion between each of them and with the whole, through the module. That paradigm of proportion known as the canon.
The logical or "syntactical" value of the canon in the variations of the rules of proportion which modifies the relationships between size, shape and figure, produces differences in Type, a word which indicates the specificity of the paradigm model and its character, Doric, Ionic, Corinthian, male, female, or adolescent. Each model is defined by the rule of the "canon", which through the module presides over the definition of every single measurement in the building, from the smallest to the largest, according to the character of the type.
This fact has led to a further reflection among the aspects deriving from this unity: the totality of the one/temple, as relationships between the shapes and measurements of the many parts and elements which compose it, the changing

rules of the ratio between the elements and the totality of the resulting whole and the way the figures are presented to their surroundings and to the horizon. It is only because the shapes and figures of the totality can be distinguished by a precise rule of proportion, the canon, that the difference in the figures and shapes of the whole and in its details are apparent; that the difference between the proportions and figures characterising the distinct types deriving from the different rules can be defined and lastly see the different ways they manifest themselves in sight and touch both among themselves and in their interaction with the horizon: their character. [2]

Lastly the temple is an example of this unity in its proportions according to its model of character and type. And as such it defines what we have called "the fulfilment of the original inscription of the site in the firmament" (primitively defined by the herm-obelisk standing stark to the sun on the profile of the horizon). The temple develops the fact (the architectural structure of the temple and theatre) into the first complete form of "human reality" belonging to the "non-human world" informed by the idea derived from an intuition of the world: the rule of harmony in cosmic proportions drawn from the relationship between the positions of the stars in the constellations. An expression of the idea of the world as a public place where workday or feast-day acts alike are rescued from oblivion in full public view by assuming a recognisable character, that is as a distinguishing value of habitus or "uniform" of their own behaviour. This theory was perfected much later in *De architectura* [3] by the Roman architect Vitruvius [4], who established the three aims and six principle themes of architecture. [5]

All this underlies the semiotics of modern architectural deliberately founded on the original or primary projects sans maps and sans blueprints. Hence reflecting the direct relationship between human bodies, architecture and settlements and the natural world. The aim is to rethink projects on the basis of the synthetic unity of the modern act of construction (the principle of the three-dimensional framework, see Le Corbusier *maison dom-ino* and Precisions …) despite being fully aware of how impossible it is to reduce the concrete nature of either the natural or the built world (the world defined by others) to a drawing. And being equally aware of the complex consequences each construction has

on the dual context (surroundings and horizon) it interacts with. I would like to end with a daring metaphor (conscious of the loans between verbal conceptualisations [sound and voice] and the conceptualisation of things or artefacts [visual/tactile]): I name *original* or primitive and primary inscription, ur-inscription, the marking of a horizon with a megalith, a landmark, which transforms into a place the site it is built on (the ground-mark), juxtaposing it like a theatre of the cosmos and the events (time mark) that take place there.
To understand the modern notion of composition as on-site architectural semiology, the steps leading beyond construction according to the Greek canon in distinct types of characters have to be traced.

Obviously in the temple exemplifying the perfection of Greek architecture the whole composition is summarised by the construction starting from the principle of the base, the laying of squared or shaped stones one above the other or one next to the other in linear or superficial layers, from which the trilithon as a synthesis of the base derives: columns/beam. The principle of the base is a consequence of the construction in stone, rather than earlier constructions in wood.
Obviously, again, the base first requires a suitable site, which has to be levelled and raised, both to keep it dry, but above all because the building had to be balanced upright on it. In the end the best site was usually the levelled top of a low hill with rough, steep slopes, like the Acropolis in Athens.
It is once more equally obvious that by building on a levelled surface the issue of proxemics has to be taken into consideration, deciding whether to permit or forbid approaches and entry to the building and how and where the construction of other buildings and streets will be permitted. From this principle of proxemics reinforced by an index of permits or prohibitions streets, squares and monuments will grow up and above all two different groups of buildings formed around two poles which can be defined as the sacred and the profane: the acropolis and the agora.
The sum of these houses, spaces and monuments set forth metaphysical ideas, different types of buildings, seats of administration and assemblies, of military and civil governments etc., which together with the streets, squares, acropolis and agora is a ground map that conforms to an ideal mental map.

The description of this map (in this case, as a description, mental, but since it actually existed in Miletus, also a real ground map) cited by Aristotle as an invention of Hippodamus. Indicates that Miletus can be considered an architectural text book, an example of a model which was actually built on the basis of a mental scheme, expressed in its buildings and deciphered in real terms by all the citizens of the town, thus a source of binding commonality. And given its concrete nature it was a commonality passed down through the generations.

This implies that the construction of any type of town is the physical incarnation of a "map". And it is conjugated in a mental map the citizens decipher in concrete terms as they explore its practicalities. This mental map is the mental constitution of this sense of commonality, of community. Obviously the mental map is the model of the ideal town.

When Aristotle describes it in his Politics he describes the model in words. The city whose model we imagine as a paradigm of a mental map can be considered an architectural text. It does not cease being deciphered in somatic terms as the foundation of a sense of community. But it cannot become the subject of debate.

Compared to the intelligibility of the correspondence between the mental map, the built map and the model, Roman architecture makes further discoveries and inventions, starting from a system of construction which differed from the Greek method of building in stone.

Composition.
The inscription of the building in the ground: the primary operation of foundation in Roman times: the traced outline, a primitive design in scale (1:1).

/* Unlike Greek architecture, which was in stone, Roman architecture was in brick and therefore made an efficient, perspicuous invention, the digging of foundations to provide a solid base for their walls.
This solid base was also a necessity because Roman apertures were not formed with a lintel, but with an arch. And the principle that sustains the arch and the wall above it is compression, the arch being held in place by the weight of all of its members, their mutual compression preventing their collapse. The wall only collapses when it is subject to undulating movements able to shift its perpendicular drop.

If Greek construction was based on the principle of site and exposure, its Roman counterpart was based on the principle of vaulted tunnels upheld by compression, vulnerable only to fault lines, water courses or sacks of gas. Roman architecture was notable more for its roofs than its walls. The succession of spaces and rooms, their variety, shape or map was more important than the building itself and its walls.
One example are the sanctuaries built on high rocky perches carved by rushing water emerging from caves in waterfalls, like that dedicated to the Victorious Hercules in Tivoli.
A whole road with markets was carved out of the hillside under the temple, making the subterranean layers and the complexity of the concealed space, or the theatre cavea modelled out of the reverse slope, more significant than the actual construction itself.
It was rather a complex labyrinth whose dark recesses were difficult to decipher.

The art of Roman architecture mimes this complex labyrinth of rooms and spaces through vaulted walls forming dark passages that were (rarely) illuminated from above rather than from the sides.
The walls were strengthened by layers of masonry tied together to sustain the vaults. And when a large arch was carved laterally the wall was supported or buttressed by the addition of a half dome pierced by the same arch. Tying the wall to the half dome prevented the wall from tipping (a specific form of collapse).

The wall/arch system buttressed by hemispherical vaults, unlike the trilithic columns/entablature system, leaves no openings between the columns showing the surrounding landscape, all that can be seen is, indeed, the wall, which is then clad or decorated with paintings and statues to turn it into an artificial landscape. The "spatium" enclosed by the wall receives light from above like a "vase": in homes this was the impluvium in the atrium.
The complexity of the foundation determined the perfecting of the way the first layer was laid, the perimeter was traced on the ground using pegs and ropes, this was one of the basic techniques in Roman construction methods, amounting to an actual design or blueprint on a 1:1 scale.
The design Vitruvius mentions is therefore the practise of tracing the foundations in life-size scale (1:1, orthography), and has to be examined more closely to assess how the ground plan or horizontal section (ichnography) related to the section, through the outlines of the piers and arches traced on the ground (a practice still used in Medieval times). The 1:1 scale ground plan or ichnography helped assess construction issues and organise the ribs and carpentry to see how to build the piers and walls and so forth and any cladding used to weave significant symbols into the walls.
The epitome of a Roman temple, the pantheon, has no columns, but comprises a heavy dome, pierced in the centre, resting on an uninterrupted circle of thick walls, fronted by a columned portico.
On the other hand the boldest Roman buildings were not their temples but their forums and baths.

To an even greater extent than its Greek counterpart, Roman architecture was conceived in a mental rather than graphic form, exposed in the ground-plan that amounted to a real-life blueprint. What counted was a memory of models studied and the relationship between the construction process and the way new buildings were actually imagined. These were the essentials. The knowledge of the production process which melded perception, memory and imagination lay at the roots of its art. Its other face was a psychology of knowledge drawing its essence from the analysis of perception, thus preliminarily from the practice of exploration that unfolds its succeeding moments in an experiment marking places in memory and simultaneously takes into account the position of the sequences, drawing up a mental map.

This is what Arnheim refers to in his book *The Dynamics of Architectural Form* when he compares buildings "as they are" with buildings "as they appear to be" and again compares the effort required to decipher the "as they are" from exploring them as they appear to be. A search that concludes with a Eureka moment illustrating both mental enlightenment and a synthesis of the whole, or rather the distribution of all the places in a unique arrangement of reciprocal positioning. What the plan immediately marks off in its scaled relief drawing.

The importance of a step-by-step or place-by-place integration of the images in a synthesis capable of a mental vision of the juxtaposition of the spaces and a vision of the whole, the *conlocatio*, was universally recognised. The process of integration od separate rooms or spaces into a whole was such a commonplace that it became one of the staples of education in classical times, with ambitious youngsters who wanted to get on in the fields of philosophy, science or literature having to choose a well-known building and art collection and memorise its layout and ground plan. The effort of perceiving the layout of the rooms and the images of the whole was thus an essential universal discipline. One which not even architects were exempt from.

This exercise of mentally mapping the architecture of a public building (that was accessible to everyone's senses and thus a source of a sense of communality) to arrange it into a *consecutio* of rooms in which every room was linked to a phrase (song room) and the whole composed a poem or oration was common to the whole of antiquity; Greek, Roman and Medieval alike, used to form an idea of the whole developed in a series of sequences. It also became the basis of Scholastic teaching to master the art of memory, as Francis Jates explains (in *The Art of Memory*), as part of training in rhetoric, oratory and philosophy. The exercise is not merely mnemonic, but a formation of an *architecture of thought* in which perception, memory and reason become synergistic in providing the imagination with a solid idea of the logic which coordinates prepositions in speech. [6]

The apprentice architect could not waive this preliminary exercise in exploration and memory, indeed he was the first to have to sustain it to familiarise with the model and reinvent it.

This, I believe, was the completion of his apprenticeship: the grasping of the master's model both in its relationship between reality and appearance (that distinction between "what it is" and "how it appears" of Arnheim's mentioned above) in the construction process element by element and part by part.
Returning to the common experience of architecture for anyone who wanted to learn and progress in knowledge, a building afforded the visitor exploring it a true cognitive experiment, starting from the paths in and around it. Tracing these paths led to an appreciation of the unitary notion of the whole through a sequence of perceptions and their simultaneous co-existence and arrangement. This was the formation of integral time and space or co-existence of the independent spaces along the paths explored and the perceptive/retentive moments of the images of the spaces along those paths. The simultaneous co-existence of all the spaces arranged in a given sequence forms the integral notion of a co-existence and succession in time and space, of the simultaneity and sequence of the spaces, a premise to the study of the relations between cause and effect and for the architecture of modern projects, the implications of the concept of the buildings realised.

The invention that becomes the example and experiment of this architecture of thought, and makes architecture, music and poetry in relation to each other, both analogue and complement, are the Roman villa and early Christian and medieval monastery.
In the villa and the convent the temporal periodicity of the cosmos, the vegetable and animal rhythms of nature and the essentially social and "urban" temporal processuality of mankind, are entwined in manual construction and in the fields of action and movement determined by it in a temporal spatialized map (mental and anchored to the Earth's surface), in which the working and festive life of European societies mirrors and contemplates itself in order to perfect itself.

Vitruvius supplies a theoretical premise for this that was important, but which fell below the quality and quantity of paradigmatic illustrations and symbolic contributions as well as factual examples and technical teachings that the buildings themselves present as "architectural texts". This is shown by the exemplary studies that were made of the monuments still standing, although ruined, of the buildings of the Roman age,

beginning above all in the Middle Ages and the humanistic enlightenment that dates from the fifteenth century.

Only the work of architecture provides instruction in this knowledge. This is particularly true of the distribution of the elements in the overall arrangement of the forms, which is lost in the ruins and has to be restored. In this respect the work of architecture is educational, and above all Greco-Roman architecture. It educates architects in the three basic forms of architectural composition:

*/ Primary dispositive composition, which unifies the site on the ground (and its immediate surrounding locality) with the horizon of the sky through the herm/menhir;

*/ Constructional composition, which unifies the materials and parts in a complete, statically intact whole;

*/ Distributive composition, which unifies the volumes or rooms or spatia in irrevocable sequences of contiguity in succession along lines open between the extremities and closed in rings.

The (Pythagorean) mathematical geometric harmonic principle penetrated into these three forms, exhibiting the total form to the mind in elementary and partial figures. But they cannot be reduced the semantics and significance of architecture.

Then, with the invention of drawing, form was displayed wholly separated from the bodies of the buildings, and the figures of the drawing exhibited the totality of the whole in the disposition of its parts and elements. In this separation and in the primacy of form and its unity, in relation to the disintegration of the ruin, lay the innovation of the fifteenth century.

This original invention and discovery, which constitutes the paradigm shift which Eugenio Garin speaks of, was the work of craftsmen, scientists and artists who worked in the courts of the Italian rulers in the fifteenth century; they invented the figure of the architect and the architectural drawing, outstanding among them being Alberti and Filarete, who developed and disseminated the theory of them in their respective treatises.

3 Composition.
The conceptualization of the building: the scale drawing abstracts the tracing into (geometric) graphic schemes.

/* The humanist architects may perhaps have expected of Vitruvius a systematic theory that would develop the parts that constitute architecture enunciated in the first chapter of De Architectura. But they did not find it.
They then redefined the principle of architecture. But they did not try to deal with it only by theoretical means. They instead sought to analyse built works and even existing cities as "architectural texts", though on the basis of this redefinition of the principles, but above all on the basis of an original "writing" of the buildings themselves: drawing. They invented the fundamental premise of it: the background as equivalent to the ground and at the same time equivalent to the sheet of writing.
The "drawing tablet" or the "topographic paper" is similar to the sheet for writing on, but transparent, so that what is written on it is the projection of something behind and beyond, and what is projected, being scaled down projectively, hence maintaining the proportions above the transparent surface; so that, depending on the proportional aspect of the reduction, the form of the building in actual size, is reproduced unchanged but scaled down, hence on a smaller scale with effects on the large scale at full size.
Here the conceptual consequences of Brunelleschi's ingenious invention can be seen. The "open" square of the window with all the bodies of what lies behind it appears staggered in depth. Set behind, it is projected onto the surface of the two opposed mirrors pierced by the small hole in the centre, as described by Manetti in his *Vita di Filippo Brunelleschi*, scaling it down in proportion to the distance. In this way, the distance that previously could only be measured tactilely, by crossing it, became measurable. The two opposed mirrors with the pinhole, are the foundation of the camera obscura and of photography. The mirror as an opaque surface of reflection on which the figures stand out reduced in proportion to the distance is also the conceptual foundation of drawing tablet. The other more purely conceptual analogy is that between the surface of the mirror and the transparency of the open window.
The proportional geometric logic between figures reduced in scale, or reflected, and transparent life-size forms, conveys

exactly the size of the form starting from the projected scaled down figures. Ruined buildings could be surveyed and "restored" in a reproducible drawing in the number copies desired. Likewise, on the basis of this principle, the "forms" of buildings could be conceived and represented in drawings as well as reproduced in copies. Models of this kind are no longer valid as the prototype of copies but they are as a "paradigm" of variable exemplars, as demonstrated by Wittkover in the 1940s and 50s.

Alberti was responsible for the separation of this type of model from construction, with the rules of mental and graphic execution - based on mimesis - as well as the twofold process of architectural construction, while the methodical exposition of the process of thought and action was the work of Filarete. It is worth noting the latter's masterly exemplification of the conceptual value of the sheet of drawing paper, whose projective transparency enhances the idea of key points. The whole sheet in the extremity of its depth, is the series of key points that, as we proceed towards them, are enlarged to the "true measure". This leads to the theory of the *parelli*, the squares on the sheet made by parallel lines (*parello*) set at equal distances from each other, which indicate the "true" measure on the small scale compared to the "true" measure "from life" of an inhabitable "cube".

This abstract "paradigm" of inhabitable cubic "space", of which the plane of the sheet of paper gives the "section", constitutes the paradigm of the modern living space, abstracted from the ground. Cubic and spherical, it surrounds the human body, which is its actor/inhabitant, as Leonardo relates in expounding the concept and principle with his "homo ad circulum".

This cubic spherical space that Descartes would call the "substance of magnitude" or "mathesis universalis", is what has replaced the surface of the ground as the logical foundation of architecture.

There is no magnitude of body that the elements of this space, lines, points, planes, curved or straight, do not intercept as sections, tangents or secants or even as entanglements. Instructed in this way with concepts, the sheet of drawing paper is a "virtual" plane capable of expounding the coherent and systematic interlacing between construction and rooms, between material bodies distributed in an irrevocable arrangement of the whole. In which, moreover, every element geometrically defined and regulated by the harmonic laws is

densified with anthropological and sociological significations or symbols in a reciprocal exchange between mental value and local value, giving the inhabitable places or volumes marks related to the working or festive day of the moments of life that are replicated in them in keeping with the customs of the inhabiting societies.
By their works and their treatises, Bramante and Palladio defined the idea of the model paradigm, which is declinable and densified with symbols or marks. The latter as a master of architecture did not perfect it but disseminated it throughout Europe. The four books of architecture are, in fact, examples of the relation between models detected surveyed and restored (in the drawing) and contemporary (sixteenth century) architectural projects designed (planned) and executed by Palladio himself. In the middle of the fourth book, devoted to the graphic relief/restoration of the ancient examples, he placed the drawing of San Pietro in Montorio, the canon of classical architectural design that Vignola would detail for the five orders. Brunelleschi's invention in Florence would be completed in Milan by Filarete, Leonardo, Bramante (and later in Rome by Bramante, Michelangelo, Raphael, and finally in Venice by Palladio).
I need not continue on this theme.

I spoke of two immaterialities: the sheet of drawing paper and drawing itself upon it.
The contiguous and superimposed vases as the ideal form are projected onto the sheet of drawing paper in a grid that contains increasingly close squares all the way down to a dense crowd of points. This is an ingenious invention of Filarete's, and its effectiveness was confirmed by everyone down to Vittone and Durand: the squaring of the sheet of drawing paper in which every element is a container of a quantity and becomes the paradigmatic model of the building, which thus in its basic determination consists planimetrically of nine squares and volumetrically of twenty-seven cubes.

Here is manifested the first example of the masterly paradigm of modern architectural space, that to which we today attribute all the architectural characters. It coincides with the conceptual value of drawing paper, whose projective transparency contracts the indefinite depth on the surface. The sheet exhibits the idea of key points. The whole sheet, from the minimum point to the entirety of the outer edge,

consists of the infinitude of key points that are in the abyss of an incommensurable distance. Each point in that space is an infinitesimal cubic point, which gradually comes closer, moving towards the body and the eye that views it, enlarging the "true measure" of the human body that inhabits them. This interpretation of the transparency of the sheet leads to the process of the *parelli*, the squares drawn on the sheet by parallel lines (*parello*) set at an equal measure apart from each other, which indicate the "true" measure on the small scale, compared to the "true" measure, "to the truth" of an inhabitable "cube".

This is the abstract "paradigm" of inhabitable cubic "space", of which the plane of the sheet of paper gives the "section", onto which is projected what lies beyond, of which we said it constitutes the paradigm of modern inhabitable space, detached from the ground. Cubic and spherical, around the human body, which is its actor/inhabitant, this paradigm is expounded by the figure of the human body, "homo ad circulum" inscribed in the square and the circle. Both notable points of the human body, the one in fact, the square, centred on the forking of the legs (the point of the generating sex); the other, the circle, centred on the navel (the end of the cord that bound the body to that of the generating mother).

Descartes would call this spherical cubic space that is multiplied in each generation to infinity the "substance of greatness" or "mathesis universalis"; it has replaced the ground of the earth as the logical foundation of architecture. There is no greatness of body that the elements of this space - lines points, planes, curves or straight lines - do not intercept as sections, tangents or secants and also as entanglements.

Thus instructed in concepts, the drawing paper is a "virtual" plane adequate to expound the coherent and systematic interlacing between construction and rooms, between material bodies distributed in an irrevocable overall arrangement. In it, moreover, every element geometrically defined and regulated by harmonic laws, is densified with significations or anthropological and sociological symbols in a reciprocal exchange between mental value and local value, endowing places or in habitable volumes with marks referring to the working or festive moments of life that are replicated in them in keeping with the habits of the inhabiting societies.

And the authors who, with their works and their treatises, defined the idea of the paradigm model declinable and clustered with symbols or marks were Bramante and Palladio.

And the latter, as a master of architecture, not only developed it but it disseminated it throughout Europe.
The four books of architecture are in fact examples of the relationship between patterns detected and restored (in the drawing) and contemporary architectural projects (sixteenth century) designed (planned) and executed by Palladio himself. Who, in the middle of the fourth book devoted to the graphics relief/restoration of ancient exemplars, placed the design of San Pietro in Montorio, the canon of classic architectural drawing that Vignola was to detail for the five orders.

While space can be reviewed by the actor who thinks of it as circumscribed to his abstracted body, completely abstracted, even from the ground of the city, the society of which man is a member cannot be conceived without the city in which society lives and reproduces itself. In other words, the social body, unlike the human body, crumbles into a plurality of constituent individuals. It does not have a cohesive body coinciding with that of a thinking self and cannot be conceived as reduced to a self that thinks itself in an abstract space. In this way, it is society as a whole that reminds individuals of their inability to see each other in the absence of the body, abstract entities in an abstract space.
The sheet of drawing paper in relation to the city. It appears more realistically as a "ground" at a limited distance from a number of units of measure (modules). This designates a flattened surface of the Earth. In other words, urban society cannot exist without the terrestrial ground (of the city) built and thus made habitable.
Obviously it is only in this way that it is possible to trace the "graph", a paradigmatic model declinable in the true proportions on the basis of its true greatness (life-size scale or 1:1). So the ground of the valley is what the drawing paper shows a its "background" in transparency, and in it, as a flattened surface, is inscribed the *lineamentum* which traces the *finitio* of the city: the two squares rotated 45° which constitute eight concave angles and eight convex angles to receive at their apices the eight gates and eight towers from the vertices of which extend eight lines converging on the centre.
The elementary constituent part of the city is therefore the centre line of the itinerary that vertebrates the borough. At one if its extremities there is a door or tower, and at the other extremity there is the urban centre; and in the

middle a transversal road places the convergence of a piazza hierarchically subordinated to the central piazza.
The elementary borough is thus denoted by a linear segment with a piazza at the centre which becomes the junction and "notable" point of multiple accessibility appropriate to exceptional centres.
Its basic reason is that of the path that "vertebrates" the village. The one, according to Panerai and Castex, that acts as a minimum generator of the aggregation of the buildings, in a notable point of which (e.g. the centre) a piazza introduces a monument. It is no coincidence that Hillier's urban space syntax considers the areola-house an elementary part (grain) of it with the identical areola-road before it. The road axis aligns the "beads" in the enchainment of sequences that makes it a string of "beads", the exposition of the logic of elementary, minimum "urban" aggregation, whose classic example is Pienza, where in the midpoint, the house/road "bead" is replaced by the piazza/monument "bead", in which are condensed and concentrated the many buildings, public and private, sacred and profane, necessary not so much to the administration of the village as the totality of the Christian world. (Pienza was the seat of the papal court which ran the church in its ultralocal or global dimension).

If the road is so long as to admit a number of transversals every 30, 50, 70 or 100 metres, forming a (more or less rectangular) herringbone pattern or spider's web, it gives rise to the centripetal urban roads characteristic of the European city. Its precocious paradigm is fourteenth-century Florence and fifteenth-century Milan, and its paradigm is the "ideal city" designed and dedicated to Francesco Sforza, first, and then to Piero de' Medici and Filarete. The extreme significance of this paradigm is that it epitomises the logic of the medieval urban formation in an integral synthesis fosters the growth which the cities (especially the Italian ones) invested in reorganizing the countryside.
Ideality, has been ingenuously interpreted as an aesthetic question, but it is rather the discovery of the method of intelligibility, of the mental/real map in relation to orders of magnitude higher than the medieval city of the fourteenth/sixteenth century that, rather than the Renaissance, should be considered enlightened in the humanist version. Ideality relates to the synthesis in the "graph" of a paradigmatic model that defines the network, within the limits of a perimeter staked out by Groundmark (major sites) of urban

growth manifested by Landmark, and arm the parts of the same growth so that they integrate into a whole and do not accrue to the pre-existing. In short, Filarete brings together all the elements of the existing city, placing them in a unifying and synergic structure:
*/ the piazza of the cathedral with the baptistery and the bell tower (the venue for all festivities);
*/ the City Hall with its piazza and the successive palaces, institutions, the Palazzo della Ragione, the headquarters of the Capitano del Popolo, of the Signoria (the seat of all the parliaments, of all the magistrates or the exercise of force to settle conflicts of interest), with the merchants' loggias and banks;
*/ urban castles and fortresses;
*/ urban monasteries;
*/ suburban monasteries or abbeys and their fairs;
*/ villages with their churches and piazzas.

The display the mode of interdependence, synergy on the basis of a dual moral and political hierarchy.
All these urban entities that arose over time as a response to the pressures from new groups with different interests and modes of production and exchange and lifestyles, and strongly identified with them, hence in an adversarial relationship with one another, were summoned to be placed in a relation of integration or harmonic interdependence, in accordance with a plan which subjected a force acting in conformity with it to a principle of reason. A principle of design therefore selected, interpreted and related the elements and parts, so as to integrate them into a set of jointly fulfilled interdependencies.
I'll shall now return to architectural design, seen in Alberti's terms as *lineamentum*, the display of the product of the mind, *seclusa omni materia*: pure form. Architectural design thus conceived inaugurated the definition of models as typological paradigms, as we have seen. But it also paved the way for an even more important task, namely the representation of the urban and earthly topography. There appeared the schemes of distribution of buildings and the scheme of the urban whole (see Leonardo's map of Imola), a new typology of compositional forms that I consider syntactic paradigms of buildings or schemes of building typologies, and syntactic paradigms of urban forms or schemes of urban morphology, within which the building typologies were located.

In fact the invention of the topographic map sealed the transition of the city from the accidental (medieval) form, a more or less structured agglomeration, to the form of synthetic integration into unified urban unit that had been foreshadowed by the castrum and the villa in the late Roman age or by the Christian monastery, where the progress in space from place to place entailed passing from one value to another one, so that spatial simultaneity was inverted into temporal simultaneity or control of the unified whole of life.
The invention of architectural design and its abstraction from actual concrete space to the logical schemes presented in geometric forms reflected in the skilful integration of abstract forms or geometric figures, was manifested in complex constructions, extended and articulated as urbs-city.
In other words, if the castrum, first, and later the villa and the monastery, had replicated the foundation of the "civitates" on the basis of "rules/institutions" exhibited in architectural "complexes" extended and articulated as the urbs-city, but miniaturised as iconic loci linked and impressed on the ground as temporal maps, drawing could epitomise the concept to decline it differently in each case.
Between architectural construction and geometry there is then an essential solidarity, perhaps a genetic relationship from this to that by mental acts of abstraction.
In any case, architectural drawing, which is a geometry applied to architecture, excerpts from built bodies the pure syntactic effect of a directional vector, rectilinear radii, active spacing of vectors to form a flat frontality between lines, the definition of closed two-dimensional or three-dimensional figures so that the overall figure formed by the parts can be perfected in accordance with the principle of *concinnitas* (Alberti), with a proxemic or reactive capacity (Le Corbusier).
From this stem two figural syntaxes:
One related to parts combined into buildings, building typology.The other to buildings combined into units of a higher order or city, urban morphology.

/* The end point of arrival of this twofold process, practical and "ideal", can now be indicated in the French version by Durand, who analytically examines the construction from the simple to the complex, from subject matters to materials to construction elements, the parts, the wholes of parts of buildings or building types, to the city as a whole of building types, but who also defines the synthetic act of the project from the idea presented in the sketch to the graph that articulates in axes and crossings a synthetic drawing governed by courses and orthogonal side glances, to perimeters that indicate the walled grounds of priests, decorated externally and internally. And it is on this kind of drawing that develops in variable models the elementary paradigm of Filarete and Palladio that the attention of Durand is concentrated [7] in the third part of his treatise, the *partie graphique*, which verifies most clearly the study of Piranesi or of ancient architecture through the extremely elaborate graphic restoration of the Roman architect, and the bond between these imprints and the elevation.

Durand, in short, defines a single method that unifies the two phases into which the architectural work is articulated: the first is analytical, from the constructive element to the entire whole; and the second is synthetic, from the conception of the synthetic form or graph that proceeds from the itinerary and proceeds step by step, to the walls that limit it. Here every operation of manipulation, modelling or assembly in fact makes a contribution to the significance, which, however, does not consist of the sum of the contributions but of the work as a whole. This work in its entirety gives sense and meaning to each of them. On the other hand Durand fulfils the Palladian experience by extending from the Western classical field to all architectonic examples of architecture built anywhere in the world the field from which to draw the elements of form, which no longer looks to a metaphysically unambiguous radicality but in the combinatorial logic of a purely mental operation.

In fact the elements that compose the form are extracted and abstracted from the encyclopaedia of buildings surveyed and drawn to scale in his encyclopaedia or *Parallèle*... from which, in point of fact, is derived the encoding of the elements that

are composed or combined together and that each project varies according to the specific properties of each concrete case in keeping with the synthetic idea that is the bearer of its significance.

It is this encyclopaedic vision and the ability to see the graph drawn as a mental map that is held mentally rather than by significant points expounded in images and patterns that, by perimetrations and networks, led Schinkel to his particular experiment in Berlin. There Schinkel used as a Landmark of a mental map the images of built exemplars taken from the encyclopaedia of notable figures of the groundmark typed distinctly by figurative character rather than by the complexity of the morphological "model", whose reference to specific meanings came from the shared sense that in the original epoch had denoted them with a name: cathedral and parliament (the Middle Ages), exemplar of architecture (the Renaissance), the museum (Greek antiquities), etc.

From this vision stems the particular urban character of his school, which expresses its highest attainments in Munich and Vienna.

The definitive penetration of the models in the definition of urban form occurred in the period of exponential growth in the greatness of urban form as a result of the emergence of industrial production during the nineteenth century. The essential element then became the urban network in its twofold forms of the road and rail networks. The characteristic element for the scalar relation between residential buildings and the city is rather the *intervia* ("interway") or space between streets (see Cerdà *Teoria de l'urbanisacion*...), now vehicular or prosthetic, and no longer pedestrian. Besides, the "greatness" of the city is an exponential multiple rather than a simple multiplication and involves the adaptation of the pre-existing form to the new magnitudes in which the points of the original marginal junctions constitute essential polarities. This contrasts with the building that originates from a name. Hence it entails looking at the pre-existence again from the point of view of additions that, to be integrated with it, react to it altering its form and value, in their turn conforming to higher orders of complexity. So three operations of integration can be envisaged:

*/ the addition in keeping with forms structured to a higher order of complexity;

*/ the incision to attach the pre-existences to the added form and adapting it to the new complexity;

/* the junction to articulate the two parts and perhaps introduce new structures into them.

The three operations are implemented in a different way in the city invested in the course of the nineteenth century by a process of growth and elevation of scale, and based on an original project, the master plan. Of which some cities have given original versions favouring a main operation and co-ordinating around, so exemplifying a *specific paradigm of elevation of scale,* for which Paris displays as the primary operation of its enlargement .
The incision, Vienna.
The join. Barcelona the addition.

We can here sum up the multiplicity of the forms of composition that characterize architecture:
/* the three compositions:
constructive composition, of the materials in the factory;
distributive composition, of the rooms in the building;
dispositional composition, of the buildings in the local map or in the circumstances of the ground and the horizon of landscapes.
/* the two syntaxes:
typological-constructional: the entwining of viables and scenarios in thearchitectural entity;
morphological-urban: intertwining of architectural entities, road and circulatory structures, natural or anthropic grounds in urban areas.
/* the paradigms of urban forms: 19th century paradigms of regulation.
Incision, join, addition; großstadt paradigms of early XX century.
See Hillbersheimer and also Milyutin; paradigms of the late 20th century diffused “metropolis”.
See Venturi, Learning from Las Vegas. ○

Notes

[1] The theme of the penetration of numbers and geometrical figures is thus the focus of attention in construction. It produces an intelligibility which coincides more or less with the mental visibility which conjugates mental entities, numbered shapes and figures, to earthly bodies of size or weight. This is what leads to a distinction by types of shapes: Doric, Ionic, Corinthian ...
And a distinction in terms of a figure's quality, more or less severe, more or less elegant.
All this helps perceive the shape of a construction, expressing a perfection that coincides with the clarity of vision and intelligibility of the figures in relation to the shape. It arouses public admiration as a manifest of the idea of beauty, which whose aesthetic principle it exemplifies: it is an exemplary model of what conforms to the idea of beauty arousing public admiration and being worthy of replica. The example as a model for replica is the archetype. And as such are still universally admired.

[2] Type, its proportional (mathematical) relationships between each length, defined rigidly by the canon, and its internal energy (the internal drive to hold that form together as measured by the canon) character.

[3] These precede, but in fact rely on the principles of measurement derived from the construction of the north-south axis proposed by Vitruvius a few pages later to ascertain the direction of the winds, and thus the layout of the city's streets.

[4] Particularly noteworthy are the six categories defined in the title Ex quibus rebus architectura constet Order, disposition, eurithymia, symmetry, fitness and distribution.

[5] I recall that the redefinition of the six categories or a discussion on how to fulfil them were the lynchpin of a number of seventeenth and eighteenth century French essays and in particular in the essays of Blondel and Ledoux who looked at the question from a classical point of view in the first case and pre-modern in the second case before the nineteenth centruy revolution.
It is well-known that this primary foundation of measurement, the menhir/herm-obelisck-gnomone, that Vitruvius talks about in the first book of his treatise, from a completely lay point of view it is treated in a "futurist" or modernist or genetic perspective by Le Corbusier who, when faced with the megalith on a Brittany beach, discovered the right angle with the horizon, the genetic interaction of artistic expression with the horizon. This is the origin of ancient architectural expression (the Parthenon), its modern descendant (any form of architecture wherever it is: the poetic reaction and that 'inexplicable space on the scale of the großstadt. (Cfr. Precisions … ed Modulor IeII) dedicated to the cubists, but "futurist" in nature inasmuch as the architecture conformed to the zeitgeist of its times.

[6] This was actually virtually part and parcel of any education which aspired to a superior form of knowledge and understanding whose assumption was the synthesis of perception and imagination, or rather the freeing of the power of imagination from purely arbitrary emotions. This allowed imagination to be trammelled by analysis based on the memorisation of the whole movement of thought in the sequence of its locutions in sentences from the first to the last. An analysis of the construction memorised room by room was at the base of this sequence of mental enunciates where they are deposited in order to examine the whole of the sequence.

[7] Durand's treatise is distinguished by the centrality given to the syntactical value of architectural design, explored in the third part (Précis des leçons, partie graphique), which is based on the grid of the distances of the "rooms" Instead of on the barycentric lines of the walls, so the paths of the routes are valid rather than the foundations of the walls.


NO STANDING

THE SCALES OF NEW YORK CITY

MICHAEL SCHWARTING

/* Cities operate and are understood at different scales, from the large scale of the surrounding effective region to the human body scale. New York City can be described by its various scales.

The largest scale of New York City is the *region* that affects and is affected by the city. The infrastructure of water resources, energy production, recreational open space, rivers and ocean, and the transportation network of water, rail, roads and airports are all critical to the survival of the city. The suburban population that works and uses the city is a significant segment influencing the city.

The Committee on the Regional Plan for New York and its Environs was a private organization of civic and business leaders was formed in 1922. It was concerned with the "metropolitan region"; the tri-state; New York, New Jersey and Connecticut, a 50 mile radius from times Square in New York City. They were concerned with the regional needs of the city including water, transportation, open space, and urban and suburban growth etc. The Regional Plan Association was incorporated in 1929 and it published its first Plan in that same year.
It was, "the worlds first long-range metropolitan plan". The second Plan was published in 1968 and was more concerned with suburban sprawl, urban decline and the excessive dependence on the automobile. It proposed satellite centers, rebirth of the regional rail, rebuilding the commuter rail systems and preservation of open land. The third Plan; *The Region at Risk*, was published in 1996. This plan considers the region as a network of multiple centers at different scales. This scale is functionally determined; the area that has resources that New York City needs to survive. Given no restrictions on growth, this area has expanded with population growth (10 million in 1920's and doubling at the end of the 20th c.). A fourth regional plan is in the works.

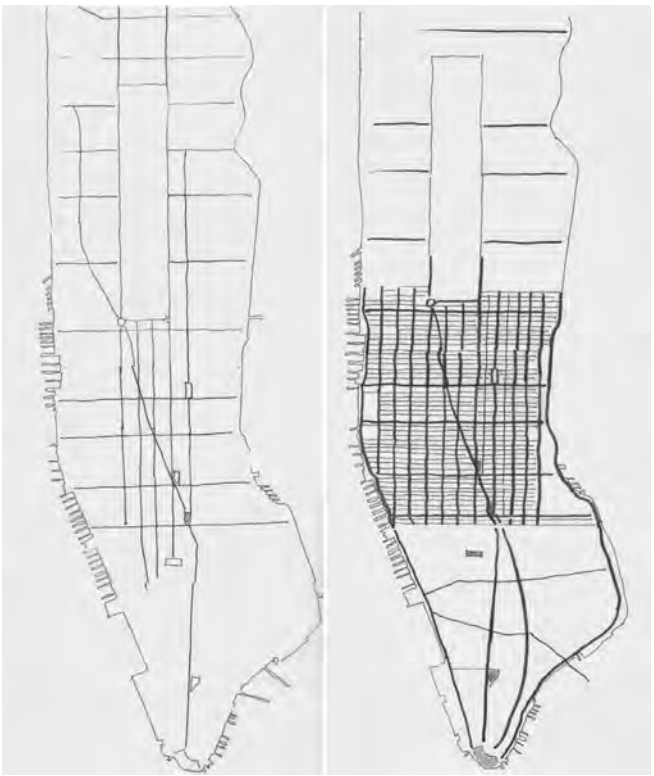
The next scale of New York City is political not geographical. In 1898 greater New York was consolidated, joining the five Boroughs together under a single municipal government, which until this time, was only the island of Manhattan. It incorporated The Bronx, Queens, Brooklyn and Staten Island. New York expanded into its Metropolitan area, and Brooklyn for instance, which was the 2nd larges City in the US in 1800's, changed its identity. Queens and the Bronx

were suburban expansions of Manhattan with no significant centers or nodes. Staten Island still maintains its autonomous small town identity. The Bronx and Staten Island are structured by their topographic morphology, while Queens and Brooklyn were created by developmental growth. None of the Boroughs had significant plans, but over time, transportation lines for commuting have made an impact of the structure.

The third scale, in Manhattan, is Broadway, which interacts with the fourth scale that is the "large scale" of the Manhattan grid. When Broadway, with its diagonal projection, crosses the Avenues, a major cross town street, at 14th, 23rd, 34th, 42nd, 57th, 72nd,86th, 96th, 125th, etc. is created.
Broadway was not part of the 1811 Commissioners Plan, but as the historic pathway from New York City, up the Hudson River to Albany, it remained. In mid-town, the intersection of an Avenue, a major cross town street and Broadway creates significant places as *landmarks* and events; Union Square at 14th Street, Madison Square at 23rd Street, Harold Square at 34th Street, Times Square at 42nd Street and Columbus Circle at 59th (not 57th) Street.

1

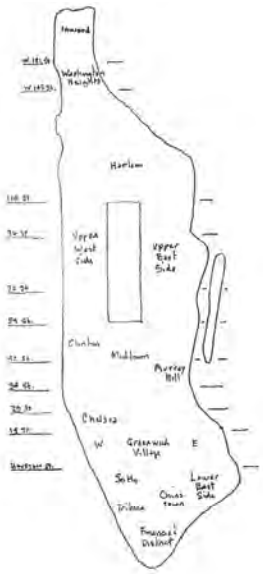
The grid of the Commissioners Plan of 1811 established the *grain* or the *fabric* (*tessuto*) of the city; it's warp and woof.
The twelve 100' wide and 610-920' apart accentually north-south avenues and 218, 60 foot wide, 200' apart, east-west streets. The larger scale mixed use, commercial and residential on the Avenues contrasts with the small scale commercial residential blocks. The Avenues accommodate large mixed-use buildings of commercial, office and residential in various proportions and density related to the areas that they travel through (the fifth to seventh scale). The spacing between the Avenues varies in relation to certain historical conditions that pre-existed the grid plan of the Common Lands.
Madison Avenue and Lexington which were originally thought to serve as alleys between Fifth, Park and Third Avenues.



2

A fifth scale exists from the different identities related to historical places, use or morphology. At the larger scale from the southern end of Manhattan to the northern, there is the Financial District, Lower East Side, Greenwich Village, Chelsea, Midtown, the Upper East and Upper West Side, Harlem, Washington Heights and Inwood.
The boundaries of these areas are somewhat vague and there are overlaps. These districts have different characters and identities of place and location, uses and even economic value through class and ethnic demographics.

Within these broad districts there are also smaller scale neighborhoods, defined by different characteristics. These create a smaller, easily walkable, sixth scale.[1]
There are other interesting morphological patterns of the island that have helped give identity to these enclaves. The 16th century morphology of Amsterdam influenced the form of New Amsterdam and exists as an anomaly to the grid. Broadway, that followed a topographic condition of the ridge along the Hudson, instigated the orientation of the Commissioners Plan. The Lower East Side's geometry relates to the East River edge, as does much of the development along the River in Brooklyn.



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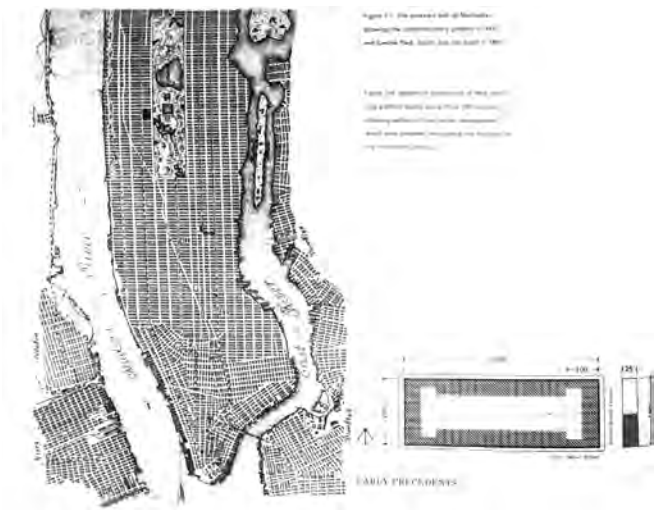
A grid pattern is also generated from the edge of the Hudson River lower Manhattan through Greenwich Village and the Village also has an irrational pattern from its history that was not touched by the 1811 Plan. Chinatown has its ethnic identity, but is also formed by a quirky topographic condition, and is caught between the northern edge of the old New Amsterdam and the western end of the Lower East side. The northern portion of the Lower East Side was determined by the Delancy property grid around a residential square, generated by the edge of the East River, which provided the orientation of the Williamsburg Bridge. St. Patrick's Cathedral is located on a high spot in what now seems like a flat area. These smaller scale local topographic and historical situations reinforced or structured neighborhoods that are this sixth scale.

A seventh scale is the organization of the block to created by the grid and accommodates the structure of the Avenue versus the Street, and the eighth would be the lot divisions in the block.
This is the architectural scale of buildings. The rectangular block with the short portion on the Avenue creating a faster pace, is complimented by the longer, smaller scale and quieter residential characteristics of the long side.



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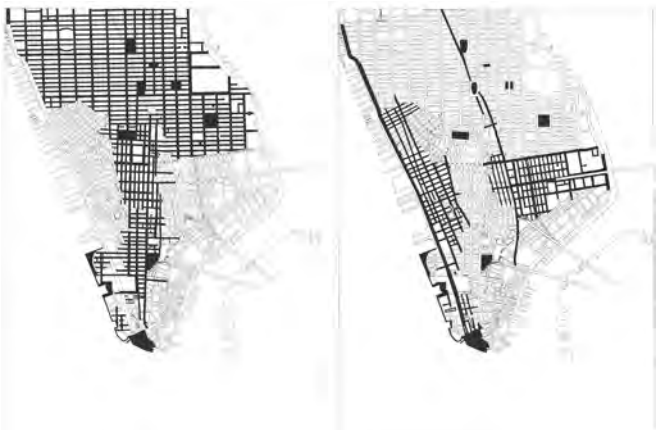
In the more commercial areas of the city, these streets have smaller scale businesses. While the block is rectangular in one direction, the lot division is typically long in the other. The 25 foot wide frontage width and 100' depth is typical of the street subdivision, structures the organization of the town-house. Here, the building scale and the block scale interact in good streets, for instance, the vertical facades of the townhouse complimenting the horizontal of the block of townhouses. The Avenue lots are typically 50 or 100 feet wide by 100 feet deep and thereby contain a vertical circulation core that permits greater height buildings commensurate with the wider avenue.

TRIBECA – A Case Study

/* As a case study that expresses the consequences of different scales for urban design, I present a project that was done in 1987 with NYSCA and NEA grants with support from the Tribeca Community Association and Community Board [1]. The project was to design the undeveloped open spaces in TRIBECA in Lower Manhattan. TRIBECA, the *TRiangle BElow CAnal"* Street is an area in New York that is bounded by Broadway, Canal Street and the Hudson River. It is the former wholesale and commercial area that has been adapted to a re-use of loft buildings to create a residential neighborhood. Working with this new community, a program was developed to plan the unused and undeveloped public space in the area. The project was to study eight spaces into civic open space for community use for beatification, passive recreation and also provide a *sense of place* or neighborhood identity.

The morphology of TRIBECA is a result of the confluence of the Manhattan Grid of the 1811 Commissioner's Plan and a grid generated by the edge of the Hudson River.



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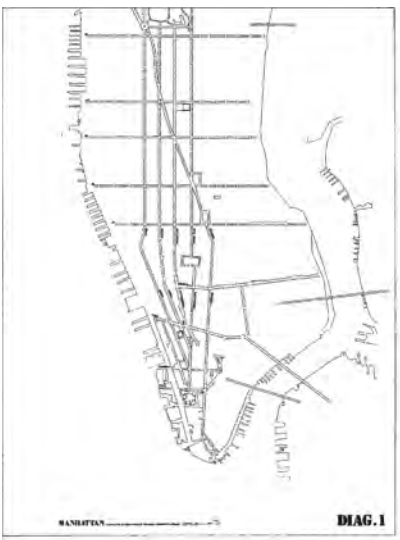
It could be seen as an urban equivalent to what is called iridescence in Cubist Paintings.
Triangular spaces result and the project was to make a coordinated design of these to bring about a public consciousness of this physical morphology of Manhattan and TRIBECA's place in it. The designs of these triangles was to heighten the awareness of the geometry that makes the area distinctive as well as to create sequences to spatially integrate the entire area.

Analysis of the larger scale revealed that these triangles are the origins or terminations of the major west side Avenues.
Bogardus Triangle is the origin of Hudson Street and 8th Avenue that becomes Central Park West and Frederick Douglas Boulevard to the Harlem River at 155th Street. Bogardus Triangle also intersects Chambers Street, an important wide, cross-town street that connects City Hall Park and the Municipal Building to the Hudson River. The east side of Bogardus Triangle is West Broadway that goes to Washington Square connecting TRIBECA with the main street of SOHO and Greenwich Village. Duane Park is on Hudson Street as well and creates a dynamic relation to Bogardus by its proximity, configuration and context (see below).



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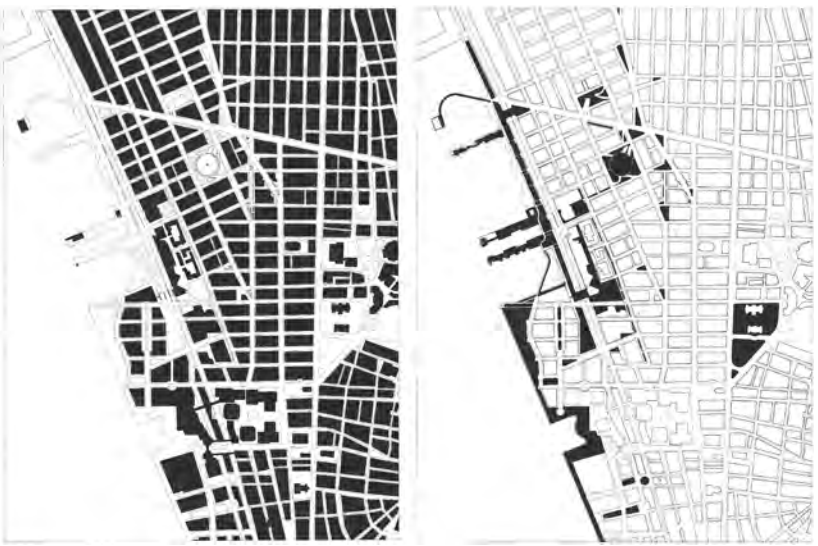
Finn Square (triangle) on West Broadway and Varick Street that becomes Seventh Avenue and Adam Clayton Powell Boulevard above Central Park. White Street Triangle at Church street begins Sixth Avenue (Avenue of the Americas and Lenox Avenue north of Central Park. Tribeca Park on West Broadway and Varick Street makes a triangular sequence with Finn Square and White Triangle. A critical idea for the project was to conceptually integrate the small scale of neighborhood public spaces to this large scale organization of Manhattan. This ties the two scales together and as such, relates TRIBECA as a nexus of convergences, to the upper west side of Manhattan.

At the neighborhood scale, these spaces become local nodes of public spaces bringing identity to the varies areas within Tribeca. Except for the area of the Holland Tunnel exit that was once, Hudson Square, a residential squares as in London, all the spaces are triangles resulting from the confluence of the two grids.
Broadway, the eastern edge of TRIBECA, is an important part of the triangulation on the grid orientation of the1811 Plan running from Bowling Green to Grace Church at 12th Street on the same geometric orientation as the Avenues



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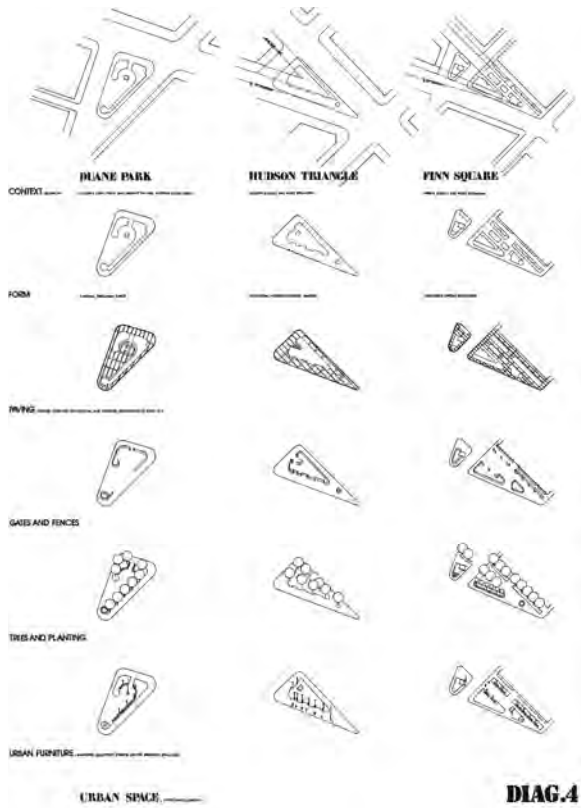
to the north. It is only after this that it becomes an erratic diagonal transgressing, but activating and enlivening the system. City Hall Square is an important triangular space on Broadway who's geometry relates, not to the TRIBECA triangle, but rather to the shape of the East River. The fork in Broadway is related to the roads to Albany and Boston. Chamber Street on its north side is an important street in TRIBECA as previously noted.

Three triangular spaces were selected as case studies to be developed at the scale of creating urban space for the neighborhood. They were each given different programs related to their contextual conditions.
A group of elements was developed that are typical of urban squares, to be common to each in order to provide visual similarities and unity to the whole of TRIBECA. The elements are: form; paving; gates and fences; trees and planting; urban furniture.



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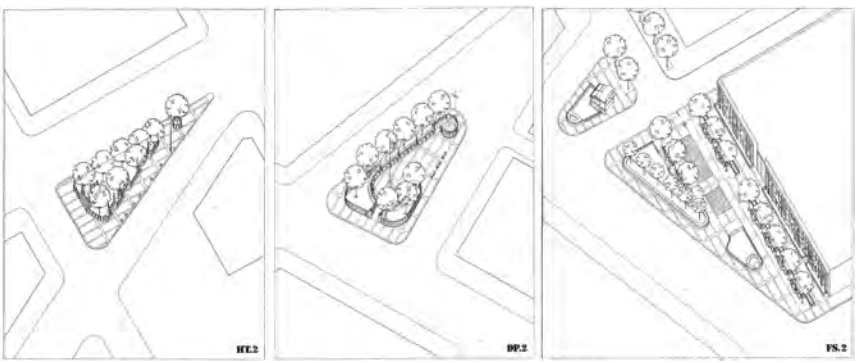
With the different programs of space of stasis, space of movement through and space to move around and view, the elements are disposed so as to create very different spatial and sequential experiences that acknowledge these different programs. Bogardus Triangle is a space of active movement on its edges, being at a transportation nexus with multiple street intersections. The hyper active outer edges was contrasted with a placid central 'viewing garden'. Duane Square was to be a space of enclosure and stasis that can be occupied in its center.
It forms a contrasting dialogue with its proximity to Bogardus Triangle. Finally, Finn Square is a space of movement through its center, being a space in the street bed of West Broadway, creating a promenade linkage of movement from SOHO to TRIBECA.

The project was exhibited at a Tribeca art gallery and at the Municipal Art Society of New York. The New York City Department of Transportation adopted and funded the Bogardus Triangle viewing park as a Capital Improvements Street Renovation Project and the park was built in 1992. By working realistically with the community and the City, the grant study for a master plan went from document to reality. Although only one space was built according to the plan, most of the spaces were revitalized over time. Unfortunately, the intentions of creating a unified community were lost over time.



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Notes

[1] North of the Financial District is Tribeca, Soho, Little Italy and Chinatown. There is the West Village and the East Village and Alphabet City in the far east lettered streets. Within Midtown, from 14th to 59th Streets, there is Midtown South below 34th Street. On the west side there is Chelsea, Garment and Theater District, Hell's Kitchen and Clinton. On the east side there is Gramercy Park and Stuyvesant, Kips Bay, Murray Hill, Tudor city, Turtle Bay and Beekman and Sutton Place. On the west side of Central Park, in the Upper West Side there is Lincoln Square at the south and Manhattan Valley at the north. In the Upper East Side of Central Park there is Lenox Hill Yorkville and Carnegie. On the west side of Harlem is Morningside Heights and East Harlem or El Barrio to the east. There is Hamilton Heights south of Washing ton Heights and Fort George north. The districts and neighborhoods are important to the variety of places in the city. These names come from their histories, location, and as use, ethnic or class enclaves. The other Boroughs have similar districts and neighborhoods.

Figures

TRANSFORMING LANDSCAPES

Vs

RESILIENT ENVIRONMENTS

GIOVANNI SANTAMARIA

/* Cities are more and more a sort of heterogeneous and dynamic collage, often conflicting and unpredictable, subjected to the balance of several variable forces, with their own nature and structure, order and rules, and their own ways of evolving. This requires new tools and methodologies of observation towards the recording and analysis of urban phenomena, and the need for new regulations and operational procedures, which would enable us to manage in a critical, creative, and proactive way, the complex multiplicity of to the process of change.

The static structures and codified models of the Modernist and Post-Modernist approach, along with the over-imposition of specific ideological beliefs and quantitative categories, therefore translated into abstract organizational schemes, often simplify and compartmentalize the complexity and variety of our environments, focusing on solid objects more than on the level of richness of open fields as coordinated ecosystems, productive or not, manmade or not. Instruments, expertise, roles, and responsibilities are still today codified and separated in rigid and often hyper-articulated bureaucratic structures which don't take into consideration the deep-rooted cross-relationships between the several fields and dimensional scales involved in the transformation processes of our environments, driven by human and natural actions. These require a sort of multidimensional and multidisciplinary approach, which should be able to cross simultaneously over several: Scales -from the global one of networked political and economic logistics, to the local ones of micro oriented intervention related to specific needs and to spontaneous life cycles; Fields -from the strictly urban and infrastructural, to the more natural ones, characteristics of soil, water, and air, to the ones related to different gradients of productive land, of consumption and to the reuse of natural resources, of waste, to the problems of pollution; Time/ Space- from the status quo and the understanding of its past as a complex process of actions and reactions, towards critical issues related to its future projections and their implications on a wider scale. It's the case of climate change, the rising of water levels, desertification, shrinking cities and their left over "post" spaces, fast growing metropolitan areas and their uncontrolled consumption of space, due to the change of modalities of living, of production and distribution, of polices, of technology and their effects on societies, economies, and governance at macro as well micro scale.

These factors have always been part of a gradual, or sometimes drastic, process of change related to built and un-built spaces, and these are now asking even more strongly to be at the center of planning and design research and proposals. The purpose of this is to work towards a definition of new urban morphologies and building typologies strategically integrated to the scale of landscape and to the specific characteristics of sensitive and fragile environments. These have to be considered in an open and systematic way, in relation to their higher levels of diversification, their processes of change, and to issues and potentialities related to them.

The consequences of these processes on the structure and quality of space and life, could be described as part of a complex -urban metabolism-[1] , which should therefore be systematic, creative and participative, facing material and "immaterial" issues starting from the proactive understanding of local specificities. The Metabolic Intervention concerns several interrelated dimensional scales, space and time frames as well, consequential or coordinated, from the extra specific related to the object and its inner system, to the regional, which integrates systems, well beyond mere political and administrative boundaries or circumscribed sectors, than to the global one related to synergic decisions. It's not just a coincidence, in fact, that by definition a sustainable city implies an entire urban region for which the inflows of materials and energy, and the disposal of waste do not exceed the capacity of its 'hinterlands'. This requires thinking of new coordinated and creative strategies, tools, codes, and rules for planning, design and management at the scale of landscape, to envision it and to invest in it. It becomes more and more crucial to consider the entire and networked life cycle of the "system environment", its formation, its growth, its consumption and its eventual destruction and recycling, in the same way that the physical metabolism of individuals does through its livelihood. This process of evolution deals with and generates at the same time, values of differentiation, of persistence, continuity, and memory, which are relevant in the way an environment evolves and survives, critically defining its choices: "…to exist is to change, to change is to mature, to mature is to go on creating oneself endlessly […] inner duration is the continuous life of a memory which prolongs the past into the present, a present containing in a distinct form within it, the ceaselessly growing image of the past…"(H. Bergson, *An introduction to Metaphysics)*.

The same evolution keeps redefining the "urban ecologies"[2] (M. Mustafavi, *Ecological Urbanism*) we live and move thorough, which are characterized by heterogeneity and complexity. This is due to the overlapping and cross interactions, often frictional, between infrastructures, concentrated or differently diffused urban structures, productive land, and dismissed, residual or neglected areas within the vast metropolitan regions, with their dysfunctions but also their potentialities. This is then a landscape defined by the effects produced by dynamic interactions between articulated open systems, where the temporal flow is not an enemy to contrast with, but more like a force through which life evolves and is expressed, enabling ongoing interactions and creative differentiations (H. Bergson, *Creative Evolution*). They also make it able to redistribute uses and production of the several resources involved, also human ones, and in this way guarantee its functionality and transformability, so as to avoid the collapsing of the overall structure due to the change of contextual conditions or catastrophic phenomena which humans and/or nature creates. In this way the "crisis" becomes an opportunity for requalification and development of accessibility, logistics, and redefinition of rules and connectivity, based on a sustainable balance of growth and available resources, in a competitive framework. In this system, heterogeneous epicenters of the net, are territorially linked and locally specialized in relation to their hierarchy and to the level of sensitivity or criticality of others. At the micro scale these epicenters, working like permeable clusters of localized exchanges, are open to opportunities for "landscape architecture" (C. Waldheim, *Landscape Urbanism Reader*), located in problematic "between spaces," where elements with different natural conditions collide: infrastructures cross city, landscape, and productive land; city meets and gets fused with its surrounding, creating thresholds within undefined areas where informal, spontaneous, uncontrolled and incredibly fast strategies of growth are in progress: "… Unexpected discoveries in non-equilibrium physics and non-linear dynamics are changing our understanding of complex phenomena. The prevalence of instability of small changes in initial conditions, may lead to amplified effects…" (I. Prigogine, *Time and Human Knowledge*).

This is a possible way to regenerate and reintegrate fragile and self organized processes into new synergic structures in order to guarantee their sustainable ecological footprint,


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organizing biologically productive areas required to provide natural resources and to assimilate and recycle the waste (Wackernagel & Rees).

Therefore, even though our society is "shaped by the constant movement of goods, people, information and several kinds of interactions" (M. Castells, *The rise of the network society*), it is still deeply related to the genetics of a specific "anthropo-geographic" contexts (F. Ratzel - V. Gregotti) in terms of meaningful environments, historically and culturally formed as a result of planned or spontaneous decisions with physical and structural consequences related to immaterial effects (H. Lefebvre, The production of space). These are naturally involved in the transformation processes that, if based on a critical understanding of their predecessors and their reciprocities, can be oriented towards the creation of renewed operational methodologies, which are characterized by recombined approaches in the current age of the diffused "tele-citta'" (D. G. Shane, *Recombinant Urbanism*).

Giving form to this rhizomatic and multiplex process of change which we can call "Resilience," [3] and being able to translate it in terms of proactive design experimentations geared towards potential futuristic visions, is one of the main responsibilities of the Landscape Urbanism approach, since "…if we cannot control the volatile tides of change, we can learn to built better boats. We can design and redesign organizations, institutions, and systems to better absorb disruption, operating under a variety of conditions, and shift more fluidly between several circumstances…" (A. Zolli, *Resilience*). ○

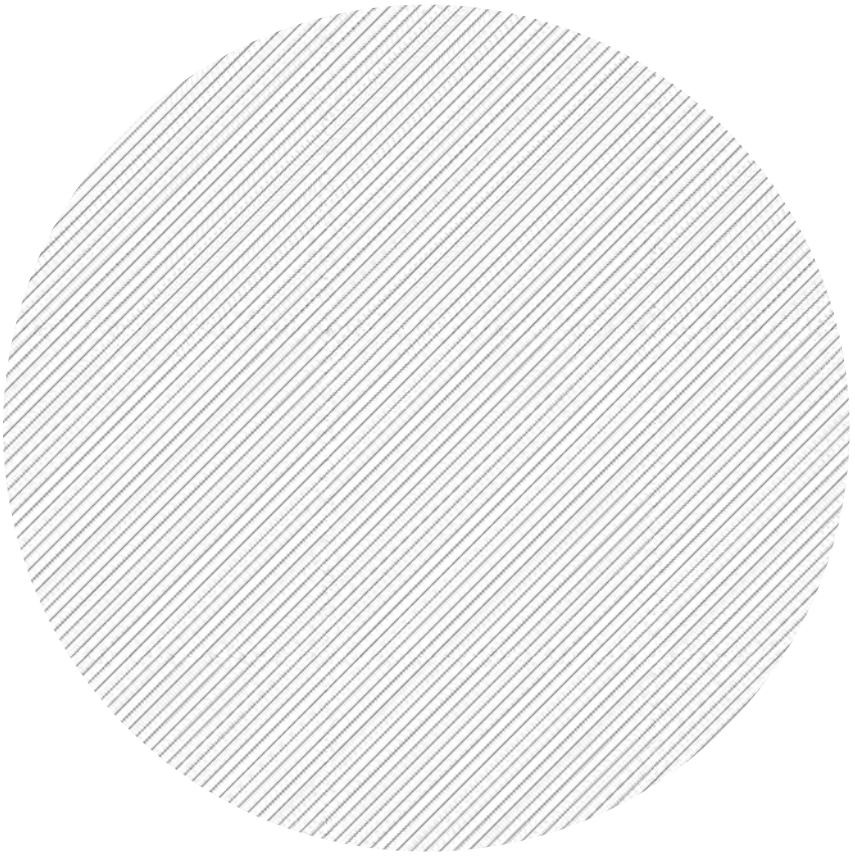
Notes

[1] Urban Metabolism, is related to the scale of an Urban Region which supports its own sustainable growth in terms of spatial, social, energetic, and economic balance through internal and external exchange processes improving systems of production and reproduction and its power of attraction. A. Wolman in his "A typical American City" (1965) defines urban metabolism as "all commodities needed to sustain a city's inhabitants at home, at work, and at play", but his approach was mostly focused on the physical aspects of the balance of production and exchange of energy and natural resources, more than on their effects on the quality of space and life. An evolution and extension of the same concept is included in Kennedy's "Changing Metabolism of Cities" (2007), where he defined it as a "totality of the technical and socio economic processes that occur in cities, resulting in growth, production of energy, and elimination of waste". His point of view is more focused on the way the overall system of the lifecycle of an urban environment works and has interesting references to P. Geddes' (1885) studies about the city as a "living machine" with its own metabolism and related social effects. This concept is part of a research of "Laboratorio Misure e Scale" of Politecnico di Milano, and applied to each element that composes an urban environment, in which it operates through strategies of Maintenance, Transformation and Substitution.

[2] Etiologically the word "ecology" is composed of "eco" which in Greek means "house", while in Ladino it means "work", and the word "logos" that means "to speak about", "to arrange", or even "to choose". So we can say that ecology doesn't define just a natural environment, but it's about "a discourse on a house" considered as the overall living context, it's related to the "arrangement" of that or to the "choices" made within it. At the same time it means a "discourse," an "arrangement," or a "choice" about a working process, and the concept of a place like the 'result' of it.

[3]

*Rom Hoob Market- Samut Songhkram (IN), is an example of the adaptation and continuous transformation of an existing and still operative train track, into a local strip market.
*Landscape Park- Duinsburg Nord (GE) by P. Latz+Partner, is an example of the transformation of a dismissed industrial area into a park for leisure.
*High Line- New York (US) by J. Corner& Fields Operation, is an example of a dismissed infrastructure transformed Into a linear park, which is progressively and dramatically changing the Western downtown of Manhattan.
*Green River: Park de Turia- Valencia (SP) masterplan by R. Bofill, is an example of the substitution of a river with a linear park divided in specific sectors, following the relocation of the river itself outside the historic city.



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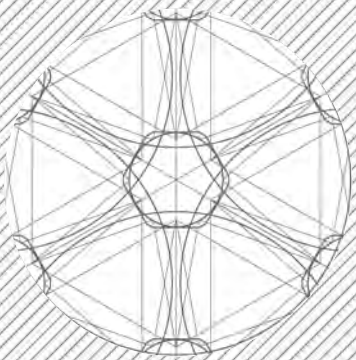
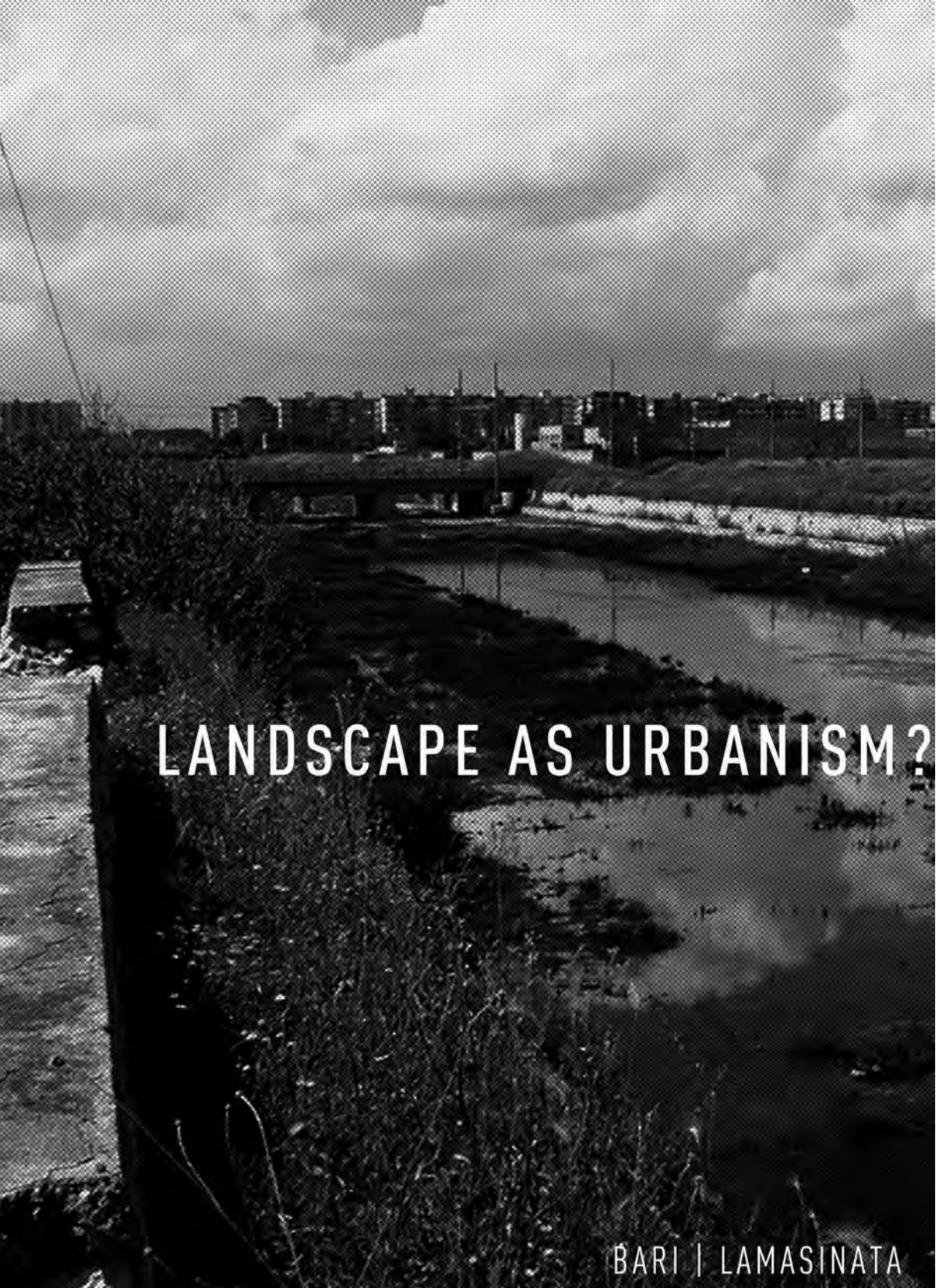


Antonia Maria Alda Chiesa,
The Remedial Role of Landscape.
Emerging Influence of Landscape Architecture in Urban Design:
a Focus on the American Tradition.

Ed Wall,
A Short Introduction to Landscape as a Design Process.

PAESAGGIO AND URBAN LANDSCAPE: THE DEEP STRUCTURE OF THE METROPOLITAN ENVIRONMENT

Definition of a New Landscape Territory



LANDSCAPE AS URBANISM?

BARI | LAMASINATA

THE REMEDIAL ROLE OF LANDSCAPE

ANTONIA MARIA ALDA CHIESA

Antonia M.A. Chiesa is Ph.D. in Architecture and Urban Design (Politecnico of Milan, 2010 – fellowship by ANCE, Bari), M.A. Arch (Politecnico of Milan, 2003). She completed a PostDoc in Landscape Architecture at Harvard GSD (2012-2013), with Charles Waldheim. She is currently teaching Design Studio 2 at Politecnico of Milan where she also taught Environmental Design (2007-2012). Since 2006 she is an active member of the "Misura&Scala" Lab (Politecnico of Milan) where her primarily investigation is landscape as applied to urban design within different international case studies. She has coordinated international workshops and seminars. Her professional activity on urban projects and competitions has been mainly based in Milan in collaboration with Urb.a.m. SpA (2004- 2009).

Her research concentrates on the discussion, interpretation and translation into Italian of landscape urbanism's main concepts according to a comparison with the Italian morphological approach to urban design. During her PostDoc, she updated her knowledge in landscape urbanism, landscape design and environmental design. Her specific research focuses on agro-urbanism within informal contexts of fast developing cities (Cairo, Dar es Salaam), through an ecological framing of urban systems, which highlights landscape as a comprehensive medium of processes of urbanization. As for Italy, she is currently investigating strategies of regeneration within the Aemilian Appennini, where trends of abandonment neglected the potentials of a mountain landscape. She published the book Ecology for Architecture (2011) and authored papers and articles.

"Many of the conceptual categories and projective practices embodied in landscape urbanism (…) arise from outside those disciplines traditionally responsible for describing the city. As such, landscape urbanism offers an implicit critique of architecture and urban design's inability to offer coherent, competent, and convincing explanations of contemporary urban conditions. In this context, the discourse surrounding landscape urbanism can be read as disciplinary realignment in which landscape supplants architecture historical role as the basic building block of urban design."

Charles Waldheim

Emerging influence of landscape architecture in urban design: a focus on the American tradition

/* Landscape urbanism is fascinating today hundreds of students and researchers all over Europe and recently even in Italy. As for Italy, it is clear that young generations of architects are more inclined to be part of an international discussion, open to a renovation and hybridization of the traditional approach to "paesaggio" and urban studies [1]; generally though, Italian researchers are unaware of all of the cultural and historical implications related to landscape urbanism. Moreover, the intimate cultural, social, economic and spatial logics denoting its proper background are not immediately perceivable by any researcher who has been raised and educated in Italy.

The peculiar density of the American suburb made by rare density, substantial repetition of modules even if with slight changes, provisional built environment, definite yet often invisible separation between public and private, proximity to a domesticated urban nature, widening of spaces and relations inform the physical and cultural environment within which experimentations of landscape urbanism have been and are today developed in the United States. The suburban is a given context, an inevitable condition which turns into an opportunity, a spatial frame and a questioning issue for the branch of landscape architecture called since the late 90s landscape urbanism. That said, fresh eyes always help the research and investigation, as the latest experimentations in non-American contexts demonstrated by testing and implementing some of the concepts and ideas in unusual case studies.[2]

Here we intend to mention some of the basic contributions to the landscape urbanism discussion by building an arbitrary path through the variety of theories and disciplinary traditions sustaining its multi-disciplinary approach: spreading from landscape architecture to urban geography, from ecology to planning, from sociology and anthropology to urban design, from history to technology.

Still, to enlighten some of the peculiar concern of landscape urbanism, developed as the need for a new understanding of American processes of urbanization, Stalking Detroit (Daskalakis et al., 2001) comes at hand [3]; "first the facts" is the slogan guiding the primarily descriptive intent of the authors.

Those "facts" report scenarios of abandonment and decline of Detroit's shrinking city where traditional models of urban arrangements, based on mobility and speed, declined without any valuable alternative. The raising amount of vast empty spaces and derelict lands produced since the 70s a rarefaction of the urban body whose spatiality may be described as undetermined and hybrid.

Investigating urban patterns of post-fordism and promoting a retroactive description, Stalking Detroit focuses on a post-facto evidence as basis for a call to action. The starting point is based on Bernardo Jordi's photographs enlightening the paradoxes of the abandoned city: they work as visually rich documents and hyper-references, which may be read on many levels. "Decamping Detroit", Waldheim's piece within the volume, states that landscape -more than just architecture- is "the medium capable of dealing with simultaneously decreasing densities and undetermined futures"; with a clear theoretical shift, his research considers urban facts from a different point of view: the open space. Landscape as urbanism is the proposed strategy as a possible way out of a dangerous decline taking place both in "the abandoned central city and on the periphery of the still spreading suburbs". Four phases articulate the process of regeneration: dislocation - or the evacuation of the zones [4] to be revaluated -, erasure - or the scrubbing of the evacuated zones -, absorption - or their ecological re-constitution though landscaping operations - and infiltration - or re-programming and re-appropriation of the zones.

1

The more recent Detroit Future City project by Stoss Landscape Urbanism, explains Chris Reed's challenge to further develop the strategy. Conceived as a framework plan and as an action-oriented guideline, it organizes units of innovative land use by a flexible urban plan. Cultivating cities [5] is indeed the aim of a set of different environments in which ecology is an active agent and presumes specific protocols for behavior. Citizens may choose their dislocation in various parcels including different tones of vacancy given by the given amount of land for recreation and culture, green/blue infrastructures, urban meadow, carbon forest and productive landscapes. Such carefully guided ecological development of the city qualifies landscape as a ground for innovation, manages interim and transitional areas, and suggests many scales of practice and operations. A variety of operational scenarios merging social life and ecological functions are offered as options of vacant land reuse.
Ecological networks, designed at the urban scale, ensure the overall structure of the system, providing connections and access to large green and blue infrastructures.

The extended city

The extended city is the context triggering the development of landscape-based strategies. Spreading beyond administrative boundaries, design is concerned by fluidity and mixitè of urban patterns. When agricultural productive areas are concerned the implications for the shape and the structure of the city itself are potentially profound (Waldheim, 2010).[6] Urban farming is in fact producing a kind of urban hybridization, which may be related both to a new aesthetic and to a renovated set of structural relationship between the city and the land. Again, landscape is indicated as key-element to understand and operate such reality: by overcoming any distinction between the city and the countryside, the dissolution of the built environment into the open space is paradigmatically interpreted as the emergence of the ground over the figure.

The spatial speculation on agrarian urbanism is based on three historical precedents, which depict different scenarios of large regional extent of hybridized urban territories: Frank Lloyd Wright's "Broadacre City" (1934-35), "The City in the Landscape," by Hilberseimer (1944) and the more recent Andrea Branzi's "Agronica" (1995).

Even with consistent specificity, the three projects, two of which have to be framed in the Fordist strategies of development first and in Great Depression contingency after, work on the extreme decentralization and dispersion of urban pattern as an opportunity for a new city where landscape plays a fundamental role as a counterpoint to metropolitan density. Hypothesizing ways of inhabiting the productive landscape by means of an infrastructural network extending territorial accessibility, they all perpetuate the vision of a renovated relationship with the environment, which turns to be socially, economic and culturally specific. Through aerial views and orthogonal maps, they conceptualize vast rurban landscapes where decentralization is key to subsistence.

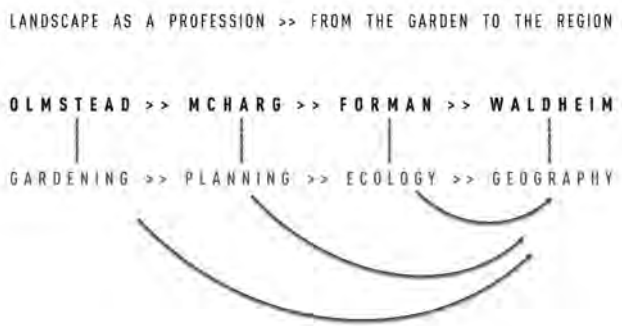
Broadacre city, as critique to the modern American city, reinterprets the Jeffersonian grid in a never-ending orthogonal dislocation of landowning citizen-farmers. Exquisitely American, it is based on the individual

2

as economic and social unit of a larger system whose connectivity is guaranteed by and ubiquitous infrastructure. In The City in the Landscape Hilberseimer conceives his low-density pattern of urbanization to be sustained by means of regional infrastructure and according to topographical and environmental specificity.
Branzi describes the city as the product of the fluid and immaterial dynamics of liquid modernity and fuzzy thinking, where the most certain rules which may be identified are those of flexibility, interchangeability, virtual programming. Such models of weak urbanization may apply indistinctively to all the urban territory and agricultural productive field, since technological advancement guarantees spatial equality: as a result, a semi-urbanized and semi-agricultural territory is created (Branzi, 2006) by means of a highly sophisticated environment. The urban field is open, unconcluded, imperfect, regulated by an infinite time-pattern: such surface may be seen as a performative set (De Certeau, 1984) where neither boundaries nor major directions are suggested, settlements are provisional and agriculture is highly specialized and efficient. By the way, Andrea Branzi, together with Bernardo Secchi and Paola Viganò, are the Italian authors engaging today a dialogue with colleagues at the Harvard GSD on landscape as one of the main topic for contemporary urbanism. Both working on unusual ways of communication and representation of the extended city, they share the focus on vast open space as scale and measure of the city.

Legacy

To further delineate the background of traditions, knowledge and theories informing the discussion around landscape urbanism, a selection of significant contributions should be mentioned.



Frederick Law Olmsted (1822-1903) may be considered [7] the first model of landscape professional within the American tradition: with him landscaping becomes an emancipated practical practice, structured by accurate rules of composition and detail. Moreover, Olmsted enlarged the scale of the garden to that of the park in many of his works, intentionally raising the awareness of the pure American authenticity - which, by the way was not referred to a "native" nature, but to a Nordic, national republican identity to be emphasized in nature - as expressed by a natural specificity, which had to be preserved and framed against urban expansion. This is the case of the first constructed wetland in Boston Back Bay Fens (1887) or in the case Biltmore first "artificial" forest (1989). Embedded in the botanical knowledge of the English tradition, Olmstead designs the American "natural" scenery by selecting local species and recreating the sensation of openness, the intactness virginity of a land where man is a primordial undisturbed guest. Landscape is conceived in its sanitary and curative role: it heals urban wounds by resuscitating the pastoral myth of a natural environment [8] where sheep and cattle are an active part of the urban park and dairy activity is promoted. [9] For the same reason the crossing transportation system is rather camouflaged, as in Central Park. Here a translated version of picturesque architecture populates the park: gloriette, pavilions and, among others, the Victorian folly of the Belvedere Castle designed in 1869 by Calvert Vaux are in fact an expression of the pleasure factor of the English garden, filtered through a Puritan tendency towards austerity. Architecture structures the narrative of scenes and, together with landscape, expresses moods of calmness, gentleness, delicacy of the pure American sublime (Rybczynski, 1999).

Later on Ian McHarg (1920-2001) represents a significant advancement of the discipline.

His major contribution is the attempt to connect the biological and botanical knowledge to a planning activity: his layered maps and schemes enlighten hierarchies and reveal possible connections. Thanks to a systemic approach, McHarg builds a bridge between environmental resources and urban expansion by revealing dramatic overlapping and defining the suitability of mixed land-uses. His prediction on Staten Island's possible flooding areas, indicating locations at risk where any building operation was un-appropriate, was in fact confirmed by dramatic events related to hurricane Sandy.

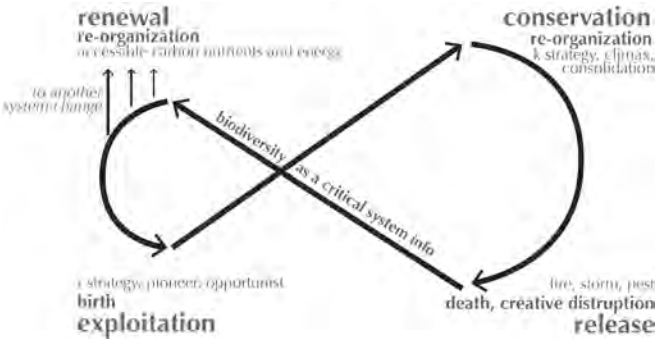
Moreover Richard Forman's contribution endorses the role of natural science in design, even if slightly shifting human beings outside of the models through which he explains natural processes across the landscape. His most valuable work, turning ecological data in concepts, rules and connections strongly affects the development of landscape architecture both as theory and practice; by setting the focus on the spatial structure of environments, he considers edges as basis of interaction between people and nature upon the very distinct patterns of urban, suburban and agricultural areas.

Rejecting though the opposition between nature and city as professed both by the regionally scaled environmental planning and pastoral/romantic standings, landscape urbanism is taking a slight distance from such important legacy. The same applies to the narrow agenda of the pure ecological advocacy fascinating many landscape architects and representing a rear-guard defense of a supposedly autonomous "nature" (Waldheim, 2006).

Remedial landscape within urbanism

Landscape may be assumed as strategy against the "dystopia of the megalopolis", suggests Kenneth Frampton (1995). Indeed more importance needs to be accorded to its critical and compensatory role: with a significant shift from his architecture of local "resistance" to global culture, Frampton recognizes the remedial function of landscape within the utterly concerning explosion or implosion of processes of urbanization. Recalling Peter Rowe's *Making a middle landscape* (1991), he transposes priority from the freestanding built form to landscaped built forms: replacing multi-functional megalopolitan types and remediating the abandoned post-industrial "scar tissue", they seem to trigger a wide-ranging catalytic effect of regeneration in the context. This is the notorious case of the New York's High Line (2009-2013): as known, the ecological sustainability of the project has been long discussed because of its costly maintenance. The mitigation induced is probably more related to the economic benefits of the whole real estate regeneration associated with it. Not to mention the social benefits coming from a new meaningful and viable public realm, which the city was provided with. Even if at high costs, a new technological ground has been deployed and

the image of an extra-ordinary, high-quality public space has been suggested, suspended on the actual city and creating inedited connections among urban parts.
Further more in *Towards an urban landscape* (1995), Frampton argues for the ecological stance that architecture should assume. In most design projects which may be reconnected to landscape urbanism - whether they are landscaped built forms or not -, ecology plays a fundamental role. "From appearance to performance" (Czerniak, 2007): in Fresh Kills Park (2001), landscape is investigated as a process of accumulation, contamination, modification of ecosystems.



Design is therefore concerned by strategies of recovering and regeneration, to gradually adapt the project to the site. Since time is one distinguished criterions of exchanging ecological activities, an adaptive design (Lyster, 2011) may provide design with a useful flexibility. Both in Fresh Kills and in the Welleslay College project by MVVA, the ecological issue is resolved in an intense and selective groundwork in order to isolate, remove and replace compromised soil and provide a healthy surface for new planting. A highly technical approach works through topography and hydrology - dislocating areas for infiltration, storm-water collection, water recharge, overflow management - manipulating the surface in slope and composition. At the same time, it produces interesting images of the natural processes raising the interests into the observation of how nature really works. In the Taichung Gateway Park design by Stoss Landscape Urbanism the final image of a waterpark is composite and complex, given by the interaction of water, vegetation, circulation and road infrastructure. Technical requirements related to water treatments as pumping, collecting, infiltrating, irrigating, filtering and sedimenting establish different habitats into

which public space is welcome. Mixed cultural and natural activities intensify the blue/green infrastructure structuring the economic sustainability of water ecology. Similar concerns animate many of Turenscape's parks especially when located on contaminated sites. However, as for Tianjin Qiaoyuan Wetland Park, ecological reasons interdict the access of humans in certain areas where the ecosystemic processes need to work undisturbed. A differentiated groundwork creates sets of chemical and biological variety as a trigger for soil regeneration, while suspended terraces and paths provide the visitors with space for contemplation. After an initial intervention landscape design should "let Nature takes its course!", as Kongjian Yu said in a public speech at Harvard.[10]
In other cases the reference to a layered lithography builds the tectonic character of some of the MVVA's geological parks, where an interesting groundwork produces a new interpretation of the picturesque. The accumulated, folded, manipulated and perforated soil of Teardrop Park playground in NY, far from being uniquely the response to an ecological requirement, moves towards what Frampton calls a landscaped form (1995), even without the functional complexity of the megaform (Frampton, 2010).

Does landscape urbanism produces megaforms?

The present research finally intends to test the idea of megaform as Frampton conceives it in the landscape urbanism's environment. Given the disciplinary derivation of megaform from architecture, some interesting overlapping may be enlightened.
Some of the projects related to landscape urbanism may be illustrated according to the concept of megaform as far as they work as landmark places, are large-scale manifested expressions of their own intrinsic structure, share a topographic, horizontal thrust of their overall profile and present a catalytic function for the urban pattern. In particular the creation of a new topography "which totally transforms the surface of the ground to create a public domain and a landmark within the space-endlessness of the megalopolis" (Frampton 2010) is a concept applicable to West8 surfaces in Toronto (2008). Here the manipulation of ground provides the waterfront with an unusual, ironic public space produced by carving and wrinkling of a supposed elastic matter.
Moreover, among some of the projects Frampton mentions (Frampton, 2010:38), stands the most famous Yokohama

port terminal by FOA (2002) merges the alternative tectonic of an artificial ground, whose folded roof-work creates a cavernous intimacy, with the functional hybrid complexity and enlarged scale of an intermodal urban node. Same complexity may be noticed in the Olympic Sculpture park by Weiss&Manfredi (2005): mixing exterior and interior spaces, it elegantly rearranges the crossing of a high-speed infrastructure while making room for cultural amenities. Conceived as the restoration of a neglected waterfront, such hybrid architecture results as clearly recognizable infrastructured landscape. Its cross-sections, merging a variety of programs, reveal a complex structure hosting art, transportation, vegetation, power lines, pathways. The specific architectural perspective into which the Olympic Sculpture Park may be framed is quite evident: molded lines, planes and volumes illustrate the tectonic character of the built space [11] where landscape is one layered surface and the covering of a highly-performing strata.
However, considering other case-studies, Frampton points out the physical integration with the site as a topographic character of the megaform: the Igualada Cemetery by Carme Pinos And Enric Miralles (1992) redefines a tectonic morphology interpreting as engraving work the magnificent play of masses in the light. Incision of the surface seems to be the operative strategy of other Spanish works as the Granja Escalator by La Pena y Torres (2000) where the existing slope becomes an opportunity for turning a vertical connection in a multifaceted panoramic pathway.
A renovated attention for the specific materiality of the landscape denotes the selected examples where the field of action is a sophisticated surface and a high-quality public space. Ground, not merely intended in its chemical character, is an architectonic surface subject to a morphological manipulation. Landscapes are not just rocks, rivers, trees, but acquire significance within the deliberate narrative of a story whose plot is a dialogue between human and nature (Spirn1998).

As conclusion, a focus on landscape in its ecological, technological and morphological declination is one possible undeniable perspective of urban design discipline: first of all, it represents a theoretical and cultural shift. What if we could work on such hybridization also in Italy? ○

LANDSCAPE URBANISM SITE DECLINATION									LANDSCAPE SENSE	TRANSFORMATION STRATEGY	
collisive site	ideogram	scale	exchange network		process over time	field of action	action	imaginary	value/ vulnerability	maintainance, transformation, substitution	
site n.3_piazza Gramsci		1:1	strada litoranea	passeggiata del lungomare	tempo compresso e ritmicamente ripetuto del passaggio dei veicoli	spazio della percorrenza a piedi	disturbo: eccessiva prossimità di flusso veloce e lentissimo		vulnerabilità	trasformazione	distinzione flussi (interramento strada litoranea), organizzazione della passeggiata per tempi di sosta e percorrenza
			strada litoranea	spiaggia	tempo compresso e ritmicamente ripetuto del passaggio dei veicoli, tempo lungo del degrado da inquinamento	spazio della percorrenza a piedi	disturbo/eccessiva prossimità di flusso veloce e spazio di sosta		vulnerabilità	trasformazione	interramento strada litoranea, miglioramento accessibilità al litorale
		urban	strada litoranea	edificato abusivo	tempo discontinuo dell'interruzione di visibilità	campo visivo	degrado incomunicabilità	permeabilità orizzontale e verticale	valore	manutenzione	ristrutturazione
			mare	edificato abusivo	tempo delle mareggiate	spazio della mareggiata	minaccia: eccessiva vicinanza		vulnerabilità	sostituzione	eliminazione edificato abusivo eccessivamente vicino alla linea del litorale
			quartiere japigia	area ex-fibronit	tempo lungo del degrado da inquinamento	campo aereo di dispersione delle polveri inquinanti	minaccia: eccessiva vicinanza		vulnerabilità	sostituzione	dismissione impianto industriale, realizzazione parco urbano
		regionale	quartiere japigia	ferrovia	tempo compresso del passaggio dei treni, tempo perenne dell'ostacolo visivo e fisico	campo visivo e spazio della percorrenza, distanza dal mare	relazione ostacolata con il litorale		vulnerabilità	trasformazione	modificazione tracciato binari, miglioramento accessibilità al litorale
			litorale	nodi urbani strategici	tempi lentissimi della distanza	spazio della percorrenza motorizzata	mancata relazione per eccessiva lontananza		vulnerabilità	sostituzione	fermata metropolitana leggera

Notes

[1] For istance with the contribution of Paola Viganò, Andrea Branzi, Mosè Ricci, guest speakers and visiting professors at the Harvard GSD (2011-2013).

[2] Among others, distinguishable examples may be found in China, Argentina and Chile.

[3] The present focus on Stalking Detroit derive from Charles Waldheim's presentation of it within the course Research Methods in Urbanism at the Harvard GSD, Fall 2012, Cambridge MA, Oct 29

[4] The term is used by Waldheim with reference ot Andrey Tarkowsky's film "Stalker.

[5] As Chris Reed explained it at the R.E.D.s ecological symposium in Rome (Sept, 26-27 2013).

[6] Waldheim, C., "Notes towards a history of agrarian urbanism", in Brackets On Farming Almanac 1, ed. White M., Przybylski M., Actar, New York: 2010

[7] The present focus on Olmstead derive from Anne Spirn's presentation within the course Proseminar in Landscape Architecture at the Harvard GSD, Fall 2012, Cambridge MA, Dec 4.

[8] Not really Nature but the experience of it as our imagination conceives it (Koerner 1990), may be linked to the concept of landscape as a visual frame of the natural world.

[9] As in the case of Central Park, where the farm was actually intended to produce dairy products for the city.

[10] Kongjian Yu held an open lecture at the Harvard GSD, Spring semester 2013.

[11] As Scott Cohen mentioned during the Harvard GSD lecture by Weiss&Manfredi (2011).

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Figures

1 Decamping Detroit's phases articulating the process of regeneration (Chiesa, 2013).
2 landscape urbanism between net city and città diffusa (Chiesa, 2015 on Matteo Fraschini's picture).
3 Theories and disciplines informing the landscape urbanism discourse (Chiesa, 2013).
4 Ecosystem dynamics: C.S. Holling's modified figure (Chiesa, 2013).

A SHORT INTRODUCTION TO LANDSCAPE AS A DESIGN PROCESS

ED WALL

/* Landscapes are a matrix of interrelations. They are social and spatial constructs that frame conversations between people and their environment. They are constituted through the physical actions of transforming the land; they are the intangible relationships defined through personal experiences, distant dreams and abstract designs. Landscapes as interrelations manifest in two ways. They are representations: drawings made, photographs taken, essays written and films recorded; they also exist as dynamic geographies formed through the productive and destructive processes that symbiotically tie us to the land.

These landscapes are made through interactions. They are formed from material processes that make, remake and unmake. They can be measured, constructed and enclosed. Physical landscapes that are made somewhere are formed from materials transformed, moved and reconstituted from geographies elsewhere. They rely on multi-scalar processes beyond the scope of our senses. From the invisible microorganism scales of erosion to the vast territories formed beyond the horizon. Landscapes are the narratives composed from these interrelations: the journey to work, eating out, buying a house, walking the dog, dreaming of warmer summers and joining demonstrations to make life better. These are the interactions that constitute our landscapes. They are the daily experiences and everyday spaces of landscapes in constant change.

Landscapes are shifting processes. They are materials moving, processing, being continually remade. We slow down and speed up the processes of landscape; we adapt these processes as designers; and we struggle to contain them. They are dialogic relations - people and land irrevocably moving forward with time. These landscape processes are unstoppable and our engagement is temporal. Landscapes exist through interactions with other people, unfolding before our time and continuing after we are gone.

They are inseparably spatial and social. They are made, experienced and lived. Even as drawings landscapes project new images and expectations of how our future worlds could be. They envelop all part of our lives. They are the writing of histories, mapping of geographies and building of architectures. They are the ecological systems, transport networks, infrastructures, neighbourhoods, cities and regions. Through these physical spaces, landscape can be everything, but as the ephemeral interrelations of our fleeting

dreams and unrealised designs they can as easily be dismissed as nothing.

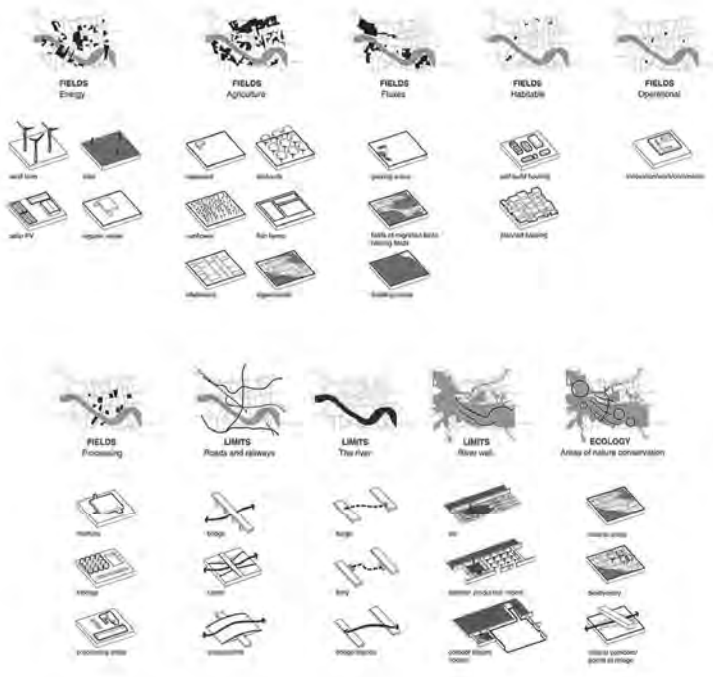
Landscapes are partial. They are incomplete, unresolved. Through defining, representing and engaging with landscapes we inevitably exclude through intention, ignorance and indifference. These are selective relationships between people and land. Landscapes enclose and appropriate while simultaneously abandoning and neglecting. They are warm embraces, sensual explorations, liberations; but they are also violent struggles, privatisations and colonisations. Through their impossibility to completely define and faultlessly quantify, landscapes ask more questions than they are able to offer answers. They are incomplete in space and time.

These parts are appropriated. They are enclosed, fenced, bound, commodified and sold. Overlooking their instability landscape is packaged for power, profit and consumption. This denies our reciprocal relations with the land and with each other; it embraces the privilege of private space and overlooks the value of shared lives. As representations landscapes also attempt to fix time and complete space. Where the processes of landscape cannot be controlled or contained for our benefit, they are framed in paintings, photographs, mappings, writing and film. These are the second enclosures of our landscapes; our spaces recommodified and resold.

All landscapes are ephemeral. They resist definition. Their dynamic conditions seek to free themselves from attempts to spatially and representationally enclose our environments. Maybe landscape is more than the painting or the physical land but is rather the frame around which the image is understood. The interrelations between people and land being found in the framing device, the camera, the canvas, the black mirror, the urban grid or field boundary. These imperceptible lines are the socio-spatial constructs through which people form relationships with the land. Could landscape be the method in which we engage with the land? It is how we look at it, how we work with it and how we transform it?

Landscape is a design process. It is a way of creatively understanding and engaging with the land. It is a way of seeing the interrelations between people and land as our collective narratives, working with them and reimaging their future. These are narratives that must be explored, engaged with, performed and realised. They form a creative practice

through which new spaces and representations are coproduced. It is a reciprocal transformation of the materials of our environment and the subjectivities of our mind. It is fundamentally a shared, multiple and collective interrelation. As design, landscapes are spectacular possibilities of our lives with the land.



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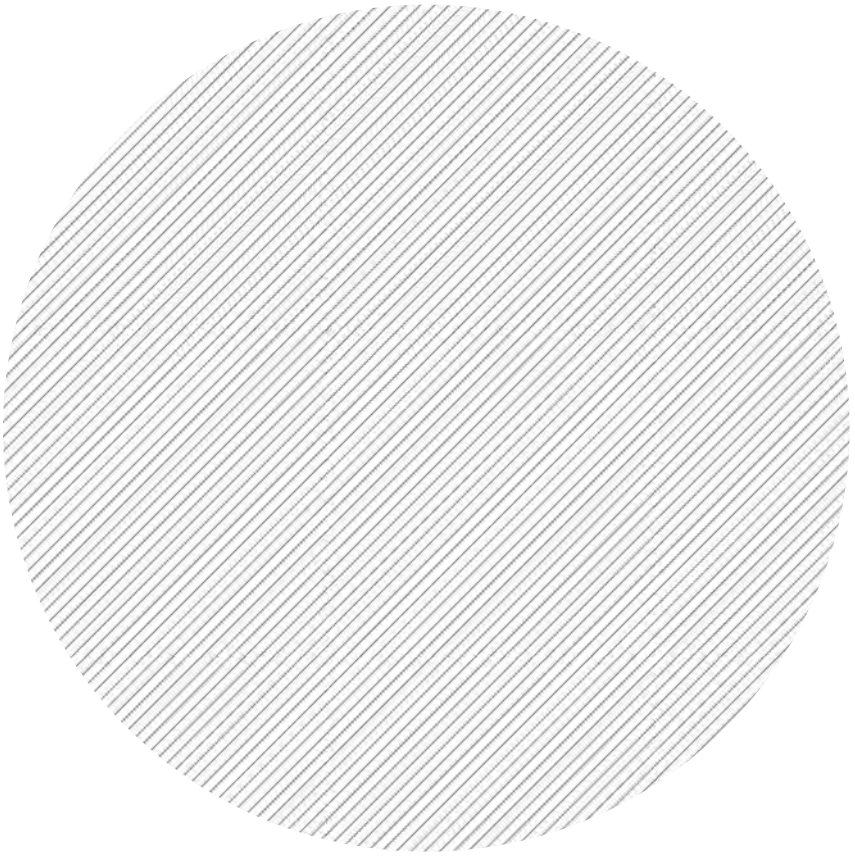
Figures



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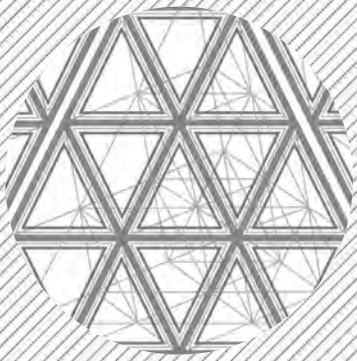

Alessandro Frigerio,
Spatializing Smartness: Territorial Intelligence and Formality Gradient Urbanisms.

Pierre-Michel Delpeuch,
Design the City in Smart Age: Today Better than Yesterday?

Mirko Vescio,
The Design Process Rules of the Metropolitan Project. The Translation of the Geographical Rules of the Morph-typological Construction of Places for the Contemporary Urban Settlement.

FROM THE METROPOLITAN TO THE URBAN DIMENSION / TECHNOLOGY AND QUALITY OF LIFE

SPATIALIZING SMARTNESS: TERRITORIAL INTELLIGENCE AND FORMALITY GRADIENT URBANISMS

ALESSANDRO FRIGERIO

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"Technology is the answer,
but what was the question?"

Cedric Price

Kibera

With an incalculable population of some hundreds thousands and a dozen of different ethnic groups, Kibera is the largest slum in Nairobi, Kenya. Critical hygienic and health conditions and social instability make it one of the most complex urban realities in East Africa, growing completely out of control since the beginning of the 20th century. In 2009 Map Kibera Trust has started a participatory mapping project with the aim of helping communities in taking control of their visibility, considering awareness as the first step to communicate, share and then decide in accordance with social institution about proper policies and planning strategies. Utilising smart technologies a group of citizens trained on OpenStreetMap[1] started to map spaces as well as security, water and sanitation, health and education issues; this in combination with visual documents of the neighbourhood life. The operation provided an unprecedented visualization of what that slum looks like, in its relation between spaces, scenes, needs; it delivered a powerful tool for the government to understand what it is dealing with, but also for residents, police, local authorities and associations that were provided with printouts of the maps for daily uses. The mapping process has been the first step towards the definition of a locally fitted urban strategy. [2]
Due to its success, the experience has been repeated in other neighbourhoods in Nairobi (Mathare, Mukuru) and a similar project has started in 2011 in Dar es Salaam, Tanzania with the support of the World Bank (Tandale). [3]

Loliondo

The Maasai communities living in Loliondo, in close proximity to the world-famous Serengeti National Park in Tanzania, have been struggling for twenty years against repeated attempts to evict them from their land. The land tenure conflict started in the 90s with the government's allocation of the area to a foreign hunting company without considering existing community land-rights and uses; it culminated in 2013 with the decision to transform most of the area in an exclusive reserve for wildlife expelling more then 20.000 Maasai people from their villages. Immediately, thanks to the recent availability of information technologies,

local communities have been able to connect to wider networks of global supporters producing an International mobilization to sensitize about the case and to organize political and legal interventions. Not only local NGOs, but especially Maasai herders and farmers - with unprecedented women participation and directly through their mobile phones - have broadcasted information, including photographs and video evidence. As a result, Tanzanian government officially stopped any controversy reaffirming the belonging of that land to the communities. The case has positively fostered the process of transitioning from a colonial segregating approach to wildlife preservation towards integrated models of territorial planning able to restore and enhance the communities' involvement in land care. [4]

Enkanini

Enkanini is an informal settlement inhabited by 8.000 people located within walking distance from the center and the University of Stellenbosch, 50 km east of Cape Town, South Africa. It is characterized by small unelectrified shacks, waste and water sanitation issues, no bargaining power to engage with the municipality: households location on a steep slope and fragmented social conditions have made uneconomic any effort to provide services and infrastructures even through special upgrading programs. iShack, a project for Stellenbosch Innovation Districts by the local university and its Sustainability Institute, started in 2011 to set up an experimental transdisciplinar framework for the incremental upgrading of the neighbourhood through ecological design. The team collaborated with shack dwellers, technical experts and academics to develop a viable and financially sustainable micro-enterprise model that trains enterprising residents living in informal settlements to provide off-grid services and products to other residents within their community; to assemble by themselves fire-proof homes provided with solar panels; to use mobile phones to purchase electricity, water or welfare services like education resources. Moving from the need to face urgent issues, particular attention has been dedicated to very specific physical aspects of upgrading that are expected to build further social capital and local economic capacity producing social and institutional change simultaneously with the technological shift.[5]

The three stories tell about the primitive economical issue of living as definition of a shared and aware relation between people and the resources offered by the land they inhabit. Settling in a specific place firstly requires mapping the available resources; this enables the establishment of a social organisation to protect, exploit and manage those resources, thus developing technological frameworks to use those resources in the most profitable and desirable way, in accordance with an original lifestyle. The eschatological level of consciousness developed by the settlers determines the man/land relation with different balances and long-term results depending on circular or linear ideas of history, producing specific spatial identities. Urban history shows multiform attempts to find the better way to live with others in a place. It's not just about city fabrics, it's about territories, a cultural idea of places.

The three stories declare the inadequacy of traditional planning and design approaches when facing the emerging metropolitan issues in coherence with this cultural perspective. But at the same time they share an unprecedented decisive role of Information and Communication Technologies. These emerge as accessible tools to affirm a globally geo-referenced cultural presence and to develop innovative ways to deal with the primitive problems of mapping, sharing, deciding, managing the use of resources and therefore the value and quality of spaces. Accepting the common contemporary wording, which refers to everything that is related with the ongoing digital revolution as smart, we can affirm that the Kibera, Loliondo and Enkanini ones are stories about the *smart-city* phenomenon. They differ a lot from the high-tech envisioning from the so-called developed word, but they show a globally sharable idea of *smartness* as quality enabling people, thanks to ICT and in relation to their context and culture, to confirm their role as main territorial stakeholders. In developing countries, where local populations need to strengthen local identity to set territorial resilience and perform a clear role on the global scene, the challenge is as much important as in the rest of the world. Smart mapping, smart democracy and smart infrastructure offer new ways to deal with the upcoming of unprecedented transcultural urban phenomena that the entire world - north and south - seems to lack the instruments to face.

2 Urban age.
The transcultural metropolisation

/* Since the industrial revolution started to stretch time and space through an unstoppable acceleration of movement and connections, the urban history has known a relevant paradigm shift. The European idea and image of the city evolved in a confused mass of infrastructures and buildings sprawling over agricultural landscapes, relying upon uncontrolled oil consumption to run after the myth of growth. At the beginning of the 21st century, while the Western countries seem to experience urban shrinking or redistribution phenomena, in the rest of the world the urbanization process still runs with terrific growth rates which, according to the major international organizations, will lead 70% of the worldwide population to live in urban areas by 2050 (UN-HABITAT). According to Portugali [6] urbanism is becoming the generative order of society as way of thinking and perceiving with the implication of specific cognitive maps. Megacities [7] spread across enormous territories absorbing formal and informal developments, agricultural land, ecological systems and run after infrastructural endowments that refer to transcultural global standards. The territorial balance between man and resources is experiencing critical conflicts due to unsolved emerging disparities in the relation between globalizing economies and technologies and culturally rooted lifestyles. At the same time the urgent issues linked to the scale of explosive urbanization match with climate change risks in asking more and more resources in an age of evident scarcity of them. After more than a century from the beginning of the urbanization rush, we have started to calculate the costs of that growth and its vulnerability, while facing the collapse of a whole model and wondering if - and how - the digital revolution could set new sustainable scenarios for inhabiting the planet.

"City is not a tree.
A living city is and needs to be a semi-lattice." [8]

Christopher Alexander (1966)

About territorial intelligence: efficiency is not enough

3

/* The economics-driven world we live in has shortened within a century the horizon of decision-making from future and progress to present and urgency. Reinforced by the doubts about our development model combined with the economical crisis started in 2008, the claim for growth has now been substituted by the claim for efficiency as generic soothing for everything.

The smart city mantra, since 2010, is catalyzing all the expectations of the urban stakeholders in the belief of driving the high pervasiveness of digital networks in favour of higher efficiency in terms of performances and therefore costs control. ICT have showed great potentials in terms of controlling efficiency even in the management of urban and living spaces, but with some risks. Great part of the smart-city projects advertised in these years is boosted by software companies exactly as modernist urban plans were conditioned by automobile manufacturers. We already experienced the utopia of a whole controlled mechanicistic world in which men were intended just as active gears of a system, as in Charlot's Modern Times. With ICT predominance we currently risk a part as passive citizens in a world where cities would insist on taking for us even the most basic decisions, as in a Pixar Wall-E future. Efficiency is just one component of urbanity, not its key-factor. Efficiency is not enough to make us happy. [9]

A set of intangible values embodies urbanity through collaboration, conviviality, serendipity, memory, etc. The smartness of a city is based on a complex matrix of balances, with some of the interests in stake not quantitatively measurable, predictable and therefore controlled. People, in the role of citizens, are the variable of every equation, as he exists as he inhabits on Earth.[10] The relation dwellers/land/resources/tools produces the cultural lattice which links inhabiting with technology as language to interact among men and to transform living places as cultural landscapes, representative of this social agreement and powerful relation. This territorial intelligence is expressed by the physical structure of geographical relations; the management of water and natural resources producing recognizable cultural landscapes; the network of tangible and intangible infrastructures allowing encounters; the interlace of public

spaces and private buildings as scenery over time for personal and collective chronicles and memories. Territorial intelligence combines social, economical, ecological, anthropological and therefore cultural issues as the living matter of architecture as ethical and civil responsibility. It shows itself at every scale, from landscape to urban design, architecture, interiors and even handicrafts and industrial design. It's also the key anthropological factor enabling inclusion, redistribution, accessibility, democracy and therefore the framework to deal with while trying to design resilient solutions to drive space transformations.
Now, due to the current critical conditions of the urban phenomenon, we do need a different - smarter? - perspective towards the new scale of the city. New digital tools offer unprecedented possibilities to enhance and develop this intrinsic intelligence of territories in their metropolitan relations and spatialization, powerful instruments for the urban project.

4 Smart patterns for a metropolitan *civitas*

/* Defining as *smart* the available unprecedented way to correlate people, resources and places thanks to ICT, we can look at social networking, internet of things and open data as basic infrastructure for the development of new languages and relational patterns. If according to Petrosino [11] the existential condition of inhabiting can be assimilated to writing, the availability and spread of new languages produce new ways of shaping spaces proceedings from corresponding cultures. Every urban paradigm produced over time clear mental images matching with the *civitas* that generated it. The over-sprawling condition of planned as unplanned cities has made more and more difficult for citizens to elaborate mental maps, to orient themselves and therefore to take care of places as related to their specific identity. [12] Moreover, the attraction produced by metropolitan areas joins together different populations producing an interwoven cosmopolitism which is often origin of conflicts.
Digital tools have the potential to foster innovative relational patterns for social inclusion and economical sustainability. The meta-city [13] can have a fundamental role in building different feelings of belonging, interlaced mental maps

and cooperative networks contributing in setting the multicultural lattice of a metropolitan civitas.

The use of ICT have to be investigated in its innovative mapping potentials, as powerful tool to reinforce the awareness of local cultures and to set synergies between formal and informal dynamics with the aim of fostering cultural economies and building social capital. Mapping and interacting with localized cultural patterns and their space-rooting set the conditions for governance and design processes to consciously deal with territorial intelligence.

While the spatial building processes has high temporal inertia, smart relational patterns can change rapidly and produce informal experimental frameworks to test innovative forms of urbanity in terms of participation as well as space signification. The use citizens make of the new digital tools has a lot to do with creative or informal economies, exploring legal grey areas to test new spatial interactions and new dimensions for the space of contact.[14]

Beside the completely ruled and controlled modern urban space, self-organizing economies and communities hybridize functions and lifestyles at different scales: environmental protection and agriculture, physical isolation and welfare accessibility, working and living, hosting, education, assistance, conviviality, participation and protesting root the networks in private and public spaces producing a physical engagement with the urban fabric. In this perspective Kibera, Lilondo and Enkanini are just three of many examples of informal urbanity labs against specialization and segregation.

This idea of smartness as multiplication of relational patterns produces an urban density which is intense in revealing the intelligence of places. The spatialization of these patterns in urban and architectural, morphological and typological inventions or re-interpretations makes us active -not passive- citizens, involved in the long-term structural change of metropolitan territories.

This emerging dynamic of fostering transformation, experimentations and growth, is influenced by people with the tools they use to organize themselves, manage the resource they have and the spaces they inhabit. This digital revolution, amplifying the reorganization of social and economical structures, is affecting in deep our idea of democracy and lifestyles, shaping a paradigm of metropolitan regions with a new idea of citizenship, therefore a new mental image of the city.

"We tend towards an integrated idea of architecture: landscape/ architecture/urbanism, an architecture which is deeply related with territory, culture, climate […] multiple urbanisms instead of a unique urban theory" [15]

Steven Holl (2009)

5 A metropolitan perspective

/* Exploding megacities as well as geographically determined networks of small-medium size cities, with their interweaving citizenships, tend to play an autonomous, competitive role on the global scene, despite of administrative boundaries [16]. These metropolitan entities, concentrating most of the world population, need to be planned, managed and designed for social, economical, environmental resilience according to a metabolic balance for the better exploitation and redistribution of their specific energies and resources: water, power, ecological and agro-food systems are at the base of territorial robustness for a fair development. Connections provide the hard and soft structures to allow people and knowledge mobility, exchange and interaction with the ambitious aim of providing high quality of life. Reminding the Italian reclamation and foundation projects it is possible to distil some early attempts to deal with the intelligence of territories by taking into account a comprehensive ecological/ economical perspective and wondering about the role of urban planning vs. urban design.

The complexity of emerging metropolitan structures, categorized in their differences by Grahame Shane [17] as metropolis, megalopolis, fragmented metropolis or megacities, requires a combined strategy able to make urban planning and urban design interacting. The effort should be based on a multiple layered matrix [18] to precisely define the structural territorial elements able to drive over time even uncontrolled and uncontrollable growth issues. This hardware structure combines an evolving grey net of technological infrastructure providing transportation, public mobility and system infrastructure together with a green network of geographical natural resources providing ecological services, agro-food security, wilderness and environmental protection; whilst the grey net refers to global technologic standards, the green is deeply rooted with local territorial characters. The

space in-between networks should be planned according to main geographical and economical reasons, but a decisive role is played by nodes. Regional and metropolitan multi-scalar centralities should be planned where the networks cross and designed offering peculiar solutions to the global-local, synchronic-diachronic intersections through founding spatial decisions. They are the hinge points where time settles in space, materializing citizenships patterns in a gradient of public to private spaces, historic depths and living presence. The Loop City project for the Oresund Region by BIG [19] catch this metropolitan framework presenting an evolving vision for Copenhagen. The breakdown of the urban fingers model is making the city changing its paradigm and scale, requiring new infrastructures, punctual regeneration projects and a new branding image. The strategy is based on a sustainable spine of public transport and eco-infrastructure designing new public realm in connecting specific points and activating interstitial segments. With a fifty years synergic development perspective this models overcomes the Randstad Dutch precursor in overlapping to the connectivity loop a multiple set of loop-layers contributing in managing the urban metabolism of the region on a long-term vision by capitalizing on local resources: mobility, energy, waste, water, climate change, biodiversity, re-industrialization, health, food, migration. Sustainability through urbanity is the main concept for a model linking highly differentiated urban nodes in a center-less metropolitan region around a blue void, a cross border region between Sweden and Denmark that places Copenhagen at the right scale to address the main contemporary resiliency issues.

"We try to poetically exalt the logical structures suggested by the specific issues of every event […]the longing to get the essential nature of architecture, materializing those various relations." [20]

Ernesto Nathan Rogers (1958)

/* There is no *civitas*, there are no communities without places where social events to report can take place, without spatial scenes (urban or rural). The Arab Spring, the Occupy movement, the Gezi park protests, the 2014 Ukrainian revolution [21], as many other cases, have showed the powerful connection of social networking with public spaces, restoring active relationships between *civitas* and urban space in its ancestral political dimension. Beside the against examples, this power can be used to drive new awareness to *build.* One of the roles of digital tools through mapping and sharing is conciliating demand and offer of basic and cultural needs and desires, determining physical or digital accessibility.[22] This metropolitan porosity overcomes some critical proximity issues, enabling to grasp social networks (the real as the immaterial ones) to the physical space of the city in special intensivity nodes where urban life happens and celebrate its ancestral anthropological rituals. The urban and architectural project expresses in the design of these spaces the synthesis of the territorial intelligence in its multi-scalar and multi-dimensional relations. These places, consciously geographically positioned and charged by multiple cultural meanings, are the robust hinge points of any territorial structure.

While the most of building production gets standardized or informal, architecture has the opportunity to deal with these robustness nodes as triggering urban facts to rule metropolitan growth according to culturally driven processes. The coordinated design of spaces, policies, images can succeed in making private interest and public welfare corresponding. This special urban and political unity has been reached throughout urban history in different places and cultures through the emergence of recurrent semiotic schemes and measures in the relation among buildings, public spaces and uses/rituals. In Istanbul the roman imperial fora were transformed in ottoman *kulliye*, conserving positions and measures as well as their character of social welfare enclaves; and a similar example can be found in Aleppo where the roman symbolic and commercial axis was devoured and occupied by the ottoman bazaar while keeping the former metropolitan armature role.[23] Renaissance piazza set a lifestyle and cultural approach to urban design that is still deeply rooted in European culture. The story of Santa

Maria dell'Annunziata in Firenze is an exemplar case-study about how to merge socio-economical issues, governance, policies, power and beauty imaginative needs.[24] And moving to the anglo-saxon world the Covent Garden public realm invention in its historical evolution conditioned the growth of London as we know it.[25] The conquest to the sky in Manhattan wondered how to deal with hyper-density and public space producing with the Rockfeller Center a porous enclave which surprisingly - and probably unwittingly - reproduces measures and relations of ottoman *kulliye* and roman *fora*. At the same time public spaces across the world from Spain to Philippines, from Mexico to Mozambique, through global hybridization, become founding elements for different urban cultures. It's just a rough, incomplete set of examples. Archetypal semiological frameworks are able to change over time while saving their metropolitan role thanks to their intelligent relational logics, which witness a precise position of each man in space and time.[26] Basic anthropological spatial relations can be the common ground to allow meeting and sharing between local and global, natives and foreigners, citizen and user: the profound meaning and purpose of modernity. Urban and architectural projects need a consonance in spaces, scenes and rules able to materialize an aware synthesis of these anthropological roots with the intelligence of places through the language of corresponding time: a resilient cultural lattice rooted in public nodes, the core of metropolitan architecture.

Formality gradient urbanisms

/* Kibera, Loliondo and Enkanini stories describe the smartness of vulnerable communities in crisis, which look for resiliency patterns experimenting new languages that will inexorably have a correspondent spatialization, according to the renewed awareness about the places they inhabit. Looking at these cases, collateral results of the ongoing world urbanization, evidences emerge regarding the impossibility for efficiency and normative driven idealized cities to deal with a cultural idea of urbanity coming from below, expressed by different conceptions of citizenship. Formal top-down systems have a slow metabolism, compared to the generally faster informal processes. Formal processes tend to simplify, producing vulnerability, while informal processes reveal

complexity, with a natural resilience, but with the risk to be out of control. The interdependency of these two metabolisms with their evolving and explosive dynamics is a key issue. The potential interaction between the physical and digital world multiply the intelligence of territories for a better resilience, requiring a different approach to planning and urban design: formality/informality gradients could be able to balance and match the informal or experimental urbanity patterns coming from people with the settling of robust spatial facts and infrastructure, producing new urbanisms for different metropolitan regions. ○

"This is a fundamental view of the world. It says that when you build a thing you cannot merely build that thing in isolation, but most also repair the world around it, and within it, so that the larger world at that one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it." [27]

Cristopher Alexander, Sara Ishikawa, Murrey Silverstein (1977)

Notes

[1] www.openstreetmap.org is a collaborative project to produce a free editable map of the world created by Steve Coast in 2004. Ramm F., Topf J., Chilton S.(2011). OpenStreetMap: Using and Enhancing the Free Map of the World. UIT Cambridge.

[2] Kibera mapping experience can be examined in depth directly thanks to the website mapkibera.org (2013) or in the scientific report by Hagen E. (2011) Mapping Change: Community Information Empowerment in Kibera (Innovations Case Narrative: Map Kibera), Innovations: Technology, Governance, Globalization Winter 2011, Vol. 6, No. 1: 69–94.

[3] on Tandale project see http://tandale.ramanitanzania.org (2013)

[4] The Maasai battle for Loliondo land rights have been widely broadcasted by media: a clear summary of the story is provided by Maanda Ngoitiko and Fred Nelson, What Africa can learn from Tanzania's remarkable Masai lands rights victory, The Guardian, 8 October 2013. A valuable third-party, unbiased technical and contextual review of the conflict and possible solutions is the report Integrating Pastoralist Livelihoods and Wildlife Conservation? prepared in 2011 by the Tanzania Natural Resource Forum.

[5] Enkanini story is presented among others relavant case studies from Kigali to Delhi in Tim Smedley, Smart cities: adapting the concept for the global south, Guardian Professional 21 November 2013. The iShack project and its cultural framework are illustrated in Swilling M.,Sebitosi B.,Loots R. (2012) Sustaniable Stellenbosch – Opening Dialogues, Sun Press

[6] Portugali J. (2011). Complexity, cognition and the city. Berlin: Springer.

[7] Shane D.G. (2011). Urban Design since 1945. A global perspective. Chichester: Wiley.

[8] Alexander C. (1966). A city is not a tree. In Design. London: Council of Industrial Design, n° 206.

[9] Hill D. (2013). On the smart-city. Or a manifesto for smart citizens instead. And others essays and contributes by the same author on www.cityofsound.com

[10] Petrosino S. (2011). Capovolgimenti. La casa non è una tana, l'economia non è il business. Foligno: Jaca Book.

[11] ibidem. 10.

[12] On mental maps and anthropological relations see La Cecla F. (1993). Mente locale. Per una antropologia dell'abitare. Eleuthera.

[13] The meta-city concept, coming from MVRDV (1999) Metacity/Datawire, has been expanded in Shane D.G. (2011). Urban Design since 1945. A global perspective. Chichester: Wiley.

[14] The essential dimension of contact is at the base of the anthropological categorization of urban spaces proposed by Choay F. (2003). Espacements. L'évolution de l'espace urbain en France.

[15] Holl S. (2009). Urbanism. Working with doubt. Princeton University Press.

[16] In Alexander C.. Ishikawa S., Silverstein M. (1977). A pattern language. New York: Oxford University Press. This territorial scaling of metropolitan entities is envisioned and wished for: "Wherever possible, work toward the evolution of independent regions in the world; each with a population between 2 and 10 million; each with its own natural and geographic boundaries; each with its own economy; each one autonomous and self-governing". The focus on independent regions referred to several previous studies like Haldane J.B.S. (1956).

[17] Shane D.G. (2011). Urban Design since 1945. A global perspective. Chichester: Wiley.

[18] A theorization of metropolitan matrix model is presented by Ortiz P. (2013). The art of shaping the metropolis. McGraw-Hill.

[19] Loop City was presented by BIG at the 2010 Venice Biennale - Danish Pavillion.

[20] Rogers E.N. (1958). Il mestiere dell'architetto. In Esperienza dell'architettura. Torino:Einaudi.

[21] Arab Spring refers to the revolutionary wave started in December 2010 in various Arab countries in the mediterranean area; the Occupy movement (since 2011) is an international widespread protest movement against social and economic inequalities; Gezi Park protestants in Istanbul in 2013 gathered in Taksim Square to oppose to the destruction of the park as symbol of cultural repression. All the mentioned examples are characterized by a massive effective use of social media in relation with an aware occupation of public space as collective scene condensing any type of social interaction, stage of political life as the essence of urbanity.

[22] Various examples can be found in sharing, cooperative, crowd-founding bottom-up activities, but there also interesting examples of public projects taking advantage of this dynamics: i.e. consider the work done by Stefano Boeri and the Municipality of Milan in mapping and enforcing cultural constellations linking spontaneous cultural production and public cultural buildings as physical-digital nodes. And even a similar attempt applied in Northern Africa with the M.U.S.I.C. proposal by Contin A., Frigerio A., Bellaviti P. (2013), M.U.S.I.C. Mediterranean Sound Interactive Culture, CUCSTorino2013, Imagining cultures of cooperation: universities networking to face the new development challenges.

[23] Bianca S. (2000). Urban form in the arab world, vdf Hochschulverlag AG.

[24] Campomarzio (2013). Dissimulation: the piazza della Santissima Annunziata in Florence, in San Rocco, vol.7 Indifference, Milano.

[25] This study is accurately presented in Shane D.G. (2005), Recombinnt Urbanism. Chichester: Wiley.

[26] According to Kevin Lynch "the quality of the personal image of time is crucial for individual well-being […] a desirable image is one that celebrates and enlarges the present while making connections with past and future. The image must be flexible, consonant and above all in tune with our own biological nature." Lynch K. (1972), What time is this place? The Massachussets Institute of Technology.

[27] Alexander C.. Ishikawa S., Silverstein M. (1977). A pattern language. New York: Oxford University Press.


星佳城市

DESIGN THE CITY IN SMART AGE: TODAY BETTER THAN YESTERDAY?

PIERRE-MICHEL DELPEUCH

1 Is there progress in the design of cities? to which extent do we plan and shape the city differently of yesterday, better than yesterday?

/* The urban growth strikes us at first by figures that you read in so many books and press articles: more than 50 % of urban residents in the world since 2008, 80 % in France and other European countries, one percent of the total surface of France is consumed all the decades by the urban expansion despite an overall population growth rate far from the exuberances of most emerging countries.
Concretely, without major announcements and communication, dozens of new towns are simultaneously created on all continents, extending each over hundreds or often thousand hectares in the most improbable places.
All this represents a vast market which sharpens appetites, in particular from multinational economic players.

This quantitative dynamics, to accommodate fast the largest number, also arouses expectations of efficiency and quick results on behalf of the contracting authorities of the urban megaprojects of developing countries.

2 Developing countries *versus* European situation

/* Approaches of powerful consortiums from countries such as Korea or China proposing packages which include conception and realization, and potentially project financing hit the bull's eye with decision-makers under this pressure of a fast realization; in opposition to this situation in emerging countries, our European experiences to *make the city* traditionally refer to processes of slow maturation. This slowness is rather stressed by the improvement of the approaches in sustainable development: more and more time is needed for the sophisticated and iterative exercises of the good governance, the dialogue, the segmentation of actors' games.

Back to my initial question: today better than yesterday? I would answer: yes, in our occidental countries, educated by errors of the past, I think that we make the city and its neighborhoods better than yesterday.

But all this takes time, too much for some other places, where the citizens' participation is not significantly on the agenda. There, formal and technical imported, standard solutions may be considered as satisfactory provided they are cunningly dressed to pretend of a tailored consideration of local needs, sense of the place and the traditions.

The observation of what takes shape and builds itself from Africa to the Middle or Far East can arouse the perplexity: we a little have the impression that the urban errors committed in Western and Eastern Europe during post war economic boom are repeated in other parts of the world in a vaster scale and on an accelerated rhythm. Sad blocks multiplied in the infinity of the Chinese cities, the tide of American-style villas in Arabia, secured ghettos / gated communities for middle class in India. At the same time European make every effort to repair the damages of their aging suburban districts built following similar principles. Fortunately we often experiment unexpected opportunities for direct expression of the population in most of our projects in countries such as Algeria or Mauritania.

Everything is possible, everything is practicable!

3

/* The power of the available technical solutions is in this context rather an ease offered to the sorcerer's apprentices: you can create greens of golf in the desert, (you just have to pump!), you can ski in Dubai (you just have to pay).
With a little effort and some contorsions you can even present these questionable adventures as references of sustainable development if required for honorability.

Difficult to determine the respective parts of sincere and a little bit naïve enthusiasm, resigned lucidity, cynicism, marketing brainwashed in communicating utopias as the project of Masdar.

The most interesting of these projects of new towns are of use as ground of application to innovative solutions imported by the western countries: renewable energies, electric mobilities, virtuous cycles of the water but the decrease between the first announcements and the realization is generally considerable.

4 What innovations for the city of tomorrow?

/* This a little disenchanted point of view has to give way to an objective observation of the novation regarding urban planning and design. What the new products, the new technologies, the methods and the innovative approaches, make possible?

Products: it is doubtless in the field of materials, components and equipments of construction that the innovation is most spectacular. It is boosted by the public policies of the countries of the North which promulgate standards always more demanding regarding energy performance to which the manufacturers bring extremely varied answers.

Technologies: the functioning in network is the key of the progress in the urban services of all kinds, thanks to the NTIC allowing any sorts of optimizations and new uses, key words being Smart Grid.

Approaches and visions of urban design

5 /* The urban boom of the second half of the 20th century, still plagiarized in a lot of emerging countries, produced excessive dependence on automobile, the functional and social segregation, the artificialisation - concretization of the urban landscape, the destruction of the food-producing practices. In reaction, new expectations assert themselves, abstract proposals develop and theorize in the domains of "the city on foot", "soft infrastructures" (qualify the use values of the public places of the city and articulate these in organized network), of the urban and outer-urban agriculture.Circular economy, urban metabolism are emergent notions even rather theoretical but which should be imperative in the conception of advanced urban projects. They inspire ours.

/* In contrast to European context, the weakness of the governance of urban projects in emerging countries does not allow the invitation of numerous consultants and designer answering each in its domain of relevance. So the integrated offers piloted by major companies of the industry (construction and technological equipments) should meet an increasing success. The western countries accuse in this respect certain delay compared with the BRICS and some plan to catch up, moved by two motivations at least:
*/ the vital necessity of improving a trade balance in danger (except for Germany);
*/ the consciousness to have a superior maturity, whether it is in technological offer or in vision and general conception.

So Sweden promotes *SymbioCity*, umbrella brand of the national know-how and companies in the urban domain, and quite recently France does the same with *Vivapolis*.

Does it make sense to pretend selling a complete package, a turnkey city? Some people dream about it, but this prospect is doubtless rather exceptional, and hardly desirable in fact. This questioning returns us to the sequence: products, technologies, methods, approaches, values, vision (from individual and concrete to general and abstract notions). The industrial actors are interested in the beginning of the here above sequence whereas the designers of the city and the territory are on the contrary mainly focused on the end of this sequence. The initiatives of development similar to Vivapolis try to associate effectively the energies of the various actors (industrial, academic, institutional) so that they add up and organize the resort to the best know-how, in a specific way to every situation of project. ○

THE DESIGN PROCESS RULES OF THE METROPOLITAN PROJECT

MIRKO VESCIO

The translation of the geographical rules of the morph-typological construction of places for the contemporary urban settlement

/* "The modern designer relies more and more on his position as an "artist", on catchwords, personal idiom, and intuition -for all these relieve him of some of the burden of decision, and make his cognitive problems manageable.
Driven on his own resources, unable to cope with complicated information he is supposed to organize, he hides his incompetence in a frenzy of artistic individuality. We must face the fact that we are on the brink of times when man may be able to magnify his intellectual and invective capability, just as in the nineteenth century he used machines to magnify his physical capacity. Again, as then, our innocence is lost. And again, of course, the innocence, once lost, cannot be regained. The loos demands attention, not denial. *It was not until Gropius started his Bauhaus that designers came to terms with the machine and the loss of innocence which it entailed.* [1]
In an attempt to lose his virginity some of those who are introduced to the computation in Architecture, to prove that it is no longer true that *descended from the tropical pedigree- where our ancestor lived- we are convinced of being escaped from nature to build; independently from culture* [2], lives an anxiety of a forced evolution, often hiding, justifying and finding emotional support in the mathematical sciences. First there was god, now there's the math.

Expecting a merger, ever more complete, between science and competences, I remind that, although it is true that new tools bring new complexities-both mental and technological *- A verbal model is still better than no model or a model that - being formulated mathematically - is imposed by force on reality, making it false.* [3]

Convinced that this research process -with the relative strengths and sometimes with its hypocrisy, of someone who proclaims its bearer- will lead to potentially exciting results in the future, I think it is right to emphasize that, still today, for mental and technology prematurity, the best solution is a hybrid approach.
Thus, [we should] neither rely exclusively on a purely top-down paradigmatic approach, where the architect supports a stylistic doctrine as if it is a religious creed, nor on a purely

bottom-up system of simplified mathematical conception to meet the feasibility of the creation of algorithms which are dedicated to the resolution of a design problem.

Declining the issue to the condition of the global economic and ecological crisis and [also] to a consequent necessity for an awareness of the architectural world to these problems, there is a need for a, connection between the projects to the global scale in order to financially support their architectural and urban structure, through a re-appropriation of the local area, their cultural identity and environmental knowledge.
It becomes evident that this multi-scaling, declined to the contemporary context, has an implicit unmanageable complexity, unless it is done through an arbitrary selection of input parameters.

The intention is focalized on the identity and cultural value of a place, linked to its morphology and building rules by which it was built in the course of its history.
The fundamental theme to study in depth is, in fact, related to the rules which have governed the construction of places over time as a possible method for introducing these techniques to the design process, according to a tradition related to study not only the characteristics of the profound structure of the territory and its urban Morphology in a geographic scale, but also its contemporary urban settlement.

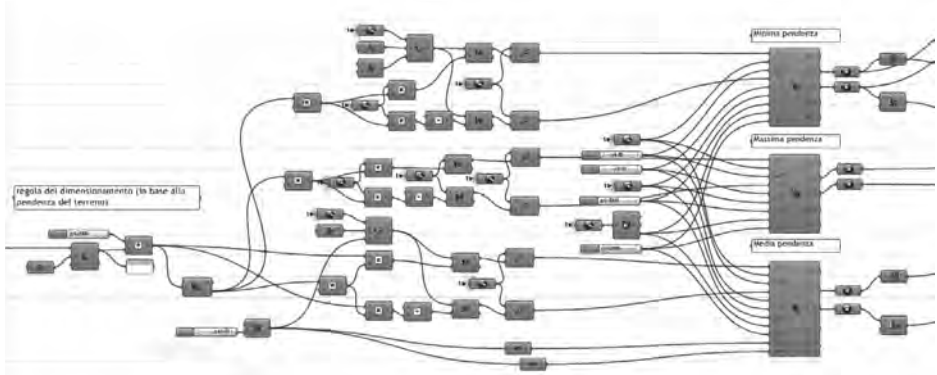
It is vital that we discover the property of old towns which gave them life, and get it back into our own artificial cities. But we cannot do this merely by remaking English villages, Italian piazzas and Grand Central Stations. Too many designers today seem to be yearning for the physical and plastic characteristics of the past, instead of searching for the abstract ordering principle which the towns of the past happened to have, and which our modern conceptions of the city have not yet found. [4]

The geography, understood as history of the interpretation of the places, and the relationship that has always been linked nature and culture, is the basic discipline to decipher the geological and artificial forms of a context. The geometry as a discipline that has always accompanied humans in the rationalization of their activities, is essential to decrypt backwards the evolution of several transformations that an area has undergone over time.

The history at the same time should be deciphered as a style, such as syntax of memory. The rule is therefore not deducible by history, but by its stylistic syntax. The rule is in the 'built', not in the historical as such.

The extrapolation of the rules - identified as generators of anthropic structures that characterize the place and therefore its profound morphological identity - are then used as input in the writing of algorithms, to exploit the great potential that the computer tool has to offer.
Such writing processes that - by their implicit paradigmatic - are more than just a superimposition of disciplinary skills, but a real and strong integration of them.
On the one hand, then, are fundamental the identifying characteristics of a particular place; on the other hand, so are their interpretation, considering new evolvements towards topics that occur today as the basis for a resolution to the condition of ecological and economic crisis.

Basic rules, related to the physical-anthropological study for which the person is placed in front of a space -an inexpressible space,- as Le Corbusier wrote -where man must necessarily relate to. Rules that interpret the topology of the area; Rules that identify the geometry through mental processes of synthesis of form. ○



Notes

[1] Christopher, A. (1964). Notes on the synthesis of form. Cambridge, Massachusetts: Harvard University Press.
[2] Morin, E. (1994). Il paradigma perduto. Universale Economica Feltrinelli.
[3] von Bertlanffy, L. (2004). Teoria generale dei sistemi. Mondadori.
[4] Alexander , C. (1966). A city is not a tree. In Design, n° 206. London: Council of Industrial Design.

Figures

1 Mardin. Digital experimentation: parametric digital models and algorithms.