PREFACE

The characteristics of the environment where human beings live are deeply changed from the origin until nowadays.

This process has been largely determined by the actions of man himself, incessantly in search of an optimal solution for his survival and expansion, and it has been possible thanks to the human ability to affect the habitat and to vary its conditions.

On the other hand, the environment responded to the human intervention, with natural dynamics that are not always predictable and controllable.

In this game of action and reaction between man and environment, new artificial realities were born, like cities, which are increasingly identified as the best choice places where to live, although completely different from spontaneous and natural settings. Apparently, the success of cities indicates that they are a winning formula with respect to the complexity of human needs.

Among the many contributors to this phenomenon, there were the availability of jobs after the agricultural revolution, the possibility to take advantage of new energy resources and food, the development of technologies, infrastructure and transport, the scientific and medical progress; at the same time, all these factors have supported a massive population increase.

However, in my opinion, in packaging the ideal place where to live, some ingredients have not been sufficiently taken into consideration: among these, the vital dialogue between; man and natural scenarios.

From this assumption, I think that one of the major limits of contemporary cities is the little consideration given to our evolutionary history. A fundamental component to our happiness has been overlooked: the importance in the daily life of corners of Nature, of 'pocket landscapes' populated by plants, which may link us to our origins and to our evolutionary path.

Gardens, terraces, balconies, flowerbeds, patios, courtyards, parks: no matters how you call them or what they exactly are. The important thing is that they represent a bridge towards a world full of extraordinary aspects, beauties and opportunities, from which we come and to which we inextricably belong to: the one of Nature.

However, contemporary cities often grant to natural settings only residual spaces, scattered, if not atomized, in the density of buildings growing mostly vertically, since the horizontal dimension has been already saturated.

In any case, I believe that the desire to reconnect to Nature, although a tamed one, remains a vital necessity for modern men: hence, the growing trend of moving green spaces at a height, allowing people to transfer and keep natural sceneries with them.

Small gardens and terraces translate this important need and interpret a typical request of people spending most of their time in cities. These 'micro-landscapes' bring fragments of Nature into everyday life of urban people.

When I create greenery in the heart of buildings, my intent is to combine functional needs, beauty and Nature, which results in usable, welcoming and harmonious environments, where plants surround people without overpowering them. In these frameworks, situations that belong to everyday life occur, such as eating, relaxing, and chatting with friends.

As a biologist, before moving to garden and landscape design, I've spent a long time in the neurobiology research field; this past experience greatly influenced my current approach.

In fact, in all my projects I try to take into account what has been found regarding our perception of green sceneries in relation to the human physiology.

Keeping in mind the elements of natural settings, capable of giving aesthetic and mental happiness, is important when creating a new project: the trend of lines, the balance between full and empty spaces, the color and texture mixes are all ingredients that may please our perception and give a rewarding feeling. Therefore, re-using them in a conscious way, even declined in different forms, is a successful strategy.

I think that a good way to create high-quality landscape and garden designs is to listen, recognize and analyze the feelings arising while watching natural habitats, in order to identify their dynamics and to try to effectively reproduce the resulting positive sensations.

To this regard, there are some aspects that particularly thrill me: the human visual response to the green and the sense of harmony generated by certain proportions or specific color combinations.

The green color is notoriously associated with a state of calm.

This ability is so much so that recently it has been re-evaluated as an important contribution to therapeutic protocols, healing processes and in the control of pathological conditions, especially the neurological ones. The growing diffusion of 'healing gardens' as a support for hospital practices, the increasing relevance of some oriental habits like the 'forest bathing' (Shinrin-Yoku in Japan), or the widespread use of green in chromotherapy are just a few relevant examples.

Human evolution

But why green provides a feeling of well-being?

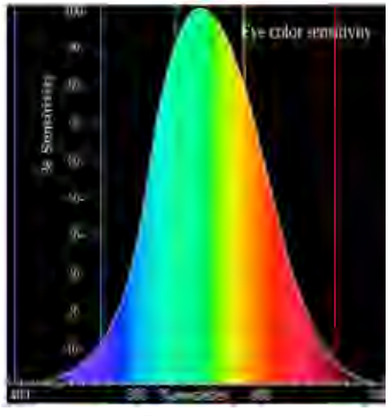
I think that the main reason is that green, between all visible colors, is the one we optimally perceive.

It's the wavelength that our brain better integrates as a chromatic information, thanks to some very effective nerve cells in the eyes, developed during our evolution.

Chlorophyll, the key pigment in the photosynthesis process, provides to vegetation a typical green: it is the most represented nature color in which humans evolved. For thousands of years our ancestors not only lived, but also had to adapt to the forest.

A good vision within this context represented not an option but a necessity, in order to be able to prey, without becoming a prey.

Thus, as a matter of survival, it is no accident that our eye developed a visual peak inside green, and that it is able to perceive even the slightest nuances of this color.



Eye color sensitivity

In fact human photoreceptors, and especially cones, specialized cells inside the eye retina, reveal their maximal performances exactly within the luminous wavelength correspondent to green.

This physiological, highly perfected, perceptual ability results into ease for our brain to process information coming from outside, related to this color. In short, our brain has little difficulty making us aware of all green shades in the environment surrounding us.

The lower the brain's work to inform us, the lower its energy consumption; therefore the greater the advantage, which is transmitted and translated by our mind in well-being.

Brain energy saving

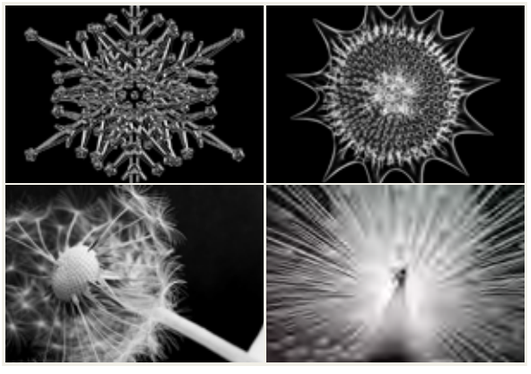
In fact, for simple reasons of energy saving, I think that our brain is structured in such a way that the less effort it makes to interpret a given situation, in which no element of danger is recognized, the more it associates that setting to an advantage, generating pleasant responses: hence the feeling of calm and wellness linked to the green color.

I believe that a similar mechanism applies also in the case of visual recognition of widespread and highly represented proportions in Nature.

Symmetry

In fact, some proportions are recurrent since the origin of times, I guess because they guarantee both a structural and a functional success; among these, the so called 'golden ratio' is probably the best known. It is also closely linked to other mathematical relationships widely present, such as those formalized by the Fibonacci sequence or by the symmetry rules, just to mention two common examples.

In many cases, the link between these proportions and their effectiveness in Nature appears clear: as an example, phyllotaxis, reflecting the Fibonacci series, represents one of the most efficient way for plants to distribute their leaves on stems in order to catch the maximal sun ray irradiation, avoiding the shadows that each leave projects on the lower one.



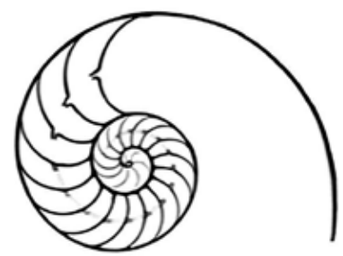
Ice crystal, foraminifer, seeding dandelion, peacock's tail

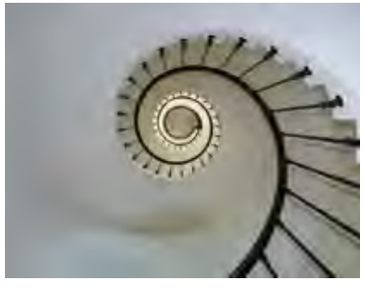
In the natural world, some spatial proportions have proved to be particularly successful during evolution, both in the inanimate world, as in atoms, molecules or crystals, and in the living world, as in viruses, bacteria, algae, plants and, finally, invertebrate and vertebrate animals.

Referring to mankind, the geometric and mathematical language of the human brain has played a pivotal role during evolution, ensuring the ability to successfully interpret the characteristics of the surrounding space, external to us.

It is as if certain proportions are able to activate in our brain a positive reaction, giving rise to a pleasant and gratifying aesthetic sensation.

Indeed, many mathematical formalizations, like the 'golden ratio', are strictly linked to the concept of beauty and to the good vibrations they can generate, called harmonies.





Nautilus section and a staircase from below

I think that the more a proportion is recognized by our eyes and the more easily it is processed by our brain, the more it is associated to a feeling of pleasure and to the concepts of beauty and harmony, probably according to physiological dynamics similar to those triggered by green color, which presume energy saving in brain functioning.

The same reasoning applies for specific color combinations.

Our vision, able to capture colors, has evolved for the need to survive in a natural habitat, and not for aesthetic enjoyment; this is a consequence, not the cause.

Ancestral experiences have established specific relationships between certain colors and objects or situations. These relationships are evoked thanks to the ability of colors to arouse emotions. The colors therefore are not simple physiological sensations, but are the result of elaborate connections between the senses and the brain. Within our habitat, they play an essential role for an effective dialogue between emotions and reasoning, between feelings and intellect.

For example, the yellow and black bands of a wasp body are perceived as a contrast of colors, but more significantly they arouse a pre-alarm reaction in us, which takes the form of escape or immobility.

The ability of light and colors to condition mood and actions can be used to our advantage within the environments where we live. Furthermore, colors can induce pleasant feelings when their combination is rewarding; in this case we call them chromatic harmonies.

I find it significant and fascinating that also for colors, similarly to proportions, some relationships have been identified, which are able to guarantee a positive vibration of our perceptive system, when they follow specific geometric-mathematical rules.

Harmonic plant composition at Parco delle Erbe Danzanti: project by Cristina Mazzucchelli

As a consequence of the ability of colors to touch and modify the man soul, the painter Vasili Kandinskij compared them to music notes, capable of creating melodies with different psychological effects.

In summary, when I design and create ‘pocket landscapes’, I try to bring fragments of the natural world inside human beings. They are not simple plant clusters generating green spots; rather, they are scenarios populated by plants, able not only to awake a feeling of fascination and of belonging to Nature, but also to give a rest and a recharge to the focused attention, required in most human productive activities.

Thus, I believe that understanding the mechanisms underlying the human physiology of perception and wellbeing, may help to project green spaces, even the smallest ones, able either to fulfill our senses, to create wellness and to increase our biophilia.

Turning back to my way of working, when I approach a new project, the first step in orienting my choices is to visit the space where I’m asked to create a natural scenario.

I let this new environment ‘speak to me’, albeit with a silent language: I explore it, both with my eyes and with my body, in order to feel and perceive its characteristics, trying to identify both the strong and the weak points.

Shortly, I try to catch the ‘genius loci’, the spirit of the place.

Everyone can identify different peculiar elements. To me, however, what makes the difference are some aspects typical of a sensitivity capable of dialoguing with the natural world.

I believe that letting oneself be led by the sensations spontaneously emerging from one’s own interiority has a key role: identifying these feelings, welcoming them and translating them into reality, are all fundamental ingredients for creating a green scenario capable to transmit positive emotions, which can be perceived and shared in a widespread and generalized way.

It is Nature itself that takes you by the hand and accompanies you; just let yourself be led, listening to it.

After this first phase, my imagination allocates a place to all the functional environments requested by the clients or, in the absence of indications, to the most commonly desirable ones: from the dining to the living area, from the meditation corner to that for contemplating stars or for growing vegetables, according to taste.

Often while defining the role of spaces, dimensionally limited, the fantasy of my clients is unleashed, as if they could translate into reality all the heavenly scenarios to which their mind yearns.

Instead it is important to correctly tune full and empty spaces, areas with a specific destination and those with no defined role, those in which the eyes move exploring and those in which they rest.

Normally the final project layout is not only in agreement with the client requests, but it is also respectful of volumes, proportions and color balancing. These elements must cooperate to create a harmonic picture which satisfies my eyes, like in a painting. This way of proceeding normally ensures an effective result also when the project becomes reality.

My plant choices are initially dictated by the rhythm that I want to give to the space; discriminating elements are the final dimensions of the plant, its shape, structure and other macroscopic attributes. Only at the end I give a specific name and identity to plants, which I like to choose personally in nurseries for their peculiarities.

In any case, the golden rule is to use ‘the right plant for the right place’, respecting and satisfying its own characteristics.

In particular, it is important to know the geographical origin of a plant, and the habitat to which it has adapted during its evolutionary history. Recreating as much as possible those conditions ensures its best growth and long-lasting results.

As an example, a plant living mainly under direct sunrays in its original environment, developed different biological strategies that allow it to thrive in very bright places; however, it would die in a shady corner, because unprepared to face this situation from a physiological point of view.

Sun and shadow plants: a sunflower and a fern

Therefore, to create healthy and durable pocket landscapes, it is important to know the characteristics both of the selected plants and of the hosting place; aesthetic and emotional criteria only wouldn’t help to make the right choices.

In summary, both while designing the layout of a green space and while choosing plants for it, I believe that the best strategy to obtain good result is to listen to what Nature suggests and teaches us. This might occur both by paying attention to our emotions while experiencing a space, and by increasing our knowledge of the mechanisms and rules that govern human and plant physiology.

The projects presented in this book embody my desire to create livable environments full of harmony, to be enjoyed and contemplated in everyday life, that relight the pleasure of reconnecting to a natural Eden, which sometimes doesn’t seem to interest us anymore, but which I think is still a primary requirement to our happiness.

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