MILAN: THE CITY IN CONSTANT AND RAPID CHANGE. THE FUTURE IS GREENER

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INTRODUCTION

If we take as a reference Marc Augè's description of the work of the photographer Basilico Milan represents the planetary city.[1]

This metropolis has always been an exception compared to other modern Italian cities, in fact, if on the one hand green has always played a central role in urban planning, on the other, speed and technology have characterized its development. In this way, Milan differentiated itself from all of Italy, held back by a strongly consolidated historical-cultural background. Milan is the only Italian city that over time has proven to change rapidly, respecting the past, but projecting itself into the future. The spectacular rapidity of changes with an equally rapid adaptation, conversion and design of buildings, of former industrial areas, of services and of transport has always been accompanied by numerous green projects. In recent years, numerous strategic projects have been launched with the aim not only of increasing the city's green spaces, but also of limiting its sprawl, of creating a link with rural suburban areas, of improving suburbs, of reconverting industrial areas. or abandoned railways. Furthermore, the main objective is to restore the waterway system (canals, canals and dock) with the creation of a blue and green infrastructure system, restoring quality multifunctional public spaces to citizens.
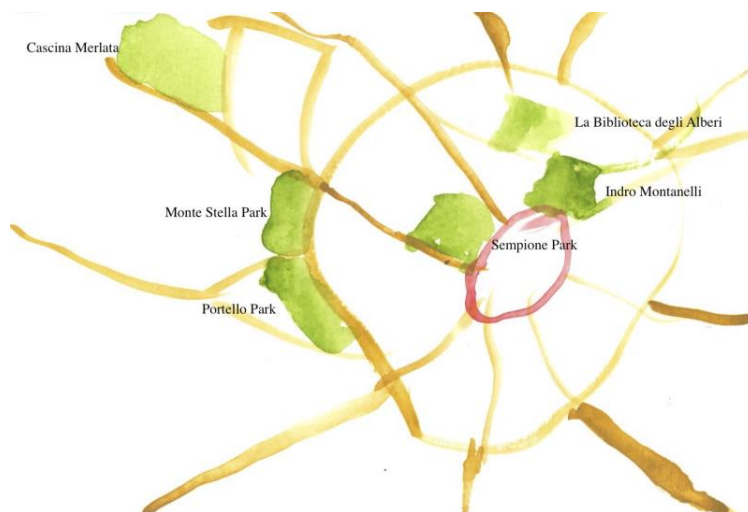
Figure 1. Map of the city of Milan with the green areas mentioned in the article highlighted - Watercolor by Mario Manfroni.

THE PUBLIC PARKS OF YESTERDAY

The development strategies of the city of Milan have always been innovative and, in particular, those in progress in the contemporary era started with first master plan by Beruto (1888).[2] This was based on the same principle, according to which until then the city had evolved, that is in a regular manner in the same way as the crown of a tree grows and according to a uniform grid. The large Sempione public park is an exception. This was built in the late nineteenth century in the green area around the Castello Sforzesco, transforming the vast old parade ground into an English garden. Even today, together with the semicircular Foro Bonaparte behind the Castello Sforzesco, they represent a green space isolated from the whole city.[3]

Before this there is the important Cavalchina Plan, drawn up at the end of the 18th century by Piermarini to provide the city with adequate public spaces within the historic walls. This involves the construction of a large garden between Porta Orientale (now Porta Venezia) and Porta Nuova. Like Hyde Park opened to the public in 1637 or the Luxembourg gardens in Paris, the first public gardens in Milan, today Indro Montanelli, were inaugurated by the Habsburg administration in 1787.[3] They were built on those land owned by the royal and other of religious orders for the public, who recently moved to the city. In the mid-1800s, the initial project with regular flower beds according to French fashion, today called the 'old garden', was transformed and expanded into a landscape garden, only to undergo another transformation at the beginning of the 20th century. The park includes the old gardens equipped for walking, for resting, for football and for popular festivals. Another element of the Montanelli park similar to other nineteenth-century built in Europe is the reuse of the historic walls in disuse: in this case the Spanish defensive bastions at the Porta Orientale draw the boundary between the park and the new boulevard according to the fashion of the time.[4] Even the choice of the species used in the green project are those of the fashion of the time: majestic trees of the first size isolated in large lawns or in rows to emphasize the pedestrian walkways or in small groups to separate spaces or to screen the noises of the city [for example: *Aesculus hippocastanum* L., *Platanus acerifolia* L., *Ginkgo biloba* L., *Styphnolobium japonicum* (L.) Schott, *Cedrus libani*, A. Rich., *Cedrus deodara* Roxb. ex (D.Don)

G.Don, *Cedrus atlantica* (Endl.) Manetti ex Carrière, *Quercus rubra* L.] or at the edge of lake basins [*axodium distichum* (L.) Rich.]. The botanical heritage is enriched with shrubs [for example:*Viburnum tinus* L., *Cornus* sp.pl., *Hydrangea* sp.pl., *Chimonanthus praecox* (L.) Link., *Spirea* sp.pl.] and collections of ancient roses, which alternating in the periods of flowering and in the seasonal colors of the foliage, create spaces of high aesthetic value.[5,6]

If under the Habsburg rule the design of the city was very innovative, unlike that of the public park, which followed the fashion of the time, the QT8 settlement designed by Bottoni on the occasion of the VIII Triennale in 1947 is configured as one of the experimental districts of the polycentric development proposed by the PRG of 1946 AR (Architetti Riuniti).[7] The design of the new district is opposed to the traditional urban logic, based on strict rationalist conception, but rather is inspired by the Anglo-Saxon model of the garden city. Unfortunately, today the QT8 is incomplete, because the green and multipurpose central axis, designed to accommodate a sequence of squares and collective spaces, has not been built. In part, the lack of the multifunctional element is compensated for by the construction of a neighboring public park. This becomes the background of the newly built neighborhood, but it can also be understood as a reinvention of the monumental historic gates to the cities. Monte Stella, named in honor of the wife of the architect Bottoni, Elsa Stella, is made up of an artificial hill. In the place on which it stands, once occupied by a large quarry in abandonment, he intended in the initial master to large mirror of water, then filled with the ruins and rubble of the war. Since it already looked like a mound in 1947, Bottoni decided to transform the place (375,000 square meters) into a poetic 'Milanese Mountain'. This has a height greater than 50 meters and consists of a system of terraces, sinuous at the foot of the river Olona, culminating in a circular clearing, from which to admire the view of the new residential complex and the entire city. If you think that one of the aspects that characterizes the contemporary city is the reuse of disused infrastructures or former industrial areas, including all recycled materials to create new open spaces, the concept of the Monte Stella park created in the post-war period was very progressive. Unfortunately, the design of its green elements is not equally so, which follow the traditional patterns of the nineteenth-century public park, for the time now outdated with respect to both the innovative design of the QT8, and the visionary projects of the Modern Movement (for example: La Ville Radieuse by Le Corbusier and Broadacre City by Wright), widespread and applied for some time, especially in the Anglo-Saxon world.

Figure 2. 'The Present': the most imposing hill of the Portello Park- Watercolor by Mario Manfroni.

The revolutionary example of the QT8 / Monte Stella in 2002 was connected to the Portello park through a system of pedestrian walkways. The latter is part of the reconversion master plan in the former Alfa Romeo industrial area, which is one of the intervention programs for brownfield sites and urban redevelopment (PRU) planned by the Municipality of Milan in the 1990s. The intervention is emblematic of this particular historical moment and is part of the so-called 'brownfield' recovery interventions, characterized by reclamation, re-infrastructure and the reorganization of mobility and large urban functions, with the aim of limiting the land consumption. The designers were Valle, Canali and Zucchi, while the park was designed by Jencks and Kipar.[7] The concept of Monte Stella, in this case through the use of landfill from the excavations of the new district, is transformed into a landmark characterized by a very articulated morphology: a double elongated S and a large spiral with their grandeur become the figures protagonists, at the same time establishing a dialogue between them, with the park and with the city. The large movements of earth in this case are not only a perceptive visual element that relates to the urban landscape, but they perform a precise and very important task, in fact they become sound-absorbing barriers useful for shielding the noise of the surrounding fast-flowing roads and to accommodate the water basin, surrounded, as in an embrace, by a very long circular bench in a sheltered position due to the presence of the large embankment. The large green sculptures take on a symbolic meaning the hill of "Prehistory", which surrounds the lake. Its shape takes up the first great structure of the universe, the spirals of the galaxies and, finally, the theme of speed in memory of past activities. Going down from this hill you come to that of the "History", a crescent, which separates the "Time Garden" from the rest of the park. The most imposing hill, which looks towards the city center, is dedicated to the "Present", with a path that unravels on a double helix culminating in its highest point (22 meters). At the top is a fountain and a metal DNA sculpture, in homage to the theme of life. The "Time Garden" is the most intimate and protected space in the park with astronomical symbolisms on Earth, the rotation axis, the alternation of seasons, the days ……. Finally, a small *hortus conclusus* was designed within the urban park, a type of garden that refers to small medieval green spaces, such as in monasteries and convents, where plants for medicinal purposes were grown. The space was designed for Alzheimer's patients from the nearby Don Gnocchi hospital and rehabilitation center.[8] The plant species used and their arrangement are completely linked to the concept of the park: the shape of the foliage, the color of the bark, of the foliage, of the blooms underline the spaces in their multifunctionality and enhance their symbolic meaning. There are hedges of *Laurus nobilis* L, *Photinia × fraseri,* *Abelia × grandiflora* (Rovelli ex André) Rehder, *Buxus sempervirens* L., *Elaeagnus × submacrophylla* Servett., rows of *Cupressus* sp.pl., first dimension trees or thickets (the most used species: *Acer campestre* L., *Acer platanoides* L., *Carpinus betulus* L., *Liriodendron tulipifera* L., *Quercus robur* L., *Fagus sylvatica* L.).[6]

THE PUBLIC PARKS OF TODAY

Since 2000, the municipal urban planning policy has been oriented to intervene through major urban transformations, but at the same time to introduce the themes of sustainability, resilience, soft mobility. An example is Porta Nuova, because it is made up of various parts, it tackles different themes in an innovative way: re-cladding, the new skyscrapers with consumption '0' and with sustainable technologies (Palazzo Regione Lombardia), greenery in the city and prevalence of slow mobility, without, on the other hand, sacrificing the fast one. Today, for the most part, it is an urban metamorphosis of the three Milanese districts, Garibaldi-Repubblica, Varesine and Isola. In particular, the Garibaldi-Repubblica area, after the decommissioning of the railway yard around 1950, was for years a "non-place", without an identity due to the sense of abandonment transmitted, whose pedestrian

crossing alone was dangerous. The project has returned to the city a large usable area near the historic center, well served by roads, which identifies a new type of 'Green City'.

Figure 3. La Biblioteca degli Alberi: a new public park in the Porta Nuova urban area- Watercolor by Mario Manfroni.

The connecting element is the 9.5-hectare park, designed by Petra Blaisse of Inside Outside (first place in an international competition) with over 1500 trees, which functions as an urban connector, cultural campus and botanical garden.[9] The strong idea is that of the Biblioteca degli Alberi: a public park with a variety of Lombardy trees where you can meet, have fun and get educated. The extensive surface is covered by a network of linear paths, with precise hierarchies, which, crossing each other, generate geometric fields, circular forests, overcome the unevenness of the underlying infrastructural system, become acoustic barriers and bridge roads. Following the example of important interventions of the Anglo-Saxon tradition, including Central Park in New York, the high-level maintenance program for the park is guaranteed due to the presence of a prestigious building near the park and along its borders.[10]
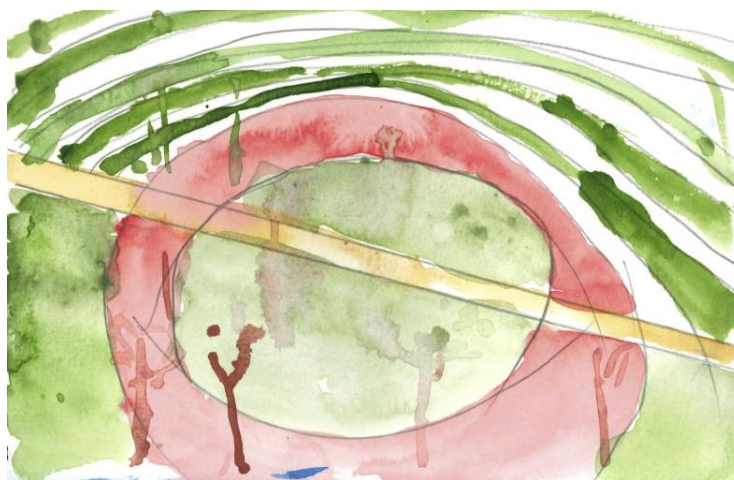

Figure 4. La Biblioteca degli Alberi: detail of a circular forest - Watercolor by Mario Manfroni.

The Wheatfield installation by Agnes Denes is very interesting and provocative. This was built on the occasion of Expo 2015, before the area was completed with the park, and consisted of a 5-hectare wheat field. In this urban transformation project there are three other interesting landscape interventions. The first is the new promenade designed by Kipar,[11] where the vertical lines of the adjacent skyscrapers are reflected in the geometries of the green spaces, underlined by the use of plant species arranged to form dense carpets with rigid geometric shapes or arranged as linear elements that become fluid for the movement created by the wind that passes through the leaves and spikes of grasses or the crowns of trees. The other is Piet Oudolf's garden, where the herbaceous and low shrub species, mixed with great attention to shape, colors, dimensions, create a space that inspires naturalness, emotions and different atmospheres in different seasons and hours of the day; a space, which however, has high management / maintenance costs.[12,13]

Figure 5. Il Bosco Verticale: scheme of a part of the green facade- Watercolor by Mario Manfroni.

Last but not least, it is the first Boeri Il Bosco Verticale, an international model exported worldwide. The presence of vegetation at the various levels of the skyscraper favors the presence of insects and birds. From a visual-perceptive point of view, the building appears green due to the plantations on the balconies. The arrangement and sequence of the greenery on the facade is designed so that the plants have the best possible exposure and create good radiation inside the houses. The biodiversity, albeit artificial, has been recreated with the use of over 100 species and the composition of 800 trees with a height ranging from 3 to 9 meters, 4500 shrubs and 15,000 ornamental plants.[14]

The first proposal for a slow city with the identification of nine parks connected by three avenues with landscape value is contemporary with the PRUs, from the end of the 20th century. In the same vein, in

2007 I Raggi Verdi project by Studio Land and the Metropolitan Interest Association (AIM) was presented, later promoted by the Municipality of Milan. I Raggi Verdi are the idea of a green belt made up of parks and avenues, which, starting from the city center, join radially to the peri-urban parks. Compared to Olmsted's project of the Emerald Necklace in Boston at the end of the nineteenth century, Milan intervenes within the consolidated city, trying to mend a green plot between pre-existing elements, instead in the American case the system of avenues and parks planned before development urban still works very well today, with no signs of aging.[4] In the Italian city, the new network of pedestrian and cycle paths enriches the urban area with greenery, improving movement in the city and the daily life of all citizens. I Raggi Verdi are intended as linear spaces shaded by trees, where it is possible to walk, laze, run, ride a bicycle enjoying the green already present and planned on the urban territory: a garden, a tree-lined square, a neighborhood park, a large park urban. The project initially envisages 8 Raggi Verdi with an average length between 7 and 12 linear kilometers: each Raggio, starting from the city center, reaches one of the large urban parks or the Milanese belt.

THE PUBLIC PARKS OF TOMORROW

The current and future guidelines are to create not only large parks, but also new avenues, small green spaces belonging to buildings or roads and technological green (such as vertical green and green roofs), which do not have a mere function aesthetic and social, but which perform a multiplicity of ecosystem services, such as the increase in biodiversity, the mitigation of climate change, the abatement of atmospheric pollutants, the storage and assimilation of carbon dioxide, the mitigation of soil erosion and surface runoff. Milan 2030 is moving towards a new urban ecology, with a multiplicity of projects (involving a multiplicity of governance actors, researchers, designers, associations and ordinary citizens - such as ForestaMI, Clever Cities), which are based on the key concepts of sustainability and multifunctionality, which take place through the adoption of Nature Based Solutions (such as drained trenches, rain gardens ..). These solutions have already been adopted in recently designed parks. An example is the Cascina Merlata Park (by AG&P greenscape) which extends behind the homonymous farmhouse restored on the occasion of EXPO 2015 and embraces the new district which is currently being completed and which will host about 12,000 inhabitants including civil dwellings, affiliated housing and social housing. The park, largely completed, has an area of 30 hectares, incorporates a pre-existing mixed plain forest and has about 10 km of cycle paths connecting not only with the nearby areas, but also through the 7th Raggio Verde with the Sempione Park. and the Castello Sforzesco in the city center.[6] The plant species chosen for the park are mainly Lombard autochthonous and their arrangement follows the spontaneous arrangements of the vegetation, creating highly resilient natural ecosystems. Even the water in the park is not a merely ornamental element, but performs functions of support for spontaneous flora and fauna and implementation of biodiversity; the hygrophilous species also perform a natural action of water phytoremediation and the system of canals and water mirrors help mitigate extreme rain events and make urban drainage more efficient. A park that combines socio-cultural functions with high ecological-environmental performance and low management and maintenance costs. Milan, the first in Italy and among the first in Europe, wants to demonstrate how quickly a green city with a low ecological impact can be created, where the built is closely linked to green spaces, allowing its citizens to work and live in sustainable spaces and ecologically performing.

NOTES

[1] Marc Augè, *Introduction,* in Calvenzi Giovanna, Maggia Filippo (by) *Gabriele Basilico. Metropoli.* (Milano: Skira, 2020)

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[3] Lucio Gambi, Maria Cristina Gozzoli. *Milano-Le città nella storia d'Italia.* (Milano: Laterza, 1982)

[4] Annalisa Maniglio Calcagno. *Architettura del paesaggio: evoluzione storica*. (Milano: Franco Angeli, 2006)

[5] Carlo Maria Marinoni. *Giardini a Milano.* (Milano: Mondadori, 2001)

[6] Carla Chelo. *Milano. Parchi & giardini.* (Touring Club Italiano, Milano: Touring, 2019)

[7] Francesca Bruni. *Ordinare la distanza. Abitare nella città cercando natura*. (Milano: Clean, 2016)

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[9] Margherita Lombardi. *Un parco a tutto colore*. (in Gardenia, n°414, ottobre 2018, pp. 56-63)

[10] Francesco Fariello. *Architettura dei giardini.* (Roma: Edizioni dell'Ateneo, 1967)

[11] Andreas Kipar, *Porta Nuova Promenade, Progetto di Andreas Kipar Land* (in Topscape n°17-2014, Paysage, pp.84-89)

[12] Claudia Zanfi (by). *Green Island. I giardini di Piet Oudolf*. (Bergamo: Carponove, 2018)

[13] Patrizia Burlando, Ilda Vagge. *The 'Green' as Element of Regional Identity*, in Pellegri Giulia (by) De_SignEnvironment Landscape City_2020. (Genova University Press, 2020, pp. 263-272)

[14] Stefano Boeri. *Un bosco verticale. Libretto di istruzioni per il prototipo di una città foresta.* (Milano: Corraini, 2015)

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