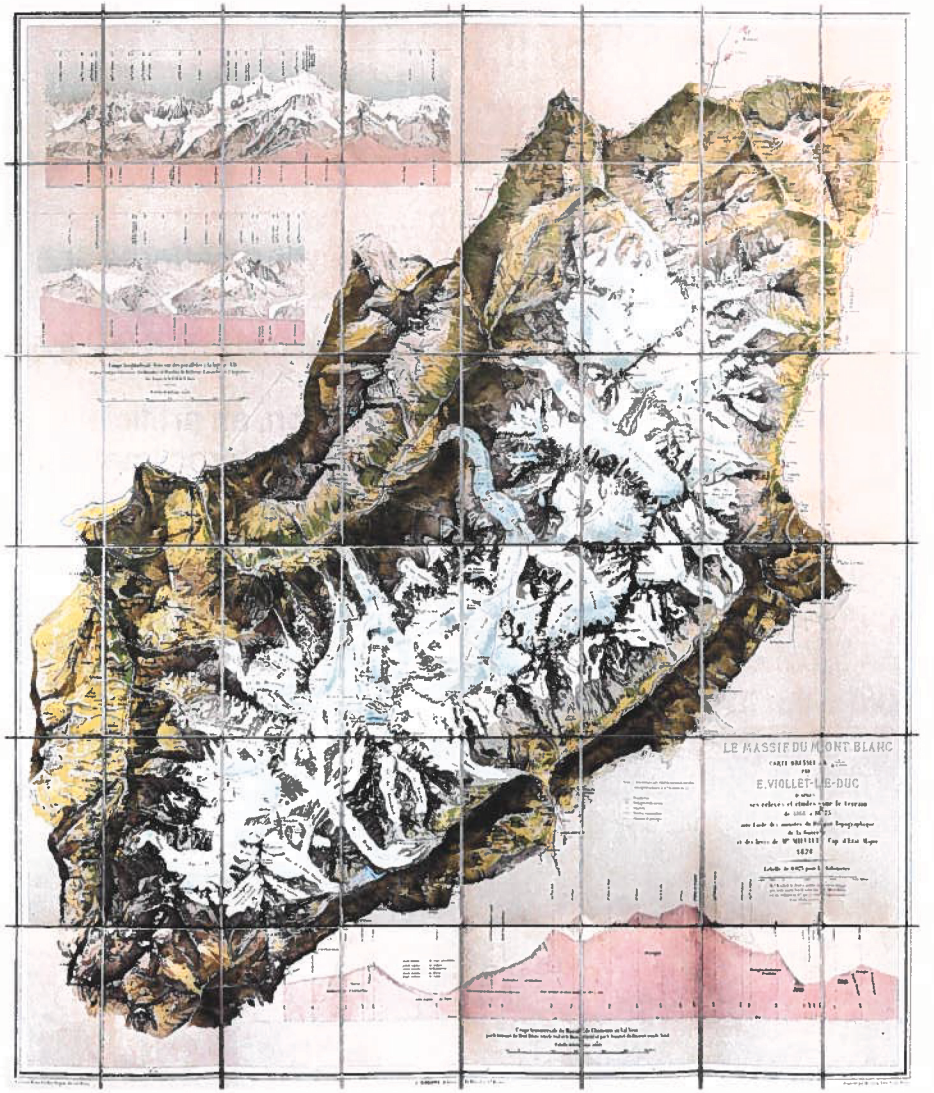
# Topography as the Starting Ground

Everything starts with topography. From water runoff to accessibility for all, topography has a major impact on any landscape project. But it should not only be a constraint, it should also become an opportunity. Topography has the power to transform a site. Whereas in nature it is the result of decades of weathering and erosion, in design topography can become the means to create a new landscape. Topography decides where water accumulates, where people prefer to walk and where plants choose to grow.

Topography is about preparing the ground for future life to develop. It surpasses simple, local inclinations as it always is part of a greater geographical entity – part of a valley or part of a mountain. Where architects look for a perfect horizontality to organise the functions required of their buildings, landscape architects should be looking for the ideal undulations to help living communities to thrive. Remember, even the horizon is curved.




"Le Massif du Mont Blanc", Eugène-Emmanuel Viollet-Le-Duc, 1868–1879
Viollet-Le-Duc is best known for his restorations of France's most prominent churches, among them the Notre-Dame in Paris. He also was a passionate explorer and had studied the Mont Blanc massif for more than a decade. This detailed map is the culmination of a "study of its geodesic and geological construction, of its transformations, and of the… state of its glaciers". For Viollet-Le-Duc there was no essential difference between constructions made by humans and mountains made by nature. Both can be understood and restored if so required.

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# Understanding Climatic Conditions

The urban context we work in has to be understood as an artificial climate. Buildings change wind patterns and have a direct influence on sun and shading. Roads and pavements interfere with water infiltration and absorb sunrays, resulting in "heat islands".

The built environment is, by definition, an artificial one. As a result, a city consists of a myriad of microclimatic moments. It is important to understand the climatic condition of a specific site, as it may differ from one street to another. Climate thus becomes a way of designing. Which plants to introduce in this microclimate? Where to position a bench to capture a sunray at noon? How to block the cold wind in winter while still allowing a refreshing breeze in summer? It is important to acknowledge the fact that climate is both a global and a local condition. Both scales should be addressed simultaneously in each project.



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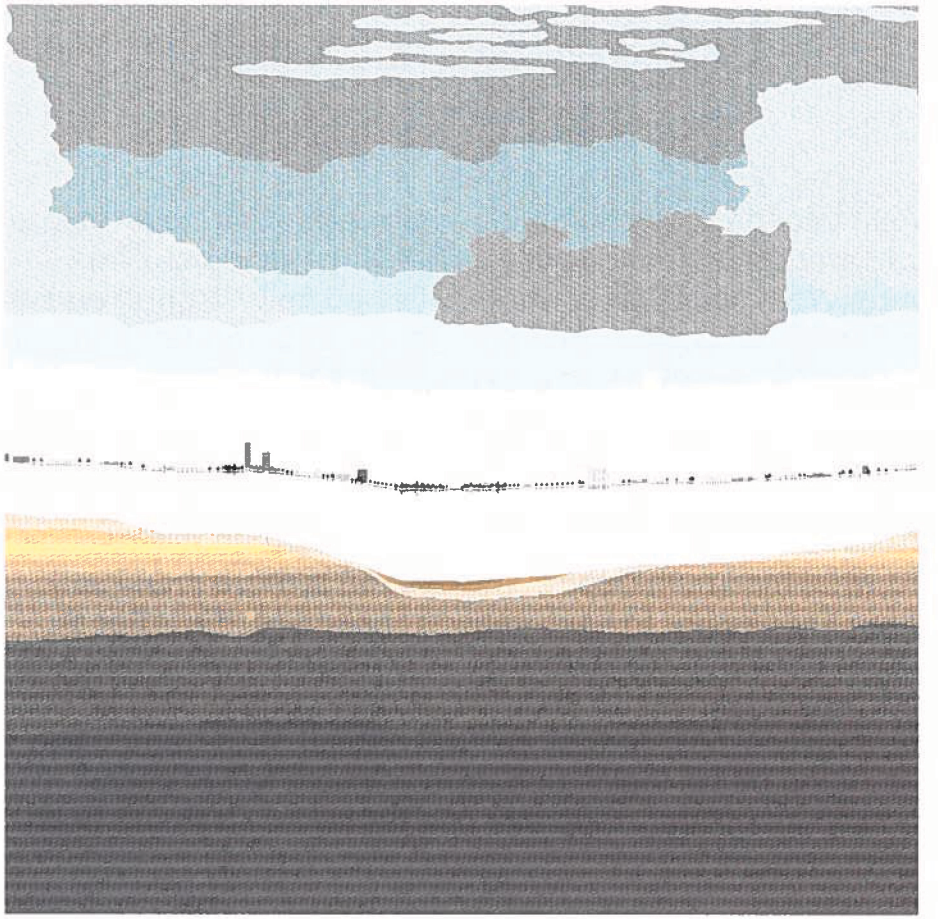
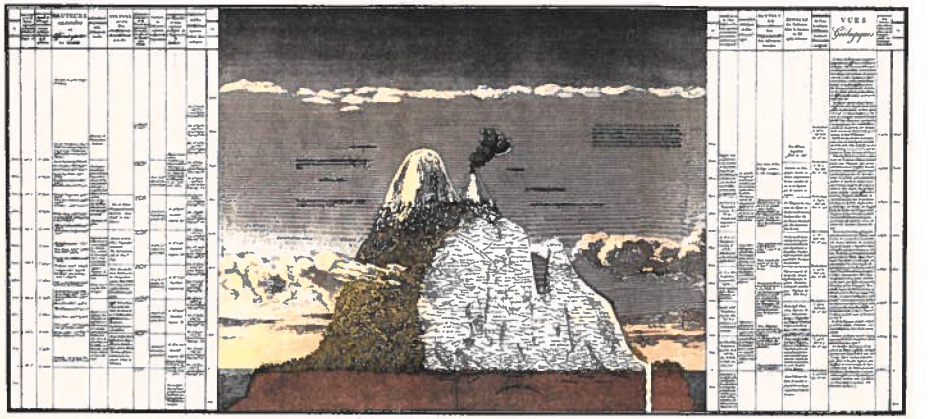


Biospheric Urbanism,
Bureau Bas Smets, 2018
Within the expanse of the atmosphere, humankind occupies a thin layer of only several hundred metres of the Earth's crust. However, this inhabited layer often creates an impermeable barrier between the air above and the ground below.

A better understanding of geology will indicate where and how to infiltrate water, while a better understanding of the climate will allow us to use rainwater, wind and solar heat as assets. This sectional rendering explores a "biospheric urbanism" wherein man-made space becomes the interface between meteorological effects and geological reality.

# Using the Logics of Nature

A landscape project should never merely imitate an image of nature but should always work with the logics of nature. What plants grow where, why and how? A good understanding of climatic conditions is essential for designing a landscape. Similar climatic conditions in a natural situation should be examined in order for nature to become a source of inspiration – not for what it looks like, but for what is possible in terms of plant growth. This research should focus on root development: how much volume is needed, to what minimum depth? The section is more important than the plan as, in landscape architecture, the latter is often the result of the former. This research will allow us to introduce plants into an artificial environment that is strangely similar to their natural habitat. A better understanding of the logics of nature will help to conceive a new urban landscape that can better adapt to our built environment.




"Géographie des Plantes Équinoxiales", Alexander von Humboldt, 1805
During his extensive travels to the Americas in the early 19th century Alexander von Humboldt tried to describe everything he encountered. He wanted to understand how nature works as a whole, and sought to combine diverse fields of knowledge into one interconnected entity. This famous section through the Chimborazo Volcano shows all measures taken at different elevations: plant communities, soil cultivation, animal life, air pressure, humidity, temperature and even the blueness of the sky. Considering all these observations simultaneously, Humboldt had an extraordinary capability to extrapolate them into general principles.

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# Accelerating Ecological Succession

The natural ecological succession of vegetation in a certain area reaches a relative stable state over time. In this process one vegetation community is replaced by another, in a process known as succession, until the climax community is established.

This natural process can be used to bring vegetation back to an abandoned site. Through an intelligent choice of plants, the force driving the ecological succession can be accelerated. Plants from successive communities are planted at the same time in order for one to push the others to grow more quickly. This acceleration can help to rewild an area that has been cleared. Instead of planting mature trees, tapping into the process of succession uses the force of nature to transform a site. This gradual transformation creates a much more resilient vegetation community over time. Instead of imagining the end state of a project, the process by which to reach it becomes the main focus of the design.


Parc des Ateliers, Soil Depth, Arles
Bureau Bas Smets, 2018
The recolonisation by plants of an abandoned industrial site in Arles is conceived as an accelerated process of plant succession. Dunes of fertile soil are installed on its concrete platform, as if they had been blown there over time by prevailing winds.

This diagrammatic section shows how the depth of the soil defines the plant type. Starting with the pioneer plants on the shallowest soil, each increase in soil depth corresponds with a successive plant community.

The movement through space along the dune thus becomes a movement through time, radically transforming the space/time notion.



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# Urbanism of the Underground

Most cities have been built close to available fertile ground. Over time their expansion has impermeabilised these fields with roads and buildings. Gradually "the underground" has been filled up with services, from sewers to gas, electricity and subway tunnels. This has usually been done without a general plan or idea.

Today it is impossible to obtain a clear view of what lies underneath pavements and plazas. There is an urgent need for a precise cartography of the underground. Based on this mapping an "Urbanism of the Underground" can be developed. This will allow us to understand better where space can be found to provide fertile soil in which trees can grow. The opening around the trunks will allow rainwater to infiltrate below. Runoff is thus stored where it falls, right beneath the pavement. It is reinjected into the air through the transpiration of the trees, lowering the air temperature in the process.

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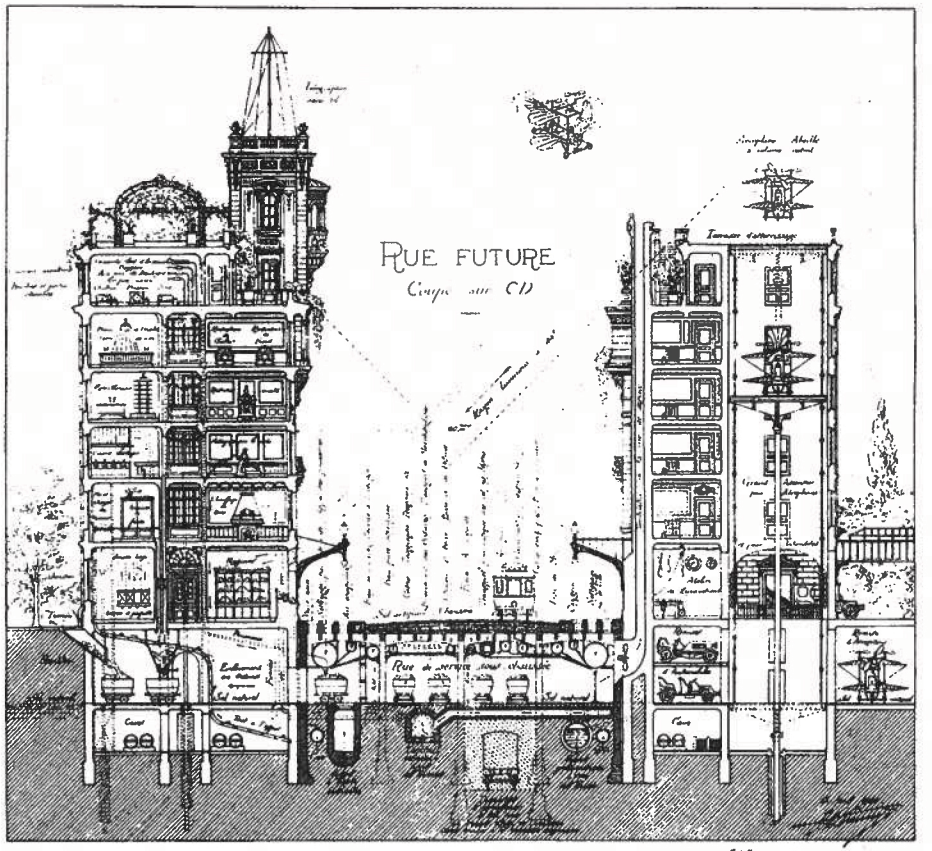


Cities of the Future,
Eugène Hénard, 1910
A century ago, Eugène Hénard was already complaining about the lack of organisation of below-ground services: "All these pipes and tubes are located above or beside one another without order or method. When they have to be repaired, each system ... has to be dealt with separately, without any co-operative plan, and as occasion arises."

In his well-known sectional rendering of the future street, Hénard argued it should be designed as a multi-layered construction, like the adjacent buildings. To this day his "coupe" still shows the urgency of reinventing the street.