Leonardo da Vinci

Explore

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Functional City

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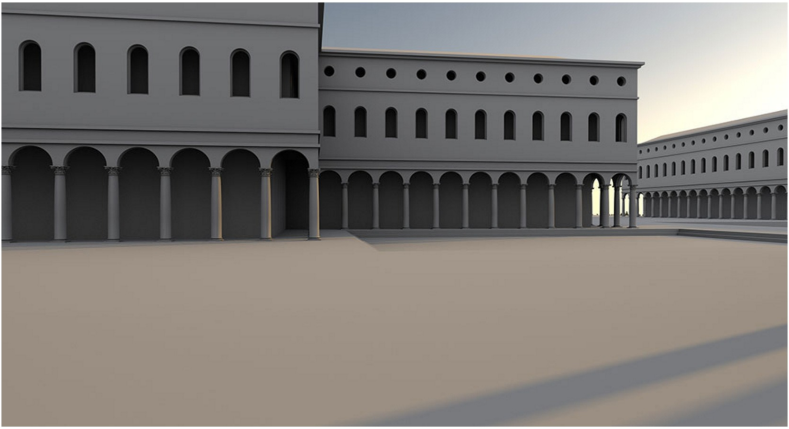
His concept for a city, says Vercelloni, is not the city of just an imaginary future, but of a future that really could happen: in one word, the true ideal city, as he says. Opposed to the majority of conceptions for ideal cities in that epoch – and that epoch was rich in such conceptions, probably more than any other one before a 19th century to come – it is a city concept that really could work, in very practical terms. In comparison to the mostly visionary approaches of his contemporaries, so Vercelloni, Leonardo's sketches (despite being sketches only) are masterpieces in city planning, an "urban abstraction of the city", presented by a regular grid. And out of this, it is concretely imaginable in its structure, one that may change a city's economics and way of life, and to do so entirely.

This clearly was the case when we look into the future, at the worlds of Tony Garnier or Motopia, because it is the general principle applied that proved to be of future relevance, not the respective cities' concrete shape. If the Gothic cathedral was an already 'modern' construction in terms of methods applied and use of concepts based on formats, then Leonardo's plan refines these traits. His city, so Vercelloni, is a real city, one perfected through inventiveness, technique, and art. When we look at his ideal city, it is not so much about its concrete topic, in his case to embody a water city, a city where canals play a central role, an urban organism depending, in its very functioning, on the use and proper distribution of water. It is rather about the consequent functional logic of how this city is structured as such. How it is organized at all as a system in consequent, and completely functional terms. Therefore we called his concept not a "water" city but a functional city. In these regards, it is a truly modern city; although it has been planned at the end of 15th century, long before modern functional cities appeared. With their gridded orders and sober zoning, driven by a mind-set to transform the world, at least that part of it conceived to be of relevance, into an object of functional purposes. In prolongation of a Christian view of the world, a mind-set equivalent to the mythical aim of dominating the world: to dominate it completely, and in modern functional terms solely.

The Context

The cathedral still is a world of the symbolical; Leonardo's world is one of the real; which, of course, has its own symbolic then, first and foremost if conceptualized in such a consequent (and also rigid) way as Leonardo and the later functional city did it. In fact, and exemplified in the case of Leonardo as one of the early forerunners, it is not about a water city. It is about a world as a function. In this function, all the elements which are thought of making up, in their combination, a world of relevance become ordered accordingly: as an expression of merely functional purposes, like in a machine. A figure to reappear when other worlds are looked at; or, more general, a figure to order real life belongings (e.g., those of a city) in such a way that they become the expression of a technical system. Ars and techne, art and technique belong together, and the art of making such a system consists in making it as functional as ever possible, and to do so as completely as ever possible.

In terms of world-view (also understood in a very literal sense), one can focus the whole venture outlined here. What had started with the Renaissance paintings of ideal spaces, e.g. those well-known and beautiful city prospects in the Palazzo Ducale in Urbino, namely to design an abstract space on the base of a so-called linear – that is, centralized – perspective depending on the individual view, as Panofsky says, now can get enlarged in its intentional scope: As in case of da Vinci’s city, it can become a blueprint for a real world, and not only for a world of imagination. Abstraction, Summers states in his Real Spaces, is not only the (passive) process of comprehension, of condensing something real existing into a concept, but also an (active) process of posing the condensed – the abstract plan, the blueprint of how the relevant things are ought to be – onto the real, as on a plane. A space is produced, not merely conceived. And it is an abstract space, a space of an intended consistency and (finally) homogeneity. Of course, one could say, the cathedral is an abstract space as well; which it is, but – and here is the difference – not as a concrete space of living. One could stay in a cathedral, but not constantly live there. This is what the Renaissance paintings with their prospects of ideal cities first are imagining: abstract living spaces that could look like those depicted, virtual spaces of the concrete, so to say; and what Leonardo then proposes for a real world: how such a space really could look like.



Abstract space, Lefebvre says in his Production of Space, is not homogenous; it is made homogenous. It is a space as an imagined, 'ideal' one how a real space shall look like, it is not the real space of a real world in all its variety and 'chaotic' diversity. It is a true ideal space, in terms of conception, as well as an ideal to achieve: in reality, then, from Leonardo to later functional modern cities. It is a world as a system, centrally ordered, and it is the world of an essentially technical system; in case of Leonardo, not only due to the use of the linear perspective, but due to the will of creating a functional cosmos, a frame of life for a new human condition – as for instance expressed in his "water" city.

One has to understand this in order to understand the world he sketches, as well as all the other worlds to come, with the exception of the favela. And it is a system of reflection, in both a directly technical and a symbolic meaning. Brunelleschi who is said to be the 'inventor' of the linear perspective (in the first quarter of the 15th century) demonstrated the principle with the help of a mirror because then, he said, things can be seen clearer, with less "noise" so to speak – that means, translated into terms of a world of the view they can better become abstracted. The central linear perspective does not only depend on the standpoint of the individual constructor – like the view of God, making His world – but moreover, it is a first resemblance of a world as a network. This came much later as an explicit idea, at the transition between modernity and the epoch to follow ('post'-modernity would be incorrect since meanwhile we are living after post-modernity even), but which lies embedded in such a construction of relevant worlds according to central perspectives. The grid of construction underlying such a linear perspective is a net laid upon the world, in the double sense of abstraction: to draw away from something real, and to impose on something real. As an observer denotes, this is architecture and, as for its mind-set, first and foremost modern architecture. Taken literally, he says, archi-tecture is the main texture to be laid, that inner principle creating a unity out of the complex, i.e. of original diversity; it is a process of reflection, a synthetic (literally composing) logic that owns an inherent distance to matter (a Christian theme), that is basically something different than the original material – of world, of people, of particular spaces as for instance city spaces, of whatever.

Seen from such a background, it makes sense that the Renaissance was the epoch where an explicit dichotomy between nature and culture first was explicitly stated, acc. to Panofsky. What began with the system space of the cathedral now becomes applied to real worlds: worlds which are, as spaces, first imagined and then constructed, following certain central perspectives – of construction itself, but also of view of the world. As the observer mentioned (M. Burckhardt) concludes, the real world can get emptied with such a perspective, it can turn into a cenotaph. Just one highlight: after the end of the Renaissance, in a so-called absolutist era, Simon Stevin was the first to construct a really uniform, architecturally completely normed city. As a deliberately performed program, not subcutaneously as many of his precursors did: for instance, in the fortressed ideal "cities" of Italy and France after Renaissance – which were planned spaces, but no cities; and settlements looking as if they were a city, but not an ideal, just a completely planned one. He asked: why should all the houses look different at all, why not to unify them consequently? What is diversity needed for?

To epitomize and to exaggerate a bit, this is the central question for a modern mind, even long before modernity, a mind consequently trying to achieve a world as a function. At the same time, as said, it is an individual look upon the world, despite all formatization: it depends from my specific standpoint what my point of view is; as a creator, how my world then will look. In the tale of the Christian myth of creation narrated by Renaissance humanist Pico della

Mirandola, after having finished all of His creation, God posed the human being in the midst of the world: You can go wherever you want, and you can build your house wherever it seems feasible for you. Whilst all the other creatures have their predestined place, He said, you do not.

The world might be emptied and abstracted by rational means of construction, but now it can be filled with everything, with every kind of individual creation. With this, also a hiatus opens up between quite non-individual rational formats and individual expression. Since these individual worlds can become formatted; as are those of da Vinci or after Renaissance, of Simon Stevin: obeying always the same logic, and (hence) all looking similar. As the cathedral already did, but now extended in scale, as real worlds where humans have to be; as real places, no longer as primarily symbolic ones.

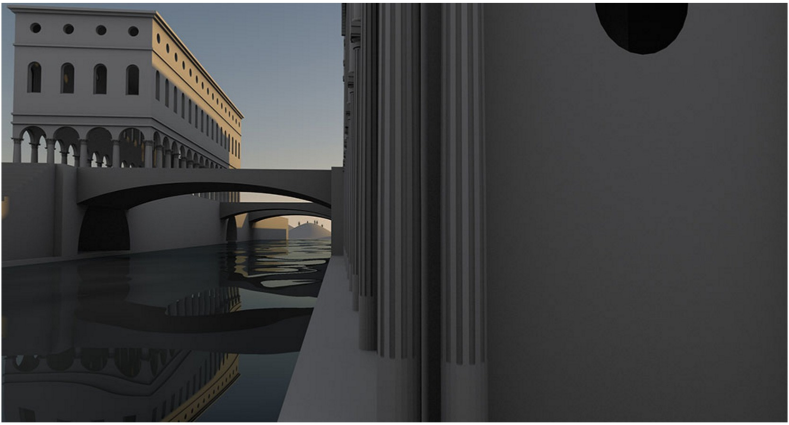
What later unfolded as a conflict between format and individual, in particular in modernity, here was already embedded; in the Italian Renaissance, an era roughly covering the 15th and first half of 16th century. This is even more true since an orientation towards the human measure, in architecture as well, was an explicit aim of that era, a programmatic element of a so-called Humanism coming up in Italy. Next to avoiding Gothic forms, that barbarian arte tedesca as the Italians called it, that “German manner” (despite the fact it came from France, in case of the Gothic cathedrals) conceived by the Italians as exuberant and unordered. This had to be avoided by a new architecture, one that had to orientate itself towards an Antique or, what those humanists, artists and architects believed to embody, an “antique style”, a way of constructing all’ antichità.

Summarized and brought to its point, it is the conflict between individual expression and rationalized forms, a conflict to unfold increasingly until it reached its climax in a modern age: mass-states made for individuals, rationalized and mass-produced means for ‘individual’ needs and freedoms, dictatorships and mass-destruction of individual human beings. The liberation of the rational form is not necessarily, and surely not eo ipso, identical with the liberation of the individual.

da Vinci’s City

This happened in case of da Vinci’s ideal city, also in social terms. The city he proposes is an almost completely rational construction, if one refrains from its decorative elements. It is the ideal space of an artist-engineer, but first and foremost of an engineer. Although there are only sketches existing, one can easily imagine how the entire city was like. Probably, his plan refers to Vigevano, a town nearby Milan, or to Milan itself. Leonardo worked for the Sforza regime controlling the entire region and also was probably responsible for some irrigation projects made there, at the end of the 15th century, to increase agricultural production and to improve sanitary conditions within cities and towns, with the help of regulated water supplies.

His ideal ‘water’ city basically consists of a two-layered grid: The lower level is that of the infrastructure, a rectangular grid of mainly roofed canals and associated ways, the upper level is that where the city in its true sense is placed: the space of the streets, piazze and representational buildings making up, in their composition, a visible and inhabitable cityscape, a space where one can really live; opposed to that infrastructure below, the infra below the ground of where a real city life takes place. At every 180 meters, the grid of the street system above crosses that below, and probably, both these levels have been connected with spiral staircases and ramps at those intersections. But to establish a functional connection between these two levels (Leonardo surely had thought about that) of such a stratified world is not so important when compared with the other characteristic: it is a two-classed society which is expressed here. In Leonardo’s own words, the upper level, the one of a city in its true sense, is reserved for persons of higher social rank; and the lower level, that of infrastructure, belongs to ”normal people” (Leonardo) and vehicles of transport. The modern idea of an infrastructure appears, of a structural network of functionalities lying below (infra) the visible surface – which is the one where ‘real’ city life takes place, compared to the other life in that city, that of services and their normal people. Social space, Lefebvre says, is “the space of social practice, the space of the social relations of production and of work and non-work”. Here, it becomes expressed very clearly. With all his ingenium, an engineer decided not only on canals and streets, but also on how to fix social terms; an early precursor of what later – then, in modernity – has been called social engineering: to achieve desired social relations as a system (like those of other functions) to be managed and controlled.

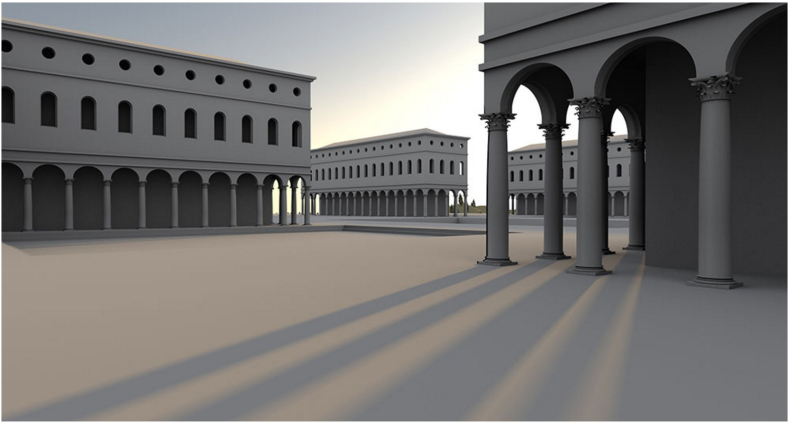


But this is not the only remarkable aspect, in Renaissance terms, not the only 'perspective' or 'prospect' of the world presented here. It is the inherently endless character of its very construction that amazes, because this looks so modern. From its construction, the space of such a world needs no confinement. Opposed to its precursor in terms of time as well as of water regulation, the ideal city of Sforzinda planned by Filarete for the very same regime, that of the Sforza, the space Leonardo imagines is virtually endless. Whereas Filarete's city was a cosmic circle (and thereby confined eo ipso), the city space of Leonardo can extend in any direction if money, work force and political decision allow for it.

Moreover, as an abstract space, it can be constructed everywhere – and thus, anywhere –, it is not bound to specific localities; it needs water and therefore some sources in its vicinity (e.g., rivers), all right; but even this can be managed by the help of the proper techniques. Although of quite concrete social outcomes, from its very conception, it is an abstract space to be imposed anywhere. The very city, as a space, is constructed in such a way that we always have the impression to see only a fragment, a more or less small section of it –

because at every meters x, the next structural element can appear, ad infinitum. The next canal, intersection, street or staircase; or whatever repetitive has been planned, whichever modules are reappearing in a certain order of appearance.

This makes it looking so modern, irrespective of time-specific adornments like elaborated capitals or the prevailing rounded arches. One can take it symbolically: even the most elaborated and derived from that, most 'individual' capital vanishes in its sheer mass of repetition. Even the most individual element loses its power of individuality if it becomes repeated in a virtually endless manner.



A Modern World

To conclude, also with a view on other worlds to come, a last aspect shall be addressed, one already mentioned: the change of a real world's shape, of a real space in its totality, for an ideal space of abstraction. Imagine how a world would look like – as a space – if it would look like the one that Leonardo had sketched. And the plain fact that worlds of such shape and atmosphere, without tempering adornments as are capitals etc., became the spaces we are used to and conceive as "normal" does not mean that they are. To refer to the Biennale's motto, tha fact that they became actual universes does not mean that we have to accept it. Just so, and without any doubt.

Symbolically expressed in Leonardo's famous drawing of the human proportion, showing a man with his arms stretched out, the human being should become the measure of all things. Don't let us forget this.