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The mapping desiring.

A project of a new cartography: patterns of use, spatial experiences and perceptions of the urban environment in the ICT era

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Such a Big Event as Expo 2015 could be a propeller for some innovative way to build a learning development framework for the metropolitan city, through a new mapping project. Thanks to the design of a device, conservative inhabitants and futurist new nomadic citizens will learn from the city and will return information to the city at integrated scales: a new hypothesis of territory readings and uses.

Innovative approach

The relationship between space, memory, and representation in the digital age has undergone a severe increase due to the process of representation, that is rooted into everyday's cultural experience: that is why the topography for the city exploration requires the development of methods, experiments and especially tools for the recoding of the territory, which do not make use only of the latest technologies, but tools that are able also to bring into being the relationship between the nomadic person who is traveling and the geography of the metropolitan place. The mapping desiring, is the breaking of a consolidation of places obtained through a psycho-cognitive alteration of the deconstructed space. To achieve this, the question is: what will remain of the image that we have established in our mind when we talk about a Metropolis? The goal is to query the space, not in search for something predestined, but drifting from the playful-exploration discovery of the geographical environment, a dowsing technique that investigates and explores the components of the landscape, raising energy flows which fall on the understanding of the territory, which can be mapped to represent the movements stratified in the space / time of the exploration: the way of our being into the desakota space, which will change the anthropological elementary signs of the local space. In fact, Images of the human being construct the metropolitan maps; the body is a kind of territory because it is the product of an identity, relational/emotional skills and biometric properties that are now computable through wearable technology applications.

Keywords: Metropolitan Management, Mapping Project and communication technologies, Big Events

¹ Milan, Italy. This research follows some topic and innovative thoughts born during some debates and studies with Generazione Gomma: Stefano Bovio and Alessandro Musetta



1. First theme: First part: The city is a story. Focillon, Lynch and Shane

For Lynch the meaning of a settlement is clear when it can be perceived and identified easily, and when its elements can be connected to other events or places. This is one of the reasons why the coherent mental representation of time and space, relatable to non-spatial concepts and values, is fundamental. The perception and the knowledge of man pass from the quality of the environment form and from its capability to be connected with other meanings conveyed, for example, by the direct enjoyment of situations intensely perceptible. For all that, according to Lynch the meaning of the form is: *"the intentional behavior given in images and the feelings which they convey"*. The identity of a place, therefore, is closely linked to the personal identity: "I am here" reinforces the simple "I am". The formal structure, moreover, is an essential element of the meaning of a settlement and its chance of being perceived changes depending on the scale of the place. For Lynch: *"the import of a place of modest size corresponds to the perception of how its parts are together, while in the case of larger settlements the meaning corresponds to the possibility of orientation: the chance to know where (or when) one is located, which implies to know how other places (or other times) are linked to these places"*.

For Focillon: *"the sign signifies, the shape means"*. The meaning, therefore, is the entity which the sign is referring to, and the value is not related to the sign itself, but is associated to the judgment, so to what the sign represents as a value to be pursued (from monument to monumental); the value is not related to the sign. The sign is related to an onto-creative significance. Focillon argues: *"Perhaps only because the shape is empty, does it look like a figure wandering in space looking for a number that escapes from it? Absolutely not. It has its own meaning, a particular and original value that should not be confused with the attributes that we require from it. [...]* Identifying form and sign is equivalent to implicitly admitting the conventional distinction between form and content, which could mislead us, if we forget that a "formal" content is the fundamental content of the form. Far from being the random garment of the content, the different meanings of the shape are uncertain and changeable. As the old meanings get obsolete and fall, new meanings are added to the form. [...] The sign becomes form, and, in the world of forms, it generates a series of figures devoid of any relationship with their origin. "

Regarding the discipline that studies the urban phenomenon, Lynch gives a definition and outlines a function for the three metaphors that read and communicate the sign, the symbol and the meaning issues. The metaphors combine into a coherent, synthetic or analogous representation, the three elements that generate the urban form: enclave, armature, and heterotopias. They are powerful metaphors that produce the myth of the city. Through these, considered as literary rhetoric figures, Lynch expresses the need for a narration. The history of the city is this: to produce artificially in the context with a human work a change that would not occur automatically. These are rhetoric figures that recall the structure of the space and the forms that organize the practical space, telling the story of the different configurations. They are forms of the culture that binds time to things. They are figures that describe the functional and symbolic reasons of the forms. They narrate the dissolution of the city, of its magical site and the birth of the space of the new metropolitan net city. The metaphors as a technique of communication are represented through highly evocative images.

For Lynch, the three urban metaphors contain the urban values which mark the three ages and the three city models, which identify the good city. Among the recognized values, the historical continuity, a stable equilibrium and the production efficiency stand out. Metaphors have a center that contains several ideas that can survive over time in a coherent story. This fact becomes interesting if compared to Grahame Shane's reading of the heterotopias concept. Even when the central metaphor of an Era decodes, it persists in one of the city layers. The development of the city, in fact, is an in-progress process of increasing competence and consistency and also process of intensification of a sense of belonging to a certain environment in space and time: this is an aspect of the growth. For Lynch: *"a settlement is good when it strengthens the sense of continuity of a culture and the survival of the people who inhabit it, when it increases the sense of belonging in time and space, and allows or encourages individual growth: development, within continuity, through the maximum openness and connection"* and again: *"a place is endowed with qualities when, in a way which is suited to the*

person and his/her culture, it makes the individual aware of belonging to a community, to its history, to the unfolding of life and to the space-time universe that encompasses everything".

Therefore, talking about the city, every age has to consider that the other old narratives, which constitute the identity of a place, always persist in the collective memory. These are narratives of values that each succeeding age must validate or deny fixing them in the memory or forgetting them. Identity and structure are those aspects of the form that allow to recognize as well as draw, both space and time. The urban metaphor, then, through the structure of the story allows the formation of a mental structure, connected to the values and the concepts on which the settlement (*civitas* and *civilitas*) was founded. These values permit the recognition of a significance of the shape so they define the identity of a place, that is, the sense of the place. *"Identity is the limit inside which a person can recognize or remember a place as a separate entity from other places – because it has a distinct character of its own, or at least a unique and special one"*.

The urban metaphors, therefore, combine in a consistent definition the primary causes, the form and the conception of the human settlement and for us today, as for Lynch then, they must describe through a synthetic and strong image, the form of the environment rather than the planning process. The urban metaphors have to give a representation of how the environment should be structured, a description of the form or the process of formation of the shape, which constitute the prototype to follow. They should even tell us not only the growth but also the decline of a city that, as Lynch reminds us: *"is as familiar to us as the growth"*. They are therefore, images that predict the city, they are ideas, intentions.

The discourses, the meta-mitic tale, the symbolic form, then, have the status of foundation, are tales of origin. They always produce a mental/virtual map: this one supports the real map. Consequently, we speak of onto-creativity of the urban paradigm in times of change of scale. Grahame Shane identifies heterotopias as the institutions that determine self-generated and original configurations typical of every moment in the history of the city. Heterotopias, in fact, are the reference points of a position for the mental maps, then they produce the mental maps themselves. Heterotopias represent a strong communication issue, because they are laid down both in a real and in a virtual/mental map, so they are real and virtual landmarks for the memory. Finally, heterotopias are signs of how to live the city. This is an experience that everybody self-learns moving into the city through the real map interpreted by a mental map.

In The good city form, in the chapter on the specialized centers and facility centers, Lynch introduced the metaphors: (Container), Center, Complex, Garden. Lynch argued additionally that: *"even if is not called center, in any case every new thing is called a complex, because integrated complexity fascinates us. The third metaphor to allude to a pleasant space is expressed by the words 'garden', 'estate', or 'park'. A complex of garden-centers is the maximum desirable"*. These new areas for trade, in fact, were designed, for the most part, in a city with reversed codes. This fact is typical of the ecological city about which Lynch says: *"Most people do not refer this type of scenario to the word 'city', but in reality today most of the North American cities are made of this kind of urban space fabric"*.

On a city scale where social contacts occur more and more only by appointment and depend on the availability of the transport system, the 'city effect' is generated by the potential of the places and it is where: *"There is no outside, no facade, everything is internal. The prototypes of this gigantic labyrinth can be recognized in the systems of the inter-linked undergrounds, in the large institutional complexes and the indoor shopping malls"*. The city is then, either an overall complex device of focal points of particular intensity or character that determine a complex city fabric, without arbitrary boundaries; or alternatively, the city fabric can be viewed as a network, with its own shape and size which is now measured in kilometers, with its own degree of interconnection, deeply connected to the context, through the gray and green infrastructure. Usually in the metropolitan city, the two systems complement each other.

The development from one to another city form determines the places called "heterotopias", which define every time a new systematic organization of the codes of the architectural practice, which is the grammatical structure of the architectural language. Medieval and Renaissance heterotopias such as the

Roman villa, or the convent and the palaces, were matrixes of town. Then, the body measurements regulated the sizes of the space (in scale and/or out of the range of scale, because they were relative to the temporality of everyday's life) and the representation of the city was unitary. Starting from the city of the machine, however, the representation is given by the integration of landmark sequences. The new big size, then, which is a new way of supply and trade and it is an obtuse quantity, must now be made 'civil', so commensurate with human measurements. This huge city's dimension has to be represented through a language adequate to the contemporary codes of communication.

According to Gandelonas (Gandelonas, 1973) "*The establishment of the society can be seen as the stabilization of an order through some conventions, or, more specifically, the establishment of a language through symbolic codes.*" At each stage of development a period of chaos occurs, which is "*an infinite field of potential for the manipulation of the individual and collective areas, starting from the verbal style to the sexual attitude.*" Then a period follows in which "*the systematization and the institutionalization of the rules of these domains, the definition of rules and the invention of the social codes for a 'relational language' take place*" .

The image conveyed by signs, even when we refer to metropolitan maps, is therefore within the study of a structural paradigm that governs the leaps in scale, which are the primary reason of the transition between different models of cities. Then, the architectural image, even at the Metropolitan Architecture scale, is always a constructive montage of images. These are indexes of precise geographic locations and are marks of the leaps in scale from an urban paradigm to another: the images are not just scenes. They are cognitive images and convey a new meaning related to the relationships among the objects.

The purpose of the change from an urban structure to another, is always to produce systematic new codes of practice of architecture and urban planning, to define a number of forms apparently finished and stable, with their new meanings interrelated within a closed system, that is, to create a new language and produce a map of relations among the new urban subjects. But if through the history of architecture and of the city it was possible to recognize a fully constituted language upon which a grammatical structure was based, with Modernism the linguistic organization gets in crisis. Since then, at every scale passage, the codes change and a new symbolic organization acquires shape. Thus, a new way of conceiving and representing the city and its practices starts. The body ceases to navigate the world within the traditional network of symbols through which it has distributed the space, the time and the order of meanings up to that time. The function now explains the origin of the signs, but does not say anything on their possible combination through an urban grammatical structure, which must be re-established. A new project of mapping becomes inevitable.

2. First thema: Second part: The Body Space

According to Grahame Shane, Foucault in his article of 1964 described three-space systems. The first of these concerns "*how to arrange themselves in a place*", the second "*the extensions*" and the third "*the relations among places*". By this, we can predict three heterotopic structures: one that deals with moving into a system of emplacement, one that deals with the compression into an extension system and one that deals with an intentional disjunction, with a voluntary servitude and with the disconnection (which reflects and recodes a larger system interlaced with the illusion of freedom and with the connective relationships among the 'places').

For Shane, the architecture of the cybernetic present 'reality' seems to be the only very true contemporary utopian place. *Archi (texture) gram*, the magazine where the architecture - non-tectonic and potentially immaterial - and the medium were already the same thing, foreshadowed this reality in a utopian way. Then, network architecture and the communication network, is the literary place that allows the unconscious to show itself. The network is the 'place' where language osmosis starts. This hybrid and fluid condition between architecture and the network ('portal', 'window', 'net-architecture', 'metropolitan surfing' ...) is familiar to us now. The transition between *The architecture of the first machine Era* (Banham,

1960) and the *Architecture machine* (Negroponte, 1973) is definitively completed: the computer can represent virtually architecture and the urban planning, the origin of the virtual and telematic current 'reality' and the architectural utopia that we live when 'surfing'.

But the body, then, must re-find its physical location or, better, its site (as Grahame Shane insists on calling it) in which to recuperate its ability to inhabit. The Heterotopias assumed as "*the elements of the city that operate in the gray area of the transformations of the form*" devastate the normative categories of scientific and stable systems, and determine the new places of metropolitan bodies and their maps. In each moment of passage from one Era to another, in fact, catastrophic points of discontinuity and change are generated in which the meaning of architecture is re-founded by defining a new training track.

Then, in the transition between the city of the machine and the ecological city the formation of a body-space structured by a built-landscape emerges. It defines a mental map at the metropolitan scale, as an open space that reverses itself from armature support of an image to an operator of self-shape, which works for the construction of a mental map of the vacuum at the metropolitan scale. This is a map at the scale of the region but it is represented as a field ready for use (so at 1:1 scale). This mapping project will be composed by: a map of prediction (of the place before living it), a field map (to move within a place through the relationships among the elements that define it) and an immersive map (Contin, 2014).

Colin Rowe named the change of the concept of the void as "reversal code". He represented it through the Vasari corridor and the Unitè of Le Corbusier. The Medici offices self-represent themselves as a road to the Arno, the vase of a void. For Rowe this project exemplifies an operation of inversion from an open space without figure to a space limit (as a living area) with the figure. The architecture is 'the vase' of the empty space. Le Corbusier's Unitè, a body with architectural measures, a sculpture into the void, reverses the Vasari code.

At present, the shape of the body space, at the metropolitan scale, is a mental map; it is considered on the basis of its syntactic affordability which comes from its deep territorial structure (Cattaneo's structure, I would say), made up of water and roads linked to the territory by geography, regimented according to specific domestic laws. The formal paradigm of the metropolitan city, then allows even the recognition of the conventional form of the city, but also provides the potential for a system of contrasts and hierarchies of different rhythmic, sequences and oppositions, which produce different gradations of public, semi-public and private spaces, also in relation to a new functional logic. These different kinds of space enable the architectural signs to express themselves and talk again to the society of citizens. In this way, the perceptual structure of the architectural language, that is, the signs that convey meanings to the imagination, as the Speaking Architecture did in the past, is enhanced.

In this sense, I think, we need to introduce the concept of memory and symbolic intermediary. Shane says: "*a symbolic intermediary is anything that facilitates communication in the network*". Then he emphasizes that not only the form has a syntactic value, but the semantic game makes it vital.

Memory, therefore, is always in operational connection with the imagination and symbolic issues. Memory is an intermediary among the activities planned in a diary of events. It is fundamental, then, to equip it with charts and maps in order to reach an appointment with things and with people. Through maps it is possible to set an action of flows targeted towards the attractors. The map is the subject of a loading and a deployment of different temporalities, and of memorable symbolic relationships. Memory allows the possibility of re-cognition of a local value which could be saved or lost. It is a very important issue for a map/context that is local, but that changes its scale in order to meet the different; thus, when a local place changes, as a consequence, its historical identity changes too.

This is what Venturi teaches, drawing different maps for Las Vegas and assuming the interactivity between different mental maps. Venturi also introduces the problem of the communicative notion that conveys information through a vertical stratification of times, but above all through linear sequences (by removing the vertical thickness of time) and the overlapping of several parallel readings from a central idea. The

map, then, is the sign of a structure of the vitality of a place. This vitality is given through the vivid image of the elements which compose it and are explained in the map through their relationships. Inside the map it is also possible to read what happened to the other elements of the city in the past and it is possible to define what these are and to which we have to turn today and tomorrow.

3. First theme: Third part: Memorable and Imagination

As architects, then, the question is to determine what drives the 'making of architecture' into the reality, i.e. to determine how the work has to be done in context, how to represent it once it is understood, through a mental representation, which allows a relational map to orient the citizens into the new metropolitan body-space. So, according to Lynch: *What is memorable?* How does the transfer occur from the close concrete issue (the local, the work here and now) to a basic element for patterns or networks at higher scales?

What sign/shape, or form/signal, what image, finally, allows to stimulate the intuition or the knowledge of a subject that can compose so many mental images?

Let's step back. The reflective subject of Roger Simmonds or the aware producers of beauty of Aragon are the subjects of imagination and imaginary. These words both refer to the world of invention and therefore are powerful subjects of a design that expresses intentions. The term imagination derives, especially in the Latin world, from an idea that shapes things from the way in which the reality is represented. Therefore, if the architectural and urban subject identity does not belong to something received or copied, but imagined, consequently it must conform to the image created in the mind. The imaginary, therefore, is the effect of the imagination, thus of a mental map. But, especially in the Anglo-Saxon background, imaginary is also what is apparent, illusory. Furthermore, imaginary is a term that refers to a complex number devoid of the real part. This mood of the imaginary, let's say the capability to think about something totally unrelated to the reality, is one of the constituent elements of contemporary heterotopias, which Shane defines as H3 or heterotopias of illusion.

In the network of world cities, according to Shane, *"the heterotopia of illusion helped to reverse the codes of the heterotopia of deviance, so that rather than rigid rules, segregation and classification, the relationships between actors into networks are transformed into something more liquid and they open, creating links between 'places'. The heterotopia of illusion has accelerated this process by replacing 'place' with 'site' [network of 'sites']. Some Heterotopias intensify and manipulate the peaks and the exceptional points going towards 'accelerated virtual connections', allowing further dispersion; these are the places of disconnection and disjunction, which are interrupted temporarily and amplify the net flows into our systems of communication and transportation"*. Then, parts of miniaturized types, are generated. They are specialized typologies with syntactic value through compositive forces. The form has a syntactic value, with a great communicative notion, in view of a new semantic game that is the basis of the idea of the internal constitution of the new urban institutions: *"The pattern of development around the city is governed by space and time pulsations of development radiating from the original core of the old town"*.

The historic center, then, is the place where the time of the metropolitan city still beats. Actually, there is a multipolar network of city centers in which the final phase of the development is a self-organized chaotic system, which switches between the different models, nodes and systems of development, stasis and decreases: *"Here the lesson of H3 (heterotopia of illusion) allows both increase of density and low density dispersion. Parts of arches and *cine - città* are incorporated into the new city network, which, thanks to its dual structure, allows a feedback from the bottom by those who want to customize their own space and their own narratives, and from the top by the economies of the mass object distribution. The urban elements are combined at each point. The fractal patterns are broken and each element can be customized, giving morpho-typological studies a new importance and flexibility as sources for new hybridizations. Two contradictory spatial conditions appear everywhere: openness and density"*.

...

"The second condition is a new compression and unprecedented closure of density. A network of personal fluxes emerges in and out of a gigantic and larger fractal pattern of the city.

Density and compactness allow nodal megaforms within a network to become heterotopic attractors, which contrast the dispersion and the diffusion facilitated by the tele-città. [...] At the center or on the side of the settlements three-dimensional nodes were formed to tie flows and the concentration of information, people and products. These are public realms fitted in a recoded section of town. [...] Formulas of section generate these new heterotopic nodes that emerge in the city territory. The heterotopic nodes of the Netcity attract masses of people revealing the desire of a variety of urban forms together with the city. The heterotopias enable the conceptual model of the net-city to allow the coexistence of different models as simultaneous layers: each of them presents a system of heterotopias able to adjust their stability and quantity of changes. "

Then we will have a *Cities of the World* network made of: urban morphotypes (building type and urban morphology), as an antidote to a widespread urbanization, and building types composed and recomposed by parts, into natural / artificial landscapes.

Shane, then, solicits the question: *"How do heterotopias interact with the cities that surround them, mirroring, working with, and modifying the normative models in which they are embedded?"*. Therefore a discussion on the question of the location in the context of the new built form types is required. The context, in fact, is no longer absolute, due to the fact that it interlaces together different scales. The landscape (nature and art), which has always been linked to the visual and the immeasurable distance, as the closest element in the city fabric, becomes the protagonist of the new dimension of scale. Since it belongs to networks, it is connected to the cities of the world by the intrinsic relationship between communication and circulation: we have to define the universal citizenship and rites of identity for a new metropolitan landmark. According to Shane, urban development is associated with a city that shrinks which appears only in some parts of the territory, thus evolving Wright's idea about the network nodes. Therefore, Shane introduces: *"the idea of a reconstruction of a landscape network (in London and in New York) using the waterfronts, docks, river fronts. [...] an Urban landscape that emphasizes the "reverse city", a quality of the landscape that forms the "fifth facade" that places buildings as objects in a three-dimensional topography. "*

Finally, what are the new types of signs, memorable signs, able to mark the vastness of the new metropolitan Body Space and to produce a mental map of the metropolitan city?

From history we know that the baroque world played with introversion and extroversion; the Paris of Haussmann was provided with urban equipment that allowed the gradations of the scales; the Chicago of Hilberseimer worked on the detachment of networks from the new types of urban entities, which were autonomous from the soils and the landscapes. For Le Corbusier the new distinctive sign of the contemporary metropolis was the introjection of the whole space, including nature. And for us today, for the space of flows (scale, timing measurements and bigger and bigger fields) the connotative sign consists of an opening to the green and gray networks and the denial of history and geography. The flow, in fact, is not able to measure, it is independent but based on the ground suggesting the importance of being open to the city fabric (history, geography and topography). The opening, in fact, indicates the size of the physically feasible plan of a city and of its architecture.

Until now, the city fabric, in fact, defines the relations among the objects: these are the signs/ indications of a precise geographical location; they define the map of the city.

Therefore, we are speaking about a development model and a mapping, which consist both of a series of patterns that indicate a direction of the settlement growth and a series of maps or networks which suggest a possible configuration and characterization of specific qualifying locations with a gradient of formality: from the centre (new metropolitan morphotypes related to the real estate development) to the countryside (new settlements able to involve inside the urban agriculture). Because of its size, immeasurable in relation to the human measure, in fact, the metropolis can only be imaginable. We can do this through Geography, and 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 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). This development model (Ortiz, 2013) 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.

It is the construction of a new topographic map, which is the device capable of supporting a mental map at the metropolitan scale. It is made up of a continuous and a discontinuous system (one local space within global scale) and by a layered 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.

4. Second theme: First part: Imagining / Mapping

This research starts from the critical reading of Giorgio Mangani's text, *Moral Cartography*, and Giuliana Bruno's book, *Atlas of Emotion*.

Imagination for the old European world was the most useful instrument for understanding and for the dialogue among cultures. Their impact (the arrival of Columbus in the Americas was an example) did not take place in a direct way and was not based on cognitive models, but rather came to life from the relation between different imageries (the mental images that each culture formed by the perception of a phenomenon), on the emotional paradigms that founded mnemonic and, in Europe, logic. Mental maps derived from a cultural identity, which at the same time they spread and strengthened. (Giorgio Mangani, 2006)

Maps and cartography are produced through a compositive structure of the data selected as significant. These data, given in figures, are selected by their emotional potential connected with the perceived figures (emotional energeia). The first maps are made by these data structured in the form of gardens, palaces of memory and routes, or on a mental level like rosaries, theaters of the world, and then atlases and globes. Every place represented (topos) allows to store a concept. Designing a topography meant to build a system of paths through emotional images capable of providing information (so examples to imitate) and therefore capable of influencing thinking and behavior (the life style).

Then, a narrative was connected to each place. So the mapping constructs a place, before representing it by selecting information. Therefore, like the new media, it is already a delocalized production. Berio in *A memory in the future*, (Berio, 2006) compares the map to a score that can "become more and more essential and laconic, it may be sufficient to suggest the case (vuol dire contenitore, ma in questo caso prevarrebbe il senso più significato di "caso", meglio: cover/ container of a virtual form and vaguely descriptive inhabited only by long or short sounds and silences, by rapid interjections or slow reflections, by very acute or very low notes, by pianissimo and very few fortissimo ". Even Shane seems to refer to an idea of hybrid territory composed by elements with different degrees of intensity, and which therefore requires a map that increasingly becomes a dynamic map useful for representing quantity/quality in motion (a sort of weather report that indicates the changes in atmospheric pressure), more than being a static picture of an area. "This reversal of normal processes opens the way for a new hybrid urbanism, with dense clusters of activity and the reconstitution of the natural ecology, starting a more ecologically balanced, inner-city urban form in the void." (Shane, 2005)

The maps then will not mark only places (sites), with their symbols as it was for the patterns of Alexander, but will sign *loci*: i.e. narratives (an organized body of information, symbols, stories and curiosity, characters and myths) associated with locations shown and used as mnemonic signals. The relationship that the maps establish, then, is not only with the territory, but also with the stories related to it. We do not talk then about itinerary, but about plots through which is possible to orient into unstable territories.

The cartography then would be based on a rhetorical-persuasive system. In fact, the real space in order to be thought and stored (Lynch) must be structured by narrative forms that change depending on the different Eras as a network of dynamic meanings superimposed on it. And so, a place must be translated into rhetorical forms of narrative, in order to be practiced.

It could be translated into metaphors, for example.

Place / identity. Landscape / body space

There is an osmotic relationship between a place and an identity, if it occurs that the maps precede and produce the space (Leonardo): the mental space and the real one. Place, then, which is enriched with narrative and symbolic values, place limited in time and space: the individuality of places, represented in the maps, is a *topographic theater* (place marked as public scene) for narrative procedures that establish its identity.

According to Shane the landscape, therefore, can also be defined as: Body Space, or physical space, topos and its qualities, set of traditions and values (*habitus*, that is profound character, lifestyle). This means that there is a kind of somatic localization through a mnemonic grid associated with landscapes, gardens, maps (topography and place, names and stories) that allows to store and redistribute the information constitutive of communities and territories. Every landscape contains its own time.

A first example of map: mapping the temple of Jerusalem

Mental prayers have always needed to rely on mnemonic media that dissect (cut/strip) the path in milestones. The liver of the sacrificed animal is an open and interpreted landscape. In the Old Testament an Angel invites Ezekiel to a contemplative measurement of the Temple of Jerusalem: a topographical meditation.

*" The Future Messianic Kingdom
(40.1 to 48.35)*

40_ The Vision of the New Temple and its parts.

[...] The exterior wall. - So I saw an exterior wall that surrounded the building from all sides. The measurement cane that the person was holding was six cubits long, each one a cubit and a span long. He measured the thickness of the construction: one cane, then the height: one cane.

The eastern gate. - Then he went in the direction of the gate that looked toward the east, he went up the steps and measured the threshold of the door that was one cane deep. Each room was one cane long and one wide, and between the rooms there was a wall five cubits thick; also the threshold of the door, on the side of the porch that the door led into, was one cane. He measured the porch of the gate: eight cubits long, and the pillars: two cubits; ...

The rooms of the east gate were three on this side and three on the other, all of them of the same measure [...]"

Measuring the temple of Jerusalem becomes, then, an ideal form of meditation, associating mentally figures to the places. Figures with *energhéia* (vivid and sensual images, said Lynch), linked by an emotional and dreamlike chain, figures able to get into memory. Measuring the temple means to think, to imagine it. The new temple, then, with its brick of the soul, was built already in the consciousness of man: it was a pre-vision. As Francis Yeats has taught us, the 'mental', in fact, is the true meaning of the word 'virtual'.

The Map as a project

Since ancient times images have been talismans. Written on a map (as on a magic card) images are imprinted in memory. They turn on a reflective mental process, through which information penetrates the heart (such as the map of Madeleine de Scudery) and they penetrate into the mind and act on the behaviour, through the eyes (Leonardo and Michelangelo). A map, such as the medieval world maps, is not a mimetic copy of reality. It is a project, a mechanism that acts through the mind on the future. The



ancient atlases that led the English and Spanish explorers to the sea describe a territory (to plot and to plat), before its discovery. When we talk about Atlases, large maps drawn on one side of the sheet and a detailed description sometimes fantastic on the other side, we refer to something that anticipates the telescope and the microscope but that looks like a wunderkammerer ...

It is not a coincidence that John Dee, author of maps which were the basis of the English voyages of exploration, as Bruno well describes, considered Kelly's crystal ball like a map: it mentally produced figures that allowed to see far away. The crystal ball to look for treasures becomes Stevenson's map

The context. A mnemonic and communicative device

In the medieval world, the landscape and the garden, which is the countryside built by men (the real and the represented) accompany the meditation and prayer: they mark the places and the times of places and they result into the interior construction of the new citizenship. The context becomes a mnemonic and identifying device.

Thus a system of places linked to memory and future construction was created. To read the landscape also meant to understand the moral identity of that place (Life Style). And the landscape of the paintings, before the real visit or before the project for the new city (image of the heavenly one), worked as a mnemonic image synthesizing strategic information, preparing the reading of the reality through what was a memorable one. The use of urban scenes, throughout the history of Western painting and of Leonardo in particular, reveals the strong character of identity of those landscapes, the ability to grasp this identity by the citizens and the emotionally dynamic value of mental maps made of maps and scenes, creating the common sense through collective and shared images. Since maps recall a familiar landscape, they are the screenplays for three-dimensional images of a future project and enrich the real perception of the landscape with an intentional connotation. Maps are a dramatization of the topographic perception connected to a design intent, and act as a vehicle for storytelling. They produce an identity of the territory and of individuals (movie set). This is the secret of the Leonardo's maps.

Maps are a cultural project

Atlases of 1500 with their maps, rich in symbols and symbolic figures (*imagines agentes*), imprinted themselves into the minds of the readers. The text, usually a description of itineraries, and the images were merged as in a theater. According to Yeats, the descriptions

of physical places and the narratives were generated by a vision. Therefore, the journey that followed moved as inside an atlas, so along a route that was based on a sequence of images. As in a baroque theater designed by the Bibienas, in fact. Vision and science got closer and closer, as evidenced by Galileo Galilei's texts and maps in his *Sidereus Nuncius*.

But the Atlas, an invention of Ariosto who came from Ferrara (one of the first cities that produced maps) was actually the owner of a haunted castle, completely transparent and deceptive. It was possible to cross it believing to see what in reality it was not: eye-catching and seductive images, that drag on into a journey through the unknown.

5. Second theme: Second part: A new mental conception for the mapping project

At the new urban scale a process of complex interactions and mutual influences involves, through different fields of knowledge, new instruments of analysis, interpretation and design project, new techniques of representation and construction technologies as products of original ways of thinking. This movement of ideas, energy and matters, produces a shift of paradigm, new meanings, and finally, a shift in the mental conception of the reality. According to a metabolic vision of the urban transformations, a new meaning rises from the negative meaning of the concept of "crisis": a sudden change emerges which brings a stable system to a condition of instability.

However, the change of urban paradigm happens both through total turnovers and morphological catastrophes (*tabula rasa*) and through a gradual and relatively slow contraposition between Slow Cities

and Fast Regions (there is an interplay between slow and fast processes); that transformation slowly changes a part of the consolidated systems and brings it toward a progressive adjustment. For this reason it is fundamental - in particular this was the fundamental theoretical debate of the Milanese post Second World War School - to consider the important dichotomy between crisis and continuity.

The problem of how the part is integrated into the whole emerges again.

The new Public Realm requires the construction of a narration that is able to tell stories about who we are and what a city wants to be. For this reason, every urban and architectural design project is done with an archive and a diagram (Derrida, 1967), but above all, with new sensibilities and vivid and sensual images (Lynch). This renewed sensitive experience (Dewey, 1948) marks a new meaning of the body, which is not only a measure (beyond historical sense). It introduces, above all, a symbolical dimension. Therefore, the architectural project needs to use formal archetypes, which are able to evoke a new meaning in the global culture. The new project originates from local scale, but afterward it transcends the local dimension to a global one.

Today we are in front of a sudden increase of the scale dimension of the urban settlement. A huge growth of the infrastructural system and an important functional and formal complexification of the terminals of the infrastructural net are the consequences of that. This fact drastically reshapes the landscape. The Metropolitan Net-City consists now of 'epicentres'. Every epicentre is different from the other, but they are related altogether. They no longer occupy only one node of the net: they occupy a big portion of territory. They are phenomena of a huge work on the city that transforms, not only in a generic and strategic way, these infrastructural huge terminals (centralities at different scales), but more diffusively they renovate the whole region and its big areas of landscape. This is the current way of the contemporary city changes.

As described by some studies which explain growth in biology (Marturana and Varela), new nucleuses interact and create linear entities, which are able to determine new phenomena of attraction/repulsion: epicentres organized in a net. Due to this re-orientation, old poles change their use and acquire an emblematic meaning: they become symbolic mediators between generations, and communities re-orient themselves under their influence. So the Metropolitan city is the result of a widespread and unstable state that evolves through polar phenomena differently distributed on the territory. These phenomena, at the scale of the city-territory, can aggregate important urban functions and regenerate the area in which they are localized

Moreover, according to Grahame Shane, there is another question that we have to analyse very well. It is the problem of the Exchange Networks. Today we are involved in the bigger scale of the Metropolis, Megalopolis or Network-Cities. Grahame Shane says: *"Lyster specifies that traces of past system shape the present conditions even in ex-urban sites... The idea of the shift from singular place to exchange flows across plural sites is a nice metaphor for the shift to the network city. The Megalopolis model is constituted by a city connected to the physical and virtual global nets; it is non-uniformly 'exploded' on the territory, but it is definitively related to the landscape; it is non-homogeneous, it is the emblem of capitalism, finally it is un-planned and its intensity is not constant"*.

Due to its structural definition, the megalopolis now is a net of processes and relations (net-work) and it doesn't have a physical model anymore. Moreover, it must be rebuilt punctually at the local scale, on which the global one develops its influences. This is the scale of the Metropolitan Architecture. Actually, the Metropolis is a Network-City, it has an adaptive eco-logical structure that is able to transform itself through recombinant logics of elements and "rizomatic" assemblage (Shane). Essentially, the metropolis is the archetypical city of the complexity: its inner relations and also the shape of its open and close spaces, public and private, are complex.

The urban organism has to be sustainable for various reasons: surely for an economical and ecological one, but, above all, for a cultural purpose that means, generically: society, policy, institutions and people's conviviality. The feeling of adequacy that ties the body of a person to a place, because it is just where

his/her time is intensified, arises from the renewed need to attribute a value and a meaning to the new relations among persons, places and things.

With the achievement of the Bigness scale, theorized by Rem Koolhaas in the 90's, we passed over the paradigm of the sustainability of the finite urban form, so the question that emerges is related to the definition of a new paradigm for the Metropolitan Architecture. We have to consider the urban growth phenomena through critical thresholds and paradigmatic transformations, which remove, replace, incorporate by selection, the pre-existing structures of the city which now are not able to support the new scale and complexity of the contemporary city; due to that, they could decay and be abandoned.

So the project of a vision is absolutely essential. It starts from a methodological study that is able to recognize places and their transformations through the recovery of topography, of memory and through an ideal extended sensitiveness. This vision defines a new dynamic map of the territory. Only an analysis, based on dynamic and sensitive maps, is able to start a real process of sustainable development.

The contemporary metropolitan architectural project, according to a metabolic methodology, is a sort of urban-genetic graft that is able, at the same time, to be the place where the territory scale increases and also where the fundamental importance of the biological regulation and the environmental knowledge take place at the local scale. Being the place of the scale increase, in an architectural sense, means referring to the idea of a multi-layered structure, or a multi-layered machine. Therefore, the new eminent places of the Metropolitan city are able to link many different infrastructural layers superimposed on them and at the same time, are able to become an index of position of geographical places of the territory, at the local and regional scale. The new regional landmark solves local problems of linkage with the city through a complex and layered groundmark-basement rooted into the local context. A good local project develops the idea of pursuing human feelings of adequacy, wellness and security; these are all values that invest the space and time dimensions of the project.

Just now, new instruments are able to measure, to map and to project the different parts of the contemporary city and its complexity. But these efficient tools measure quantities and generate forms of thinking, or as Panofsky called them: symbolical forms based on a predominantly scientific culture, not humanistic; new sensibilities and phenomena perception not related to a cultural or social-identity issue, a fact which increases the problem of global homologation.

According to the Milanese Polytechnic tradition, the Measure and Scales of the Contemporary City Laboratory wants to develop the definition of a methodology of metropolitan architecture and urban design and its representation which conceives new technologies not only as the most efficient instruments to project and represent the reality but also as contemporary tools which are able to re-define the historical canons of the city and its architecture.

Therefore, we use new technologies both to design in a more efficient way and to optimize the production process. But, above all, we try to find new urban and architectural forms and structures. The mental conception and the consequent representation of the urban and architectural entity are deeply changed. Consequently an important question arises: what would be the relation between new technologies (which cannot be considered anymore as representation techniques but as design instruments) and environmental knowledge. According to Françoise Choay, in the Communication Era, this relation is the support on which it is possible to try to re-define an inter-somatic relation between the body and its many contexts. The specific Milanese contribution in the dialogue among cities is a thought on the definition of an image conceived as symbolic propeller: a structure of meanings that is able to refer the visible matter to something that is not possible to see. We have to build a metropolitan movie set, a new theatre, a spatial machine, which could be able to present in situation (now and here), what has been planned (the virtual) at the new scale dimension. According to Aldo Rossi, master of a Milanese approach that re-formulated the aesthetic city criterion, the Citta Analoga is a museum analogous to the cities of the past (according to Quatremere), the Città 'come' Museo is the archetype image of the city, it is an idea: a stimulus for images.

Rossi stresses the contradiction between a composition as a simple sticking operation – a conventional and easy way to manipulate objects, which are, in reality, ‘time figures’- and the poetic action (poetic reaction) that distinguishes between the goals of the artistic knowledge and the way of the artistic work. Several temporal Eras and related human generations, which never knew each other (so we are talking about an archaeological, and not historical, relationship), I mean, subjects which are not bound by an event that they can tell each other, can definitely converse through analogous meta-historical images. Nowadays these images have the same function to allow the meeting of several different cultures and populations. It is a semantic issue.

So we are speaking about an image that has to fix in the citizens’ memory a place and its proper situation/event; let’s say, it is possible to have an intense experience through it. So the image can re-activate a culture, because it is able to strike a deep symbolic and rooted place of the soul: a mark of identity and an index of personality and character. Therefore, an identity in progress must be expressed through a very new language.

The new technology then, spreads the effect of ancient inner landscapes, urban or not, but also those of the new urban works. It constitutes an incredible possibility to increase our perceptual capabilities. New technology consists of a permanent relation among times and spaces, therefore, it shapes new figures, linked to today’s infrastructures, destabilizing the usual logic of the present ones and of those which are connected to the ancient figures, linked to the antiquity stereotype. This fact determines a formidable image: vivid, sensual and memorable.

That is modernity. Actually, we have to deal with:

Form and Expression Communication _ Inter somatic_ Meanings	Construction and Figure Signs
Immaterial	Technology Sociology Functionalism Zoning

Our question, then, is about Immaterial and Communication, through new signs, new kind of figures and constructions. How can we introduce the immaterial expression into a common sense (communication), in relation to the art and the science of the metropolitan city, and in particular, in relation to a representation system for a metropolis that is growing very fast?

6. Openings: *Mapping desiring. A project of a new cartography*

Satellite images and digital maps reveal that maps are made by men; they are a mosaic of abstract signs that take on a meaning only when they are contextualized in a cultural context and when they identify a space. 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 to be able to compose / read an image. From a theoretical point of view, an image is comparable to a text because they share a complex grammatical and composition structure synthesized through a set of symbols. Actually, a digital image (a map), however, is a text, which is a code

editable in an editor device that alters the language transforming it into a desired medium (image, sound, animation, to mention some traditional media) .

The collective image that photographs the situation of the planet, is made up of complex texts altered according to the most appropriate media. This matter affects the processing of the aesthetic-computing metadata available right now. The maps should not avoid this: we have a connective intelligence and an artificially created one; both have made all of us unaware producers of maps.

The key of the transformation, then, is detectable in the growth of the number of devices able to ensure an unprecedented access to information. Personal technology is an extension of our body; personal computer, mobile phone, glasses, cars, hearing aids, and an endless variety of tools that accompany us during our daily life constitute it. The first machine age signalled that direction for the human evolution. This intuition was also one of the most interesting aspects of Futurism.

We are immersed in an era that could be called neo - digital Baroque (De Kerckhovev, 1995). In fact this Era, like Baroque, translates each sensory element: from touch to vision and vice versa; and now it more and more tries to explore all the ways in which it is possible to translate the possibility to feel with all the senses: for example now we want to explore virtually the space. Therefore, the life of contemporary man getting away from Nature becomes more and more an abstract life.

The same procedure applies to the field of mapping, because the images are intended to be the maps for the world, which has become a sort of screen. In fact, we trust in the accurate visualization that the giants of communication offer us through their services : it is the expression of a hyper -nomadic voyeur desire, or let's say it is a mapping desiring.

This medium has broken down the value of scale, turning into reality the intentions of Eames in *The Power of Ten* (Eames, 1977). It made it through a kinetic and performative map such as those of the pre - modern age, where the relationship between a place and a context extended to the universe emerges, and where every pixel / place has a communicative value .

Today more than before the cartographer absorbs materials from any source regardless of the language and the style in which it is expressed.

Our virtual presence consists of information uploaded in the form of photographs, texts and semantic information on how they have been loaded/constructed; these are privileged sources because of their geo-location. To juggle the enormous mass of data that we send to the machines is not easy: in 2010, for example, *The Economist* told us that with our 4 billion telephone devices (12 % are smartphones) we sent a quantity of data sufficient to fill 60,000 Libraries of Congress , and the number of devices has an annual increase of 20%.

This forces the cartographer to be big data manager himself and express skills in the selection and development of media and communication channels.

The huge amount of material accumulated in few years by servers around the planet, is a factor of production and a detailed picture of the consumers, but mostly it is a social capital from which cartographers and scholars can extract information to contextualize their research, or to produce analysis as usual in the research market milieu.

New media and new aesthetics will be created by the transformation of the sources, of the media/viewers and of the direct forms of display. In the future it will be possible and affordable for all of us, to work on the development of our technology devices. This matter is already indicated by the fabrication laboratory of the manufacturing and technological field (this is the first symptom of the third industrial revolution). Therefore in the future, mapping will not only be done by the choices/data analysis and representation methods, but it will have to extend to the construction of appropriate devices for each field of research. According to Freud this is a spontaneous process: "*Writing was in its origin the voice of an absent person* ".

References

Measure and scale of the contemporary city

- Banham Peter Reyner, Architettura della prima età della macchina, Marinotti, Milano 2005
- Contin Antonella, in Innovative technologies in urban mapping; built space and mental space, curated by Antonella Contin Paolo Paolini Rossella Salerno, Springer Innovation, München 2014 (on Going)
- Choay Françoise, L'Orizzonte del Posturbano, (a cura di) d'Alfonso Ernesto, Officina Edizioni, Roma 1992
- Farinelli Franco, Geografia. Un'introduzione ai modelli del mondo, Einaudi, Torino, 2003
- Foucault Michel, Les hétérotopies. Les corps utopique, ed. INA, Parigi, 2004, Ed. italiana (a cura di) Antonella Moscati, Utopie. Eterotopie, ed. Cronopio, Napoli, 2008, pp.12-13
- Foucault Michel, Des espaces autres, in Architecture, Mouvement, Continuité, n.5, ottobre 1984 (conferenza al Cercle d'études architecturales, Tunisi, 14 marzo 1967), pp. 46-49, traduzione italiana (a cura di) Pino Tripodi, Spazi altri, in Michel Foucault, Spazi altri. I luoghi delle eterotopie, (raccolta di testi a cura di Salvo Vaccaro), Eterotopie (collana diretta da Ubaldo Fadini, Paolo Ferri, Tiziana Villani), Edizioni Mimesis, Milano, 2001
- Grahame Shane David, Recombinant urbanism. Conceptual Modeling in Architecture, Urban Design, and City Theory, Wiley-Academy, West Sussex 2005
- Koolhaas Rem, Mau Bruce, S M L XL, The Monacelli Press, New York 1995
- Koolhaas Rem, Delirious New York. Un manifesto retroattivo per Manhattan, Ed. Italiana di Marco Biraghi, Electa, Milano 2001
- Koolhaas Rem, Junkspace. Per un ripensamento radicale dello spazio urbano, Ed. italiana Quodlibet, a cura di Gabriele Mastrigli, Macerata 2006
- Lynch Kevin, A theory of good city form, MIT press, Cambridge, 1981, Ed. Italiana (a cura di) Melai Roberto, Progettare la città. La qualità della forma urbana, Etaslibri, Milano, 1996
- Lynch Kevin, L'immagine della città, Ed. italiana (a cura di) Ceccarelli Paolo, Marsilio, 2006
- Rowe Colin, Koetter Fred, Collage city, MIT press, Cambridge, 1984
- Sassen Saskia, Una sociologia della globalizzazione, Piccola Biblioteca Einaudi Scienze sociali, Torino 2008
- Soja Edward W., Postmetropolis: critical studies of cities and regions, Blackwell Publishing, Los Angeles, 2000, Ed. spagnola (a cura di) Hendel Veronica, Cifuentes Monica, Postmetropolis. Estudios criticos sobre las ciudades y las regiones, Traficantes de sueños, Madrid, 2008
- Venturi Robert, Scott Brown Denise, Izenour Steven, Learning from Las Vegas, Ed. CittàStudi, Milano 1985

Paradigm, instrument, technique

- Berio Luciano, Remembering the Future, Harvard University Press, 2006
- Cattaneo Carlo, Notizie naturali e civili su la Lombardia ; La città considerata come principio ideale delle istorie italiane (1858), Oscar Mondadori, Milano, 2001
- Derrida Jacques, De la grammatologie, 1967; trad. it. di R. Balzarotti, F. Bonicalzi, G. Contri, G. Dalmasso, A.C. Loaldi, Della grammatologia, Jaca Book, Milano 1968/2006.
- Dewey John, Esperienza e natura, Torino, Paravia, 1948; Milano, Mursia, 1990.
- Gregotti Vittorio, Architettura, tecnica, finalità, Editori Laterza, Bari, 2002
- Yates Frances Amelia, L'arte della memoria, Einaudi, Torino 2007
- Kuhn Thomas S., The structure of scientific revolutions, The university of Chicago, Chicago, 1962, Ed. Italiana (a cura di) Adriano Carugo, La struttura delle rivoluzioni scientifiche, Einaudi, Torino, 1969
- Maturana Humberto R.; Varela Francisco J., Autopoiesi e cognizione. La realizzazione del vivente, Editore Marsilio (collana Saggi. Critica), Venezia, 2001
- Ortiz Pedro, The art of Shaping the Metropolis, Mc Graw Hill, NY 2013
- Negroponte Nicholas, The Architecture Machine: Toward a More Human Environment, The MIT Press 1973
- Simmonds Rogers, Bichester Village, in Contin A., Atlante, Clup Milano 2003

Mapping Desiring



Blissett Luther, Totò, Peppino e la Guerra Psicica 2.0, Einaudi, Torino, 2000
de Kerckhove Derrick, The Skin of Culture, Somerville Press, Somerville, 1995
Eames Charles and Ray, Powers of Ten, 1977
Freud Sigmund, Civilisation and its Discontents, The Standard Edition, New York, 1930
Flusser Vilem, Towards a Philosophy of Photography, Reaktion Books, London, 2000
Suchman Lucy, Connection: the Double Interface and Constructing the Cyborg Body, MIT press, Cambridge, 2009
Jaffé Hans L.C., De Stijl 1917-1931. The Dutch Contribution to Modern Art, J.M. Meulenhoff, Amsterdam 1956

Representation and architectural drawing

Ackerman James S., Architettura e disegno. La rappresentazione da Vitruvio a Gehry, Electa, Milano, 2003
Aragon Luis, Le paysan de Paris, 1926, trad. di Paolo Caruso, Il paesano di Parigi, Il Saggiatore, Milano 1960, n. ed. a cura di Franco Rella, 1982
Bruno Giuliana, Atlas of Emotion: Journeys in Art, Architecture, and Film , Verso Books, United Kingdom, 2007.
Frampton Kenneth, Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture, MIT press, Cambridge, 1995, Ed. italiana (a cura di) De Benedetti Mara, Tettonica e architettura: poetica della forma architettonica nel XIX e XX secolo, Skira, Milano, 1999
Gregotti Vittorio, L'identità dell'architettura europea e la sua crisi, Einaudi contemporanea, Torino, 1999
Mangani G., Cartografia morale, (2006) Cosimo Panini, Modena.
Panofsky Erwin, La prospettiva come "forma simbolica", Carte d'artisti, Abscondita, Milano, 2007
Rossi Aldo, L'architettura della Città, CittàStudiEdizioni, Torino, 1995
Rossi Aldo, Autobiografia scientifica, il Saggiatore, Milano, 2009

Syntax of urban space

Alexander Christopher, Ishikawa Sara, Silverstein Murray, A Pattern Language, Oxford University Press, New York, 1977
Choay Françoise, Espacements. Figure di spazi urbani nel tempo, Parigi, 1969 Ed. Italiana (a cura di) D'Alfonso Ernesto, Skira, Milano, 2003
Diana Agrest and Mario Gandelsonas, Semiotics and Architecture: Ideological Consumption of Theoretical Work, in OPPOSITIONS 1, September 1973