

Stefano Boeri Architetti

Green Obsession : Trees towards Cities Humans towards Forests

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Questions, an introduction

Stefano Boeri

How can one create the best habitat for trees growing into the sky of a city?
How can one direct the roots of an oak or linden tree to extend horizontally, instead of vertically?
What is the best chemical composition and correct weight of soil that should be put into the pot of a balcony situated one hundred meters high?
How many ladybirds need to be spread into the pots in order to combat the pests that infest plants when these are on the facade of a tower?
How do trees react to the wind?
How can we anchor the trunk of a maple tree to the facade of a tower in order to prevent it from cracking?
For how many years should the growth of a small tree in a field be followed?
How many specimens per hectare are needed in order to create a fir forest? Similarly, how many different species of trees are required to create a forest of biodiversity?
Moreover, how many tons of fine dust particles can a 10-meter-high tree absorb in a year?
How many degrees of heat reduction can be achieved by a tree and its leaves on horizontal or vertical surfaces?
How can one aid the growth of deciduous trees on north-facing facades that are less exposed to the sun, while at the same time avoiding the leaves from filtering out the dim light from the interiors in winter months?
What is the advantage in terms of strengthening the immune response that comes from living in a neighbourhood with a widespread presence of trees and plants?

How much CO₂ can a mature tree transform into oxygen over the course of its ten years of life?
What is the advantage of connecting the poles of biodiversity (gardens, parks, green roofs, tree-lined avenues, green facades etc...) through the use of green corridors, and how can this be achieved in an urban environment?
What is an urban forest, really?
And above all, how does a pine tree that grows along a cliff live, and what does it perceive of its environment?
Is it different from what a fellow pine tree growing along the concrete facade of a building perceives?
Why is it that the leaves of two trees of the same family, if placed side by side, come to almost touch each other?
What do plants feel when they live in daily contact with insects, birds and small rodents?
What do plants feel when they live in daily contact with humans?
What intelligence flows within the monopodial or sympodial ramifications of a juniper?
What is the measure of time for an oak tree?
At via Donizetti 4 in Milan, Headquarter of Stefano Boeri Architetti, we have been dealing with botany for at least twenty years.
We are an architectural firm that deals with botany. Most of all, we are interested in the environmental performance of plants; we study their attitudes and preferences and we have come to learn about their climatic compatibility.
We have an obsession: that of creating buildings for trees, which can also be inhabited by humans and even birds. We are also obsessed with designing Forest Cities; cities where plants and nature have no less of a presence than humans, and where both create a habitat in which mineral surfaces are reduced to the minimum amount needed for life. We have the obsession of creating large planetary corridors for biodiversity, which would be able to connect parks, natural oases and forests within large territorial systems. Finally, we are obsessed with creating Forest Cities, or green cities, that are transformed into points of connection by generating corridors of biodiversity.

It is said that obsessions arise by chance. This, however, is not the case. Obsessions arise from other obsessions. James Lovelock had the intuition of Gaia while trying, as an astrophysicist, to figure out how to reach Mars. While projecting all of his intellectual strength in identifying the most suitable ways to reach the red planet, Lovelock tells of how he suddenly turned his gaze towards planet Earth, which was, conceptually, millions of kilometres away from him. All at once he was able to conceive its completeness, the living and pulsating nature of its biodiversity, conversely so absent in the part of universe that we know.

The same thing happened to us when, while thinking about the future of cities and the need to create tall buildings rich in quality and functions, we began to imagine what would happen if we planted a large tree on the roof or a balcony of a residential tower, or perhaps even an office building or a museum.

From then on, everything changed.

Trees and plants went from being decorative objects that embellish our architecture to thinking, autonomous and noble subjects, endowed with their unmistakable individuality as well as their own peculiar life trajectory.

Our obsession with greenery is not just a stubborn desire to create greener architectures. It is, rather, the stubborn search for a different point of view in architecture.

It is the idea of an architecture of biodiversity which supports a variety of living species, not just the human one.

It is the firm belief that biodiversity is not simply a matrix for measuring the density of living species in a place, nor is it just an important resource for strengthening our immune defences.

The biodiversity that we practice in via Donizetti, as well as in our offices in Shanghai and Tirana, is an exercise and at the same time a game. It is the game of putting ourselves in the perspective of trees, maples, beech trees - but also of foxes, crows and hedgehogs - while thinking about the urban world from their point of view.

This book, with its several voices, wants to give an account of this slightly crazy but hopefully, overall, fertile obsession.

A preface

Maria Chiara Pastore

This is a book about a green obsession with the ambitious goal of telling the story of the evolution of the professional and research work of the Stefano Boeri Architetti (SBA) studio.

It is a reconstruction that traces the history of the firm's projects, their inspirations and the personal, cultural and economic networks that underlie these projects.

But that's not all: the history of SBA's green obsession is borne witness to here by the authoritative voices of several of the many professionals, researchers, thinkers and institutional representatives who in recent years have discussed, designed, created events, organized and curated conferences and research while working with or together with this professional firm. Among these is Mario Piazza was responsible for the graphic concept of this book and who was a constant presence in many of Stefano Boeri's projects.

The book is laid out in five chapters, each of which presents a collection of themes and projects and which offers different areas for reading. There is that of the projects, that of the interviews with the leading personalities involved in the relationships that the studio has had over the years, that of the texts that Stefano Boeri has written over the years regarding the complex relationship between Nature and Architecture. Then there is that of the images and the data, which alternate and are presented throughout the pages by the narrator of the Stefano Boeri Architetti research group, which brings the materials and occasions handled by the Architecture Studio back to the central theme of biodiversity, looking at different working scales and considering for example the different geographical contexts, policies and future challenges, to name but a few.

Biodiversity has been defined as a concept which covers "all types of variability among living organisms, including among others, terrestrial, marine and other aquatic ecosystems and the ecological complexes of

which they are part; between species and ecosystems” (Treccani, 2021), onto which the concepts of coexistence, balance and evolution have been grafted.

Following the development of a series of projects and concepts relating to the theme of Biodiversity, the book highlights the obstinate and undeniably obsessive quest for new goals and new applicative opportunities for the studio.

This is the case with the evolution of the Vertical Forest project (which today sees the Studio active in many different parts of the world), where the choice of thinking about the Milan prototype not as a point of arrival, but rather the starting point for a series of subsequent experiments has opened up the possibility of making this type of building accessible to a wider user base (with social housing Vertical Forests built in Eindhoven in the Netherlands and in Huanggang in China) as well as the use of wood as a structural material in order to minimize production of CO₂ in the construction process, as in the case of the Botanica tower designed for the Porta Nuova area in Milan, or as the central point of a series of modular buildings designed for post-Earthquake reconstruction in Amatrice.

But the same obsession emerges in the recurring attention dedicated to the issue of cohabitation between living species within the urban environment. This started from a text by Stefano Boeri from 2008 entitled *Down from the Stand: Arguments in favour of Non-Anthropocentric Urban Ethics* (in “Abitare”, 480, 2008) which came out of the vision shared with Andrea Branzi of a Paris transformed into a great metropolis of coexisting species and which then re-emerged during the courses at the Politecnico di Milano dedicated to cohabitation (*Animal City*, 2015) forcefully re-appearing in the recent project for a Grand Genève which has at its core not a square or a monument but a mountain with all its multiform biodiversity.

Then again, in interweaving these threads of intellectual inspiration and personal relationships, the book offers a dialogue between Pier Mannuccio Mannucci, professor of internal medicine, and Laura Gatti, agronomist and landscape designer, on the relationship between health and the environment, as well as linking these texts to the continuous work carried out over the years, first by the Boeri Studio and then by SBA on urban Urban Forestry and in particular on green connections in greater Milan, starting from the Metrobosco project which in 2005 launched the idea of an orbital forest in the metropolitan city of Milan. This thread continued with the project for a planetary garden for EXPO 2015, the Fiume Verde project in 2014 which proposed the re-using of disused railway stations

as new areas to host nature within the dense Milan built sector, up to the great challenge of Forestami, the project currently underway in the metropolitan city of Milan for the improvement of environmental quality, health, and greenery.

The book also explains the studio’s attitude to transdisciplinary working, constantly seeking partnerships and dialogue with researchers, thinkers and philosophers, politicians, activists, scientists, academics and artists such as Enrico Alleva, Emanuele Coccia, Fredi Devas, Laura Gatti, Jane Goodall, Paul Hawken, Cecil Konijnendijk, Davi Kopenawa Yanomami, Pier Mannuccio Mannucci, David Miller, Harini Nagendra, Thomas B. Randrup, Giuseppe Sala, Mitchell Silver, Giorgio Vacchiano, and Li Xiangning.

These places, people, projects and visions which are all connected by a healthy obsession for biodiversity and the connectivity of natural landscapes came together in 2018 in the collaboration between the FAO, SIS-EEF, Politecnico di Milano and Stefano Boeri Architetti for the setting-up of the first World Forum on Urban Forests, considered to be of highly significant. The Forum was in fact a crossroads of relationships and an exchange of experiences from different backgrounds and design experiences, such as that of Richard Weller of *World Park*, who imagines the connection of the Americas with a Biodiversity Corridor, but also of new suggestions for the work of the SBA.

Many of these inspirations have produced genuine Manifestos, as in the case of the first example of the Vertical Forest (2008) or that of Botanica, a new prototype of Vertical Forest as a catalyst of urban intensity and biodiversity in Milan; or the Manifesto for a Forest City, presented in 2021 at the Power Station of Art in Shanghai as part of an exhibition (*Trees*) promoted by the *Fondation Cartier pour l’art contemporaine*.

It is the very form of the Manifesto, recurrent and at the same time ambitious that perhaps best reflects the fertile green obsession that has distinguished SBA’s thinking, research and work over the last 20 years.

