Erratum

p.10, line 18: dusk “dawn”
p.49, line 1: add “The symbolic also makes our morphology become a mythological issue. Referring to the above, meanings are expressed by a ... “

The authors
September 16, 2014
World Mountain Machine

Ulrich Gehmann
Martin Reiche
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<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Editorial</td>
<td>7</td>
</tr>
<tr>
<td>Intro</td>
<td>11</td>
</tr>
<tr>
<td>On History as Process, and Morphologies</td>
<td>15</td>
</tr>
<tr>
<td>Morphology, Gestalt, and Process</td>
<td>31</td>
</tr>
<tr>
<td>Morphology, Myth, and the Symbolic</td>
<td>47</td>
</tr>
<tr>
<td>Level 1: The Ziggurat</td>
<td>65</td>
</tr>
<tr>
<td>Level 2: The Heavenly Jerusalem</td>
<td>77</td>
</tr>
<tr>
<td>Level 3: The Virtual Cosmos</td>
<td>109</td>
</tr>
<tr>
<td>Level 4: The Modern Grid</td>
<td>135</td>
</tr>
<tr>
<td>Level 5: Babel II</td>
<td>157</td>
</tr>
<tr>
<td>Processual morphology as software</td>
<td>171</td>
</tr>
<tr>
<td>Aesthetics</td>
<td>175</td>
</tr>
<tr>
<td>Geometry</td>
<td>179</td>
</tr>
<tr>
<td>Process gestalt</td>
<td>221</td>
</tr>
<tr>
<td>Closing remarks</td>
<td>223</td>
</tr>
<tr>
<td>Endnotes</td>
<td>225</td>
</tr>
<tr>
<td>References</td>
<td>241</td>
</tr>
<tr>
<td>Figures</td>
<td>257</td>
</tr>
</tbody>
</table>
This book has been created over the course of the development of the *World Mountain Machine* artwork by Ulrich Gehmann and Martin Reiche in early 2014. The idea of the World Mountain Machine was to combine artistic practice and scientific research in order to create a hybrid of associative and empirical work. Therefore, the World Mountain Machine consists of two equally important, interconnected parts: the first is the audiovisual installation, the second is this book. You can see it as an addition to the audiovisual artwork, as an artwork in itself as well as a study on the main themes of the World Mountain Machine: evolution, morphology, generative design and computational aesthetics.

Its aim is the further explanation of the artwork, its underlying ideas and historical relations in order to give the spectator more insight into the foundations and the process of its creation as well as the meaning that it is transporting on the different layers of (visual) communication.

The World Mountain Machine is combining scientific research with artistic practice and is therefore a project that cannot solely be seen as an artwork alone, but more as a hybrid creation between art and science, and is therefore in-line with the Renaissance idea of the unity of the sciences and the arts. This book has been created to cover the most important areas of its scientific background as well as
to exemplify the aesthetic beauty of its artistic implementation. Therefore, we will begin with an analysis of the history of the processes that we are describing with the artwork and will gradually move towards a more visually-driven, aesthetically comprehensive explanation of its visual appearance. This approach has the advantage that we reverse the usual process of understanding of an artistic work by offering the deeper meaning of the artwork before exemplifying its language. In that sense, the book has to be seen as a counterpart to the installation artwork. Indeed, this book will hopefully inspire you, the reader and spectator of the artwork, to get acquainted with a way of thinking that understands history as a morphological process that can be visually sketched (even though in its complexity never actually be described better than through itself).

As a general remark on the structure of the book: If you are more interested in the visual language that the artwork makes use of, than your best chance for inspiration is probably to browse through the book on your own, without any guidance - especially taking care of the last parts of the book. However, we highly recommend to read the first few pages of the first chapter to get an overview of the history of the idea of a world mountain in order to get the right context for what you are about to see.
If you are highly interested in the scientific backgrounds underlying the work, you will probably feel the urge to read through the textual part of this book first, which is the intended way to do it. If you are situated somewhere in-between or just genuinely interested in both science and the arts, you will not get over reading the whole book, however, follow your imagination and the associative nature of this work by finding your own way of reading it - starting on the first page and stopping on the last is possible, but by no means this book can only be understood if you do so.

What you will already have noticed at this point is the complete lack of color in this book. Our aim is to highlight that this book deals with gestalt, with structure, and therefore (also as a metaphor) completely omits color in order to suggest the reader to focus on what is important.

Furthermore, as this book is the joint effort of two independently working researchers and artists, be prepared to find gaps between chapters, different ways of expression or even thinking. In our impression, this should not disturb you while reading but will increase your understanding of the subject as you are having two different ways of thinking combined in one single work.
Intro

In many cultures, the 'world as it is' in its cosmic order has been expressed by the symbol of a mountain. To name just a few, it was the mountain of Ararat where Noah landed to renew life on earth and human civilization; for the Mesoamerican and Mesopotamian civilizations, the world was symbolized by a mountain shaped in the form of a pyramid; and in our own culture, the cosmological opposite between the tower of Babel and the Heavenly Jerusalem became the epitome for two kinds of competing world orders.

That the 'world as it is', particularly the human world, can be expressed by a mountain is an old idea with strong imaginative power. In our culture, it is not confined to some recent past but kept alive through the ages, until today. According to Aby Warburg, it embodies a coining image, an archetypal imago mundi that reappears in ever changing forms without losing its essence\(^1\), from the Sumerian ziggurat at the dusk of civilization to recent skyscrapers, from explicit representations of a cosmic order like a Heavenly Jerusalem to their implicit and secularized variants of modernity and today. The forms and shapes changed, the basic contents didn’t. The image remained, despite its manifold shifts in outer appearance. In the sense of Warburg, it resembles a kind of mental morphology, an epitome not only of order but also of hierarchy, and power. Because such a conception of the world expresses order itself
through its very structure, by layers of clear hierarchical relationships, one relying upon the other. Taken from its Greek origins, the word 'hierarchy' denotes the holy, given for humans and not to be changed (hieros), and archein, ruling from the beginning. From its beginnings to the modern and recent variants, it symbolizes an order for a world.

The concrete nature of the world in question is of minor importance. It can be the world of civilization and power (and the power of civilization) resembled by a ziggurat, an acropolis, or a Burj Khalifa as the tower of Babel's new analogy. Or it can be man the zoon politikon's ideal place to live, namely an ideal city located either on earth as in case of Paolo Soleri's Hexahedron or Babel II, or in Heaven as in case of a final Jerusalem resembled in gothic cathedrals. It can be pure fiction like Minas Tirith in Lord of the Rings or Plato's ideal city of Atlantis, or it can be an approach to be seriously realized like the city of Campanella's Civitas Solis or the one of many modern utopias. The world in question can even be completely functional, stripped of every mystification and part of our everyday lives: a functional diagram of a hierarchically ordered process embodies a world mountain too (despite no one seeing a concrete mountain), since it orders the relevant world of flows according to their relative relevance for sustaining the whole.
The examples given demonstrate not just the ubiquity of the symbol given by its imaginative power, they also show its basic features. To be a format due to its specific kind of order, and out of this, to embody a literal utopia, a construction that is not bound to a specific place in geography or time (utopia comes from ou-topos, non-place) and which owns an ideal character transcending its respective materializations. The ziggurat Etemenanki for instance, the realized historical blueprint for the tower of Babel, is more than just a tower. Although it had been realized within the concrete terms of real historical belongings, it is an expression of a symbolic order at the same time, and the ideal format of a ‘utopian’ mythic image recurring throughout the ages, albeit in ever-shifting shapes and historical connotations. The logic of such signs is genealogy\(^3\), and it is this combination of the concrete and the ideal our project is about.
Intro
Why World Mountain Machine?

First, there is the character of the construction of the presented world mountains, they being the abstracted representations of the underlying concrete entities as real historical ones. Wherefore they are presented as blueprints, as deliberately simple drawings revealing those mountains’ essential features. To do so is a “machine-like” approach, so to speak, a reduction to the necessary minimum. It has been chosen because these mountains are signs, are constructions of a symbolic character and therefore, their essentials count, not the concrete refinings they may have had as real historical entities. Since it was our intention (a) to simulate a historical process in its constitutive processual features and (b), to do so in a morphological way, we had to rely upon those (assumed) essentials.

Second, the historical evolution of those ‘machines’, the genealogy expressed in their transformation from one historical stage (or “niveau”) into the next follows computational procedures; procedures that are based upon mathematical rules of transformation. Which too is a rather “machine-like” procedure. But a one chosen deliberately in order to reveal those essentials.

Third, as in a real historical process, there are actors participating in that process and through their very activities, contribute in that processes’ actual shaping; in our case, these actors are the spectators of the installation, who contribute in the historical process simulated in the instal-
lation via “inputs” defined on the base of technical arrangements - too, a machine-like approach. Besides functional necessities resulting from the need to obtain manageable inputs from the spectators, i.e. to obtain inputs which can be handled at all, there is an important symbolism of such an operation itself. It is related to the very role of individual actors in an historical process, an aspect to come to.

Fourth, in the real historical process that underlies the one evolving during the installation, there has been a major tendency inherent to that processes’ overall development, namely the one towards an increased functionalization.
On History as Process, and Morphologies

How to conceive history in its processual characteristics, if there are some observable regularities in its course, and if there exists what can be called a ‘morphology’ of history\(^5\) has been a matter of ongoing debate since the days of the first historians in the Ancient Greek era. Some believed that by its essence, history is the re-occurrence of the ever same, i.e. essentially obeys to a cyclical model (e.g. Polybios, or other cultures than the Occident).\(^6\) Others, particularly the occidental realm, believed that essentially, i.e. independent from the single variants it takes, progress is history, a notion crucial for our self-understanding and that of a world ‘as it is’. By investigating so-called “long tendencies” underlying historical processes - understood here as processes of development and unfolding - three basic types have been postulated: rise or fall, rise and fall, and discontinuous transformations.\(^7\) Central for the Occident (i.e., our ‘cultural realm’ in its broadest terms) has been the rise and fall-model, associated with an increasing conquest of nature and the aligned social development which resulted inter alia in a “...growing size of the unit of administration” evolving from villages to city-states - to be treated in the chapter The Ziggurat - and its “corresponding growth of economic cycles.”\(^8\) Tendencies which shaped occidental history and led to a social cosmology or “deep ideology”, as Peter Burke calls it; a cosmology to be reflected in our concept, and also underlying our installation. A social cosmology comprises the following dimensions: (a), the conception of space, and of spatiality in general; (b), the
conception of time, in its occidental version determined by linearity, the idea of progress, and of purification - the latter an idea of Christian origin, to come to in the chapter The Heavenly Jerusalem; (c), the conception of knowledge, primarily understood as an *epistemology*; (d), the conceived nature of man-man relations, in the Occident determined by hierarchy with the individual in its center; and finally (e), the conceived nature of man-nature relations⁹.

Apparently, of prime importance for our project and its central topic of history is the conception of time. There is no conception “more dramatic” than the occidental one, Burke says, because it implies the idea that progress is closely combined with accumulation, *growth*; and since the Enlightenment, with civilization as such. Even more important, and opposed to conceptions of time of other cultures, time is not neutral in that it just “happens” but it has an inherent value: the past becomes either an *aetas aurea*, a Golden Age pursued by so many occidental utopias, or a time of fall¹⁰ - of less ‘civilized’, less ‘progressive’ eras of human history. The future, following that rise and fall-model addressed above, is either a time of crisis, and/or a time of katharsis; and seen from such a perspective, the present can be conceived as “...a Now in front of crisis.” To judge both past and future from the background of such a Now is also typical for a Western (i.e. occidental) conception of the world ‘as it is’.¹¹ Little wonder that from such a perspective upon history, the idea of utopia could become one dominant strain of both thought and deed in the Occident. In
On History as Process, and Morphologies

any case, it resulted in the desire to create a world out of will and conception, that is, in its final terms, a world as ideal artifact; too, ideas to meet again. Fueled by the idea of a katharsis, an idea of Christian origin\textsuperscript{12} to be examined more closely in the chapter of The Heavenly Jerusalem. But also for its secularized variants, the conception of history outlined so far inevitably leads to the question if history is a directed process, or not. And if it is directed, to what degree and in which ways. Also about this topic, there has been much debate since the days of the first Greek historians, and like other issues related to the nature and behavior of historical processes, it is an open matter. As regards the degree of directedness, there are - in principle - two possibilities: either a decisive or “hard” directedness in that a fixed goal is approached in the course of history, a telos to be reached - a conception that is named teleology and that is most prominent in its Christian variant of history as katharsis longing for the final end state, symbolized by a Heavenly Jerusalem. The other “soft” variant is the concept of teleonomy, claiming that there are some rules according to which an historical development takes place, generating a path dependency, but this does not mean that the process in its total has a prescribed goal towards which to steer. Teleonomy implies that the process gains a drive in a certain direction although it keeps an open end, due to chances and contingencies happening along its course. This is particularly important in case of processes based upon blueprints which are then further developed\textsuperscript{13} - like in case of our installation as a simulation of an historical process.
We have to understand such a conception of history in order to understand what our project presented here is all about, in its final terms. The world mountains are an expression of such an understanding, the symbolic signs of an occidental *imago mundi*. The same holds true with the conception of *morphology*, in particular in its relations to the conception of history, and to utopia. Analogue to the former, one can distinguish three major phases in occidental utopian thinking: the mythical, the religious, and the positivist secular approach\textsuperscript{14}, all of them treated in our project, and first of all underlying our historical sequence offered in the installation. Correspondingly, morphology as a method can be shown in the sequence of the world mountains, revealing the changes in the worldviews and the respective *imago mundi*. In a way, these mountains are utopias in that they are built ideals, both as an expression of the deep ideology introduced above and in the meaning of an eidos or inner image. And they have to do with a community of people, regardless which one, providing a scheme of how to live, schemes presented in the respective world mountains. In any case, “...the goal is the same: to create a world that is significantly better than the one we live in now...No matter how wide-reaching their scope, utopian schemes are concerned with the way people live on a daily basis. To qualify as truly utopian, the dream must involve some form of wider community, however select.”\textsuperscript{15} Interpreted in this way, the mountains we present are truly utopian, no matter if actually built or not. They are *constructed visibilities*, in
particular since they are “technical” images, them being more than just representations of something.\textsuperscript{16}  

And expressed in architecture, morphology is creating worlds. It is about what Spengler said: the language of forms belonging to a culture, expressed as a gestalt in its relations to reality.\textsuperscript{17} Coming back to the notion of teleonomy, the historical process that unfolds during the time span of our installation follows what Goethe called a double law of morphogenesis, or becoming gestalt: on the one hand, it is about the constitution of Gestalten according to their inner nature - in case of our installation, expressed by the blueprints. And on the other, about their modifications according to external conditions, as he calls it - in case of our installation, generated by its spectators.\textsuperscript{18}
On History as Process, and Morphologies
Morphological History

As regards the general relations between history and morphology our project as a whole is based upon, two main aspects are to be considered: the morphologies of the different patterns shown in the installation itself, and those of the historical process they are part of. For a better understanding of both aspects, it seems feasible to start with the latter. What is a morphology of a historical process, and how can it be best conceived?

One of the project’s basic ideas was to show the historical process in its double character of continuation and change. At first sight, a statement like this seems to embody a contradiction in itself: why a historical process, conceived eo ipso as change, can be conceived at the same time as continuity, as containing elements (or more general, entities) which do not change? What is this seeming paradox, and how is it to be solved?

Apparently, if we are ready to follow such a conception of historical processes as containing change and continuity at the same time, there must be entities which are subject to change, whilst others tend to remain more or less constant, that is, essentially un-changed. And both types of entities, in their combination, make up what we call then a „historical“ process. If this should be the case, the notions of change and continuity have to be examined more closely, in particular regarding their combination, their interwovenness into a process (we called „historical“). What change is, by its essence, and how does continuity relate to it?
Because in its total, a historical process is conceived by us (the observers) as some kind of whole, a “gestalt” we are able to conceive, and interpret, as a wholeness. Even if we don’t know its exact run, and even if we misinterpret or omit some of its details. Despite all this, we have an image of the process in its total, conceive it as an entirety, as the mentioned gestalt; a certain morphology that can be conceived only, and understood only, in its wholeness.

To take examples for such a process of conception, it is comparable to our conception of a landscape, or of a building; which we perceive as entireties, as wholes based on a certain ‘inner image’ we have of them, i.e. based on a certain pre-conception of what these entities are, by their very essence. When I look at a skyscraper, for instance, I realize its entire being without the need to examine all its details. I know what it is just by looking at its entirety, its gestalt. The same holds true for developmental or ‘historical’ processes in their Janus-headed nature of being change and continuity at the same time.
When looking at an historical process in its different forms of appearance basically belonging to it, we are confronted with three different kinds of morphology: On the one hand, we have the morphology of the process in its total, its shape or gestalt as an entirety, resembling a certain overall pattern of change unfolding in time. We call such a type of morphology, because of its character of a process pattern that emerged as a historical sequence, **process morphology**. On the other hand, we have the morphology of some Gestalten which are the subject of historical change but nevertheless remain more or less constant; in our case, the morphology of the respective world mountains to be presented in our installation: despite changes in their outer form, the basic morphological issues remain more or less constant. It is a morphology that serves as a kind of blueprint for all its concrete historical outcomes, that is, for all its physical emanations as they appeared in time and space as realized, concrete entities. We call such a type of morphology, because of its character as a blueprint, **basic morphology**. And thirdly, we have the single individual morphologies of those world mountains as concrete entities, expressed as concrete patterns of construction underlying those mountains in their realization in space and time; e.g., the construction pattern of the real Babylonian tower Etemenanki as it appeared as a real historical entity, one of its descendant the skyscraper, and so forth.
So, when we examine the historical process of the evolution of the world mountains we selected, we are confronted with three interdependent albeit distinct types of morphology when examining that process in its total appearance. In our installation, we concentrate on type 2 of those morphologies, the basic morphology; and on type 1, the process morphology showing the changes of type 1 in historical sequence. Coming back to the Janus-headed nature of a historical process to embody change and continuity at the same time, both types are closely aligned:

Although a basic morphology tends to keep constant (indicated by its very naming), in the course of history as a process of evolution, shifts may occur - even though they are still basic, morphologies may change in their form of application and thus, in their appearance. This particularly holds true when the morphology in question becomes functionalized as in modern and recent world mountains, and by that, gets ‘trivialized’ to a high degree. In other words, we can observe an evolutionary sequence, showing different emanations of one and the same basic morphology or ‘blueprint’, by adopting different shapes. It has to do with essential relations that exist between morphology, pattern, and the notion of gestalt and shape. As a pattern, the morphology remains constant, but its shape may vary.¹⁹ For instance, the rectangular pattern of a ziggurat as the archetypal gestalt of a world mountain may change from
On History as Process, and Morphologies
Morphological History

a vertically organized structure into a flattened one, realized in the modern grid. In our installation, the sequence of these changes is expressed as a timeline of evolutionary niveaus that emerge, just like in a real historical process, during the installation’s course in time, starting with day one of the installation and ending at its last day. This is one timeline we want to present, resembling the changes of the type2-morphology. Or expressed in the terms introduced above, in this timeline, we want to look at the changes of constancy. In our installation, these changes have three principal forces causing them, forces which resemble the entire processes’ dimensions, at the same time: In terms of real history (that what has happened in real historical terms) as well as in the terms of ‘our’ installation history unfolding during the time span of three months, there is morphogenesis, the evolution of form and gestalt. This is one dimension which was (in real history) and still is (in our installation) constitutive for the process shown here.

In addition, when we look at real history, there had been aspirations, concepts, and ideologies which were embodied in entire mindsets specific for a certain culture or epoch which had led to those and no other world mountains. A cathedral for instance would not have been built in Mesopotamian times, or in modernity. Not because the people were incapable of doing so, but because they did not want to. So, each world mountain is an expression of a certain
Fig. 1: Changes of constancy
culture and its “mindset”, and the historical sequence of these cultures and mindsets is reflected in the morphogenesis of the world mountains we show. In other words, morphogenesis is also the result of ideas. And such a history of ideas is the second dimension to be considered here since it is inevitably expressed in the world mountains we show. Whereby some of these ideas keep their consistency over the ages, whereas others perish during the course of time and give way to new ones - reflecting what had been said about change and constancy in the foregoing. The third dimension making up the specific morphogenesis evolving in the installation is that installation’s visitor, abbreviated as the spectator. The spectator is the analogon to a historical individual, to any person who actually lived, or lives as a “contemporary” of a certain historical era, inside the frames of a historically given context; e.g., in today’s’ New York, in Babylon at the time of Nebuchadnezzar, or elsewhere in time and space. As in a real historical process, he or she are just spectators in the plain, direct sense of the word: like all of us do in the midst of our real lives with the processes which unfold around us, they look at the historical process that is to unfold here, in the installation. And as in case of all of us in terms of real history, their role of a spectator is as Janus-headed as the process of history itself: on the one hand, the spectators cannot influence the “course of things” in a direct way - they are not mighty kings to erect ziggurats or cathedrals, nor powerful politicians of modernity who command entire cities to be grown up.
Fig. 05: Pattern and Individuality
On History as Process, and Morphologies

Morphological History

Their role is confined to spectating, to look at what happens, and what is going to slowly unfold - as in real history. On the other hand, they nevertheless influence that historical course of things, although in a subliminal, so to say indirect way; they cannot see their influences directly, but they influence. In case of our installation, through their movements which are translated into the overall shape of the buildings presented, thus molding these world mountains, too. As in a real historical process, this kind of influence - opposed to the ‘direct’ one of powerful people, and people in charge of doing something - can be realized only ex post, by looking backward to that what had happened up to now. Only in that ex post-view (at any moment in time) can one actually realize what had happened so far. The many small processes of subliminal changes influencing the historical process as a whole form into a pattern recognizable at the various points in time that process is looked at. Thus, as in case of real historical individuals existing at any moment in time inside the frameworks of real historical processes, the “spectator” is important for the run of the historical process as a whole without explicitly realizing it. A spectator is actor and spectator at the same time. Moreover, again as in a real historical process, at each moment in time, the behaviour of the individual ‘spectators’ is in no way predictable; there are multitudes of individuals who act in unforeseen ways and through that, contribute to what is called contingency. And, significantly, they do so although their way of influencing is prescribed
by exact mathematical rules. But as a result, despite contingency the process as a whole develops its own pattern. Parallel to the timeline of a morphogenesis in its dimensions sketched so far, the other timeline is the process of change realized as a total, expressed in the type1-morphology. What we want to do here is to express a process - an historical process, i.e. one of evolution - in its entirety, as a gestalt that emerges during the time of the installation. The gestalt will evolve, and at the end of the installation, as in a real historical process, it will have developed into its final shape.

So, all in all we present two timelines as distinct but nevertheless related entities, both standing for an historical process, and the visitor of our installation (the ‘spectator’) participates in that process through influencing it.
Morphology, Gestalt, and Process

What are we exactly talking about when notions like morphology, Gestalt, form, shape, and pattern are mentioned? What do these notions mean in the context of the main goal underlying the whole installation, showing an historical process as real process? All the more since these notions are not mere academic terms but real entities, real phenomena of a real world, we need clarification in order to gain a deeper, and at the same time more intuitive and holistic understanding of what it is all about, in this installation. Such a holistic understanding also exceeds the domain of mere textual language, the attempt to comprehend things only in a written, and defined form. It is about what has been called episteme, the capability to comprehend, and to realize things in context, and the context of things. Although our approach is new, we nevertheless refer to a long occidental tradition. Therefore, some explanatory (and necessary) words have to be said about these references.

Literally translated, morphology is the logos, the meaning (and hence, ‘word’) about gestalt and forms; gestalt is not equal to shape, nor is it synonymous to form. In its German origin, Gestalt denotes “a unity of experience”, a “characteristic unity which is not solely composed of its singular parts”, and ergo, which cannot be experienced by looking at those parts by themselves. The unity of experience is the important point here, that entirety of perceiving, imagining and conceiving.
And the quality of a gestalt, its specific expression as that gestalt and no other, settles upon that entirety - for instance in case of a melody, or a building; or in case of the figures which evolve out of our installation’s process. Gestalt is about imagination, and livelihood; for Wölfflin, the famous 19th century-art historian devoted to the study of form and gestalt, in perceiving architectural and other forms of art, it is about “sculptured shapes full of life and energy”. In such a respect, it is also about space, about the spatial properties owing to gestalt, the different perspectives to approach it in order to realize the relationships it is made up of.

Taken from its original meaning, morphe (from which ‘morphology’ derives) stands for both gestalt and form, but it emphases the former because different forms are seen as the emanations, the respective concretization of a certain gestalt underlying them - which is exactly the venture of our installation. According to that conception which, like the term of morphology, recurs to Goethe and Aristotle, respectively, a morphogenesis or development of gestalt takes place in a historical process, namely via the development of form and structure. Unlike its modern and recent usage where gestalt is identical with the (plain) outer shape of things, for Aristotle, gestalt is the expression of the essence of these things, of their very nature. In our times, and with a glance at our “official” objects presented in the
Morphology, Gestalt, and Process

installation, namely objects of an architectural origin, such an understanding had been tried to be expressed by the von Ehrenfels-formulation that gestalt is more than (just) the sum of its parts. Following this understanding, one and the same gestalt, as a kind of blueprint, can appear in different forms and structures; and since Aristotle, gestalt is a mode of being and not just an outer form, more than the mere physical appearance and material property of something. For him, gestalt is literally paradigmatic: it equals a guiding pattern that serves as a lead figure of exemplary character (the notion of a paradeigma), namely of how single elements are arranged to form a whole. And in these regards, gestalt closely relates to eidos, the inner image we have of something.
Fig. 10: Gestaltan and Forms
Morphology, Gestalt, and Process

Returning to the notion of a ‘blueprint’ - as many other relevant notions for the entire context examined here, resembling a very technical approach to reality not suited to comprehend the idea of gestalt - what we want to represent are archetypal figures, or gestalten (the plural) of a paradigmatic character\textsuperscript{27} as dynamic, i.e. evolving entities. Gestalt is about evidence, about that which appears in immediate and total comprehension.\textsuperscript{28} Taking the two exemplary cases presented in the picture above, what we see here are two gestalten of paradigmatic character, and their respective emanations as evolved forms - one natural, and one artificial. Moreover, as we evidently see, they have adopted different forms, and in addition, each of them is composed of different forms. But in line with the von Ehrenfels-formula, we would not gain an understanding of what really is presented here if we would stick to the forms only, by analyzing them in isolation from the context they are embedded in, and at the same time a part of. This context is the gestalt. Taking the above picture as a pars pro toto, we are not looking solely at a picture, but at an expression - here, of two gestalten as the outcome of some development, of a process named “historical”. In case of the building, it is an artificial gestalt which is presented here, the result of a process of planned performance. In case of the tree (from which we see only a part but can imagine the remainder, its entire gestalt), we see the result of a ‘natural’ process of growth, and evolution. It took millions of years for trees like this one to evolve,\textsuperscript{29} and on top of that, trees are not the
product of planned performance but of a real historical, i.e. *unplanned* process. Opposed to the building, as a gestalt and in Aristotle’s words, this tree is a result of physis, of that what grows out of itself, and out of its own powers.30

In our installation, we try to combine these two forces of development: the artificially given, and the ‘naturally’ evolving in the meaning of *physis*. This ‘physical’ aspect shall be achieved by the involvement of the spectator, in contributing to shape the gestalten which are represented in an historical sequence.
Morphology, Gestalt, and Process
Morphology and Evolution

We want to pursue this combination because morphology and evolution belong together; a connection already established by Goethe in his concept of morphogenesis, the development of gestalten via forms and structures (cf. above). Like Aristotle, he speaks about gestalt as an entire “complex of the being of an essence”, of an entities’ very nature that emanates through *Wirkung*, through being active, and being actively involved in its context of existence. Brought to its center and enlarged by historical perspective, this is exactly what we want to show with our installation.

The essential trait of evolution is *process*, in bringing about the new; and hence, when aligned to evolution, we can look at morphology only in dynamic terms - which are those of morphogenesis. This implies that we can look at a given gestalt in dynamic terms, too: we have to comprehend the very idea of gestalt as a dynamic issue, opposed to the traditional conception that a gestalt is something fixed, expressed by a given structure that is conceived as to embody something “eternal” (like a building, for instance), something that appears to be fixed in time, and in space. What we intend to show instead is that gestalt also has dynamic properties (addressed earlier as “type 2-morphology”), and in addition, that a process as such can also have a certain structure, an inner order that expresses itself as a certain structural relationship (addressed as morphology of “type 1”). That not only fixed entities have a structure, but also processes. In other words, that a process - e.g., the
Fig. 20: Processual Morphology
one of a historical development or “evolution” - can also have a gestalt, as process.

Referring to Aristotle’s definition of gestalt as that which expresses the nature of an entity, we conceive that ‘nature’ as some kind of order, then order can also be dynamic, not only static. This is one assumption underlying our installation, and it is not so unordinary as it might seem at first sight. A ritual for instance is a processual kind of order, or a theater play; moreover, a large part of the architecture we refer to in our project - serving as the historical background for our installation - have not only a symbolic, but a “theatrical” character in that they were the stage, the architectural scenery for the performance of rituals (e.g., the ziggurat). On the top of that, much of the architecture we actually refer to was explicitly designed as sceneries, as ideal vistas for, and upon reality. They were worlds constructed as ideal artifacts serving predefined purposes, constructions having the character of celebration; of perfect community, of nature, of the progress of functionalization, and of utopian longing.
Fig. 30: Ideal Scenery at the Top of the World
Summarized, the notion of gestalt as a dynamic entity involves two dimensions of meaning: the sequence of the individual evolutionary niveaus, each of them manifested in a certain gestalt which is expressed as an historical sequence; and that of the entire sequence itself, manifested in a temporal pattern which is expressed as a gestalt of its own.

Here the spectator is involved in the shaping of the historical sequence, i.e. participates as a conjoint member of what is happening in our “real history” presented in the three months of the installation. Referring to Kevin Lynch’s journey through a city, the spectator can thus experience history directly, “…as a patterned play of spatial changes, by a rather protracted journey through it.” And of course, the journey we offer is rather protracted because vast periods of time have been condensed into a morphological sequence that lasts for only three months. What we tried to generate - as said, with the spectator’s involvement - as a “real history” of three months extending in real history for thousands of years.
But this is not the only important aspect to consider. Another one is probably even more important, namely the relations between process and unfolding, relations which are characteristic for evolutionary sequences and hence, for ours presented here. What does ‘unfolding’ mean in an evolutionary process? Is there an unfolding equivalent to a constant increase in complexity and (culturally perceived) melioration, a more or less constant move “towards the better” in terms of getting more and more complex, and more and more ‘perfected’? This is a conception of evolution that equals our still present predominant understanding of an evolutionary process as progress. It is a conception that is deeply rooted in our common everyday understanding of our culture, and as a kind of Unthought Known, still serves as the basic frame of understanding the world - that evolution equals progress - of technological achievements, of increasing functionality that helps to (increasingly) liberate the individual, and the more of that.

According to such a conception, evolution is linked with the process of growth, also of a “minus growth” in case of a downsize-development or “devolution”. In any case, evolution is related to growth, in one way or the other; and what we (and the spectator) present in our ‘real’ historical sequence is also a sequence of growth, finally: an unfolding of both form and gestalt that equals a process of constant growth. Because the figures that emerge in our
space of time extending for three months constantly grow, taking shape more and more; and doing so irreversibly, as in a real historical process. D’Arcy Thompson, one of the pioneers in the investigation of the relations between growth and form, assumed that “through the combined impact of suited forces” (as he calls it) any material form can be transformed into any other. Moreover, he assumed that forms exist which are related to each other, which live in close vicinity, so to speak, and therefore, can be compared on a mathematical base\textsuperscript{37} - this is our approach to the development of forms that unfolds in the installation. All the more since our methodological approach of delivering those objects is necessarily confined to the blueprints mentioned in the beginning, consisting in “the reduction of the single form to a normative basic form“\textsuperscript{38}. When looking at these basic forms, the difference between gestalt and form has to be considered. Form is about the specific way in which something gets expressed and by that, relates to style, a notion to be examined below. Whereas gestalt signifies the web of inner relations making up an entity to that what it is, in its final terms - gestalt gives identity, thus making that entity become evident to us, by revealing that entities’ nature\textsuperscript{39}. Gestalt and evidence belong together, they refer to what Goethe called “anschauende Urteilskraft”, to comprehend things based on their power of evidence\textsuperscript{40}. In regard to the relation of gestalt to a peculiar class of forms, namely to those which are both normative and basic, Goethe conceived them as embodying “Bauplantypen”, serving
as blueprints for a variety of appearances (of gestalt and form alike). In other words, the concrete appearance of entities can be traced back to certain blueprints underlying them;\textsuperscript{41} e.g. the appearance of a dog to the general blueprint of a vertebrate animal, and more closer, to that of a mammalian, land-dwelling vertebrate. Translated into our approach underlying the installation, these are the the blueprints of a first order, blueprints which adopt their respective gestalt as a world mountain - of the ziggurat, of the heavenly city, and so on.

What we want to offer, as a blueprint of second order, is a historical sequence of such normative and basic forms, together with their “inner relations” addressed above. And in doing so, we have to rely upon relations of another kind, those between morphology and the symbolic.
The morphology that emerges in the installation during its historical course is, next to its other features, a symbolic issue. Because it is working with and resembling symbols; symbols expressed by a respective gestalt. Taken literally from its Greek origin, a symbol is a “thrown together”, it consists of two parts,\(^{42}\) e.g., a broken coin where each part is taken away by its owner. When the owners meet again, they can put their parts together and by that, recognize each other. This was the original and plain everyday-meaning of a symbol. Transferred to our context within the installation, a symbol is about recognition, and significance. It stands for something else. It is an image or sign which has a meaning, a meaning that is embedded in the symbol in such a way that no distinction between sensory appearance and abstract connotation can be made. The meaning can only become apparent in the image and not by rational reflection. A symbol is a Sinnbild, an image that bears its meaning as itself since it represents “the perfect fusion of meaning and image.” According to Goethe, symbolism transforms an appearance into an idea, an idea into an image in such a way that the idea stays “endlessly effective” and at the same time, remains unreachable (for rational reasoning) and inexpressible through language.\(^{43}\) It is interesting that a master of morphology, namely Goethe, is saying this.
Morphology, Myth, and the Symbolic

are expressed by a respective Gestalt in its image, and above that, expressed in a symbolical, i.e. “standing for something else”-manner? The else is important here, since it leads to the mythic, and to mythology, the meaning (the Logos) of the mythic as a culture-specific embodiment of its relevant Unthought Known.
What is a myth? In its original meaning, a cosmological tale in the literal sense, since it tells about the meaning of the world ‘as it is’, how it originated, and what its essence is. At the same time, a myth is more than just a narrative, or story. It has features distinguishing it from other narrative cultural techniques in that it is a “narrative” without a fixed address - e.g., the image below does not solely stand for its ‘official’ subject, the ziggurat of Uruk interpreted in a modern manner. Many symbols of its kind are possible as well, expressing the same domains of meanings. In addition, it is organized as a network, allowing for diffuse patterns of how (the same) contents are related, relations which could be dispersed over the entire “communication map” of a society. And it is not fixed to a specific medium but can be formulated in all media which are at hand for a given society. To express properties of the mythic in a recent, technique-minded and essentially functional way; a way which is, as every cultural expression, anchored in a certain world view based on a certain mythology - here, one of functionalism resting in the basic belief that an entity can be expressed as a function of other entities. It is a belief that relates to other properties of the mythic:

A myth creates order, and through that, orientation and mental security. It is directed against an “absolutism of reality” which otherwise would be overwhelming; for us, living in the world ‘as it is’ - to cite that mythological term.
And by doing so, a myth (no matter which one) is a work in progress, constantly reproducing and re-creating itself. Images (and texts) emerge which are based upon others, others which again are referring to still other images (and texts). Whereby “the direct contact to reality” is not necessary. For instance, in case of the image below, for its understanding it is not necessary that the ziggurat of Uruk looked exactly this way; we understand what it means, irrespective of its concrete appearance. Referring to distinctions made earlier, the concrete form of the image is irrelevant for the latter’s understanding; what counts is the gestalt, not the concrete form(s) that gestalt is adopting. Order and gestalt are essential features of our installation, and as has been tried to show, they are resting in both the symbolic and the mythological.

Thus, the absolutism of reality is counter forced by an “absolutism of images and wishes”, expressed in the body of the Unthought Known of a culture or epoch. This holds even true for our own, and for the era of modernity so decisively trying to ban myth out of its domain. A body of Knowing that gets expressed via basic assumptions about the (respective) world’s nature and essence. Human kind, suspects Blumenberg, has lived during the largest part of its history and its “volume of consciousness” in resting upon undisputable assumptions, and does so even today.
Through its very nature, myth stays associated with history, and its function is to serve as a means for revealing histories’ course, in the eyes of the respective epoch. Which is a double-sided venture, of course, leading to a re-invention of the myth at each stage of the historical process, not unlike the process going on in our installation. The myth’s ongoing realization, always aimed at finalizing it, does fortify its survival by always bringing it in new states of matter. Because on the one hand, the direction and hence, the meaning for a respective epoch has to be established, by answering the questions associated with every mythology: who we are, why this has to be so, and which meaning for our existence and thus, which kind of ethics are to be derived from it? The answers to these questions are laid down in an epoch’s body of Unthought Known; we know them without knowing that we know, without reflection. On the other, albeit closely related, a meaning and its ethics for a certain epoch can only be derived when looking at history, at the long line of genesis from which we, the members of the epoch in question, are the offspring. Each epoch has to re-interpret and to “invent” history in the light of that epoch’s set of meanings, or mythology; again, not unlike the process going on in our installation. Meanings that give meaning to history and which also appear as an epoch’s Unthought Known: what “the former” means for us, us as we are today? So, our self-understanding and our world views are intertwined with history. And gets expressed
via symbolic images. In our case, from the first Sumerian ziggurats to recent skyscrapers for instance, there is a peculiar symbolism aligned to them - the one of the cosmic order addressed in the beginning, the one of power, of domination, of greatness and hubris, of utopian longing and resurrection. Mythic symbols, says Campbell, touch and stimulate centers of life which remain unreachable for reason and force. The objects we want to present in our installation are not only symbolic and have mythic connotations, they are also a matter of style; and by standing for something, style is a symbolical issue, too. It denotes the “selection of forms and their application” and hence, the “incorporation of the individual into the general”. There are many styles, ranging from the decisively individual (e.g., the spectator) to aggregated, encompassing entities like the style of an epoch, a certain society, a certain kind of spatial surrounding or landscape. A style is an expression of meaning translated into specific (architectural) forms, it stands for that meaning. This is one dimension of a ‘style’. The other is the meaning expressed by its gestalt itself, via the specific overall shaping it takes. When we look at the picture below for instance, what we envisage are these two dimensions of style, in a simultaneous manner: on the one hand, we gain an impression of the original meaning addressed to that building by those who made it - to be a symbol for cosmic properties, properties which have been translated into architecture; on the other, the specific way in which the building has been portrayed is a style by its own - it is suggestive, rich in facets, and open to a wide range of interpretations.
Formulated in general terms, there are “inner relations” lying embedded in the work of art itself, relations which can be examined via structural analysis. But in parallel, to recur to Aby Warburg’s approach from the beginning, an iconology exists, a meaning (logos) of the whole that transcends (as a gestalt does) the mere structure, resting upon culture-specific constants of imagery, symbols, and conception. Both dimensions of style are to be kept in mind when looking at the ‘objects’ which are presented in, and (first and foremost) generated by the installation as a historical process.
The most important since literally an arche-typal symbol is that with which the whole sequence starts, the ziggurat. It is the world mountain all the others are deriving from, either directly or indirectly - in the process of real history as well as in the one generated in the installation - because it stands for the basic human condition, namely to live in cities; at least as regards humans as “civilized” beings. In their general terms already, world mountains and civilization go hand in hand, they stand for (are symbolic) the generation of an artificial world in a literal sense: for a world as artifact constructed to be “typically” human, that is, for a world made according to will and conception, instead of a world merely given; the natural one, the inherited, in one word, the one which we can neither change nor influence. Even if this what we cannot change or influence is the result of former changes and influences, of what is plainly called “history”. It all starts with the gestalt of the ziggurat and its iconology. Due to this, it will be presented in some detail when explaining the morphological sequence we have chosen as ‘blueprints’ for a new, and also real historical process generated in the installation. A process that is presented in images, and in itself a generation of images. Referring to the notion of gestalt, what appears in images is not something brought from the outside “into them” but emerges from the images themselves, them having a “latent life”. In the words of Aby Warburg, images are vital generators with magical powers.
In case of our world mountains, “to build towers means to set signs, in a real as well as a symbolical meaning, from Babylon to New York, the New Babylon”, as one can read in a text about City and Utopia. The city, says Mumford, can be interpreted as a container for “symbolic methods of storage”, inter alias, manifest in the evolution of script and management (topics to come to). Its model was the citadel, a city in the city as an image of urban functions and tasks, a model in the gestalt of a world mountain. Which had adopted the most diverse shapes then - as Acropolis (the citadels on top of the Greek city states), as palace and ziggurat in mesopotamian cities, as utopian city on top of a mountain like the Heavenly Jerusalem, as cathedral, skyscraper, or concentrated habitat; even in a flattened version, adopting the form of a cosmic closure or stretching out as an indefinite grid. Irrespective of their shape, they function as an inherited mass which survives through the ages, according to A. Warburg, they are part of an “image memory” that has been collected and stored through the centuries.

The world mountain expressed through them is an ideal abstraction, in the literal meaning of an ‘ideal’ as embodiment of an inner image of symbolic character (eidos), and an aim to be reached for. In this sense, each world mountain is an ideal artifact, an abstraction which nevertheless is capable, at the same time, to generate rather concrete en-
Morphology, Myth, and the Symbolic
History and Symbols

tities like ziggurats, skyscrapers and other manifestations of the symbolic which have been materialized in time and space. A world mountain is literally engrammatic:

its motif stays present through the ages, engraved in our cultural memory. Although its different concrete shapes may be quite complex and varying, its basic gestalt is not, first of all in its symbolic expression (standing for the myths behind it). That expression comes close to what Kevin Lynch called form simplicity and dominance: as an engrammatic image, a world mountain is easily recognizable - is evident, to recur to characterizations made in the foregoing - and is domineering the space around it. Above that, each world mountain is symbol for order, and moreover, for an order of specific kind: for a cosmic order, since it is an embodiment of the relevant world, a world hierarchically structured, devoted to the functional, and managed (aspects to come to). Relevant for humans who have adopted their “second” nature, namely to live in cities, an environment of urban civilization as their genuine habitat.
The sequence that is underlying our project consists of five steps or evolutionary niveaus we consider crucial for the development of ‘world mountains’. They reflect a kind of teleonomy constituting the major phases which will unfold in the simulation of a ‘real’ historical process shown in the installation. At the same time, that process is an open one because the concrete shape it will take depends upon the interaction with the spectators.

We have chosen five steps or “levels” due to morphological, symbolic, and historical criteria.

Level 1, The Ziggurat
The whole sequence starts with the first expression of a world mountain, the Mesopotamian Holy Mountain or ziggurat, epitomized in the Etemenanki, the original Tower of Babylon. In historical and morphological terms, level 1 is the base of things to come, in histories’ further course; both in terms of a history that is ‘real’ in that it really happened, and in terms of a symbolic history, one of the imagination.

Level 2, The Heavenly Jerusalem
Epitomized by the gothic cathedral, the counter-concept to the Tower of Babel will be introduced here, first and foremost as a lead symbol directed against that of the Tower. Both symbols have dominated the imagination about
civilization’s nature and its utopias. And until today, both symbols are deeply embedded in our occidental cultural memory as two antagonistic conceptions about the human condition, and how to lead a proper human life really deserving the name. All the more since a Christian monotheism deeply influenced our cultural memory and worldview, and does so till the present day. This regards conceptions of history, space, society, and realities’ assumed nature.

Level 3, The Virtual Cosmos
In terms of both real history and worldview, with this level, an additional strain of development emerges. Parallel to that of a Christian heritage, it is a strain that prepared modernity to come. Epitomized in the figure of La Roton-dá, it is a strain that seeks to understand the world “as it really is”, and at the same time, to reconcile the human microcosmos with the surrounding macrocosmos. It led to discoveries in several domains, and to a broadening of perspectives. And it is a time where it had been tried - for the first time in human history - to create the world de novo, by different attempts of constructing real and virtual worlds.

Level 4, The Modern Grid
Rooted in the heritage of levels 2 and 3, a radical cut happens here; not only in terms of understanding the world, but in actually shaping it, on a global scale. It is a time of
growth and accumulation, based on the consequent rationalization and functionalization of worldly matters. Epitomized by the grid as an instrument of prime importance, the world as it was changed into our one ‘as it is’. And as a historical strain of development, it is a time that still continues and shapes our present future.

Level 5, Babel II
Here, the whole sequence closes. By referring to the figure from the beginning, an attempt will be made of how to reconcile man with his ‘second’ nature, the one of civilization. It is called Babel II but as an epitome, it can stand for many others.
The epitome of a world mountain in both a symbolical and morphological respect is the Tower of Babel, an allegorical figure serving as the starting point of our historical sequence generated in the installation. In both respects mentioned, it is lead figure and lead metaphor at the same time, and it refers to archaic forerunners lying in the dawn of history, well in line with every ‘good’ (that is, real) mythic image. Presumably, the first ziggurats were built together with the first human settlements deserving the term city, in the alluvial plains of today’s Iraq known as Mesopotamia. Ziggurat stems from ziggurratu, the “rising high” and came into use around 2,000 BC. It was an area named Sumer where the first city states came into being around 4,000 - 3,000 BC, together with other achievements constitutive for a civilization such as writing, planned organization or ‘management’, social stratification, a permanent and managed division of labor, and a more complex architecture. It was a time of innovation, above all in administrative and technological gains, and with a look at the mythic conception of human evolution addressed earlier, namely to conceive history as progress, the foundations of todays’ world were laid there. These city states, and first of all one of their later outcomes, the famous city of Babylon or bab-ili (bab-ilu), “the gate of the god”, have been imagined as the cradle of Western civilization in both its directions of achievement and failure, from the beginnings of the first systematic excavations in modernity up to the present.
Next to administrative management being in charge with the handling of *masses* (compared to times before), social stratification and an economy based on a permanent and fixed division of labor, even mass production should have occurred there, together with an extended, so to say proto-global trade\textsuperscript{65} - features that look astoundingly modern, in revealing our vista upon that what really was. From the very onset of those city states, and again, not unlike today, economy was seen not only as the triggering force behind their foundation but moreover, as a kind of “lock in” that existed from now onwards: “Over millennia the growing hierarchical organization of society and the emergence of religious and political elites favored the continuance of a way of life that benefited the dominant, and controlling, social group regardless of the consequences for the majority of the population.”\textsuperscript{66}

Even more important for a proper understanding of the mythic symbol of the ziggurat, it was a path to doom, a certain type of historical progress associated with the emergence of a ‘true’ civilization throughout occidental history; a specific *imago mundi* closely belonging to our (Western) culture, and epitomized in the Tower of Babel: that a general historical pattern emerged which as a systems, is inescapable right from its start, and even long before the first urban settlements. It started with Kain and Abel, and later on (with the rise of those first city states)
let to the nature/culture divide epitomized in the tale of Gilgamesh and Enkidu, a tale to come to: “With agriculture came division of labor, hierarchical organization of society, and an intensive exploitation of local environments... gradual expansion, a rise in population and, eventually, social disintegration and collapse. this pattern was followed by an astonishing number of cultures occupying a variety of climate zones and ecosystems.”67 What we have here is a historical pattern, a law of history leading to a negative progress of the “locked in”-mode. Finally expressed in the tower; first of Babel, and then elsewhere. A pattern that became part of our cultural memory, and poured into an imagery of “historical meaning”68 - all the facets of the ziggurat presented in our installation.
Fig. 70: History, Progress, and Form
The urban form as a specific way of human life and the above connotations about it fostered the impression that history can be made, instead of us being merely the victim of it. A conviction and a myth (at the same time) that is not only typical for our Western culture (of which the presented installation sequence is a part), in particular its ‘modern’ as well as recent phase, but which also is underlying our installation - isn’t it the “spectator” of our historical blueprints who takes part in their further shaping, and thus, makes his or her “own” history? Whereby the notion of myth is not negative: as a constituent part of our cultural memory, myths provide historical meaning, they embody the Unthought Known of what history is, in its essence. What it means for humans to exist as historical beings, with regard to an urban form as specific way of life, what it means to be an urban and hence, a civilized being. All that is expressed by the Tower of Babel, in its ambivalent facets shown so far. We make history, and at the same time, we are subjected to it. From the very beginning of cities, the myth of Prometheus is a victory over the gods - translated, over the powers of fate and nature - and a lock at the same time, says Leroi-Gourhan. Kain was the builder of the first city and the ancestor of Tubalkain, the first metallurgist. The technician, he says, is the true master of civilization, because he is the master of the crafts, and of fire. And the city is the expression of “a new functionalism that the human society created.”
It has its mythic reasons that Tubalkain was the great-grandfather of Nebuchadnezzar, the babylonian king who erected the Etemenanki, the original Tower of Babel; and that history can be made is reflected in a myth, too, that of a common language which (like a myth of history equalling progress) at all enabled humans to create their own world, a world as artifact. According to the Bible, to erect something like the Tower of Babel was only possible with a common language - that everybody is understanding everybody else - and the hope was that “language, according to a natural feeling, must be an eternal ligature between [the single] human and humans.” We know that it was a utopian venture: the ligature didn’t hold, and we all dispersed away; the mighty tower fell down, only its ruins remained. Together with the ambivalence, and the remaining hope that one day, it must be possible to erect a new tower, a new utopia that becomes a real place for real, that is, really fulfilled human beings. If history can be made and (therefore) is progress, this utopia must be within reach, one day. Both beliefs presuppose the above functionalization of society. To live inside such terms, and to do so in an urban form under the aegis of Tubalkain is the new human condition. With all its side effects and collateral damages mentioned in the foregoing, from Roman authors to Rousseau to Lewis Mumford, Oswald Spengler and their recent descendants of a ‘green’ ecology-movement. For this new human being, its relevant world got increasingly constructed, first of all in social, administrative and political
This is not about cultural pessimism or other normative statements but about a pattern of sociocultural evolution; or formulated in more general terms, about a pattern of a historical process of development that led, in its entirely run, to specific outcomes of a systemic nature. On the other hand, as frequently addressed already, such a run reflects a certain vista upon history in general, together with its body of Unthought Known deeply anchored in what is called cultural memory; first and foremost in ours, and here again, in our imagery about an urban civilization as our second nature - opposed to a “first” and still “unspoiled” one we left and are trying to regain since. The more since
Fig. 80: Man’s Second Nature in the Making
meanwhile, the major part of the human population is living in cities, an unprecedented situation in human history. Coming back to what has been said about the mythic, what is told here is a myth about history, from the perspective of our own culture. We have a certain cultural gestalt in mind when thinking about, and imagining, our conditions of life inside the terms of that second nature - epitomized in the different world mountains, either conscious or semiconscious, in recurring to the different images we have, with their above mentioned ‘iconology’ aligned to them.

According to such an imageology, right at the start of mankind’s second and urban nature, it was about what Moscovici called a domination of society: in a tripartite movement, it was centered on the knowledge about nature, society, and about the science of power, as he calls it - which later became management, from its Latin origin the art of keeping the things in one’s hand, directing them towards pre-established goals and aspirations. It was a movement that led to a differentiation between society and nature, already expressed in the famous epic of Gilgamesh, mythic founder of the first human city, the Sumerian Uruk.

Level 1: The Ziggurat
The Tower of Civilization
Which according to the archeological record depicting the traces of a ‘real’ history was one of the first city states ever built, around 3,600 - 4,000 BC. Gilgamesh had a friend, Enkidu, who was half animal and half human, still endorsed with the gift to speak with the animals, that is, to understand them. The story ends with Enkidu’s death and the search of Gilgamesh to regain him, travelling around the whole earth and even visiting the underworld. Which was in vain since civilization proceeded.
What remained after that irreversible nature/culture divide was the way forward, the flight into more civilization in its attempts to create worlds as artifacts; and aligned, the hope for utopia. That it must be possible one day to erect man’s true home, for his fulfilled belongings. A flight that could be epitomized in the gestalt of “the city inside the city”, the Babylonian Tower, a city built into the sky and allegory for concentrating the world as artifact on one single spot, by constructing an exemplary space. That motif re-appears again and again in the history following the Tower, either as its perfection, or condemnation; but irrespective of these two variants, the mythic desire underlying them remained the same, namely to erect an ideal and concentrated space for humans. One of the most important functions of a city, so Mumford, is the embodiment of aspirations, social norms, values and ideas in urban buildings; seen in this respect, city planning is the apex of societal manifestation in its mythic desire. Compared to such a desire, its concrete shape is of minor importance. From the original Babylonian Tower, the ziggurat Etemenanki or “foundations of the heavens and earth” we know little more than its location and approximate structure. Even the date of its initial construction remains unclear - except the evidence that it must have been very old, long before it received its reconstructed form under king Nebuchadnezzar in the 6th century BC, the form in which it is represented now as the historical tower of Babylon.
It must have been an impressive building, located in the holy area of the city of Babylon, in the vicinity of the Esagila temple. It was about 90 meters high, with a ground surface of a square of approx. 90 meters at each side. The management needed to erect such a building must have been considerable, organizing a workforce of about 10,000 persons - biblical proportions indeed, as in the original ‘report’ in Genesis 11. Concomitant to our imageology about the early cities portrayed in the foregoing, it was devoted to Marduk, the principal god of Babylon and the defeater of chaos, personified by Tiamat, the archaic ocean and mother of all beings. Marduk also created man and was the first to construct a world as artifact. Organization began to rule over the natural, humans included; and strictly speaking, all what followed is just an aftermath of this, an evolutionary sequence the milestones of which were laid down here.
It belongs to the principal functions of myth to reveal histories’ course; and it does so with the help of symbolic images. One of those images was Babylon, and its contrary the Heavenly Jerusalem or the City of God. It was an opposition between the product of civilization with all its pitfalls, resembled by Babylon and culminating in its tower; and the heavenly city, standing for mankind’s last, and happy resort, a perfect utopia at the end of all historical unfolding. Both of these images survived for ages until today, and their opposition arose right from the start, with the Babylonian captivity of the Jewish people under Nebuchadnezzar, the very same who erected the Tower of Babel. What amazes in both cases is that neither of these cities had a real material substrate: the City of God has never been built, and for centuries, Babylon existed only as an imagination and just as a spot on paper - as an imagined abstraction - after a long death of the real Babylon which shrunk into the status of a mere village in the 10th century A.D. After having existed for thousands of years (probably founded around 2,500 B.C.), its long decay is equally remarkable; a life span and an obscurity suited for a good mythic
space, an epitome for an urban civilization slowly fading away. Which exactly was the point where the counter-epitome, that of a Heavenly Jerusalem, could be placed in position:

it was a counter-conception to an urban metropolitan life ‘as it is’, first in case of Babylon and then in case of ancient Rome, these pagan spaces (since Rome itself is just a symbol) of a dissolving civilization. Opposed to those multicultural metropolises with their proverbial Babel of languages, the Christian ideal was the cloister, the self-enclosed ideal community. The cloister was the space where the ideal aims of a city gained a new shape. In the words of Joachim of Fiore, the cloister - the new ideal city - was a bastion of paradise, a *paradisus claustralis*. Little wonder that later on, the heavenly city and the garden of paradise could become almost synonymous.
Level 2: The Heavenly Jerusalem

Occidental Utopias

Since then, we have two kinds of utopias, two kinds basically different. One kind is about the unfolding of urbanity, of a globalized reach of civilization and its progress (see our recent “network society”, to speak with Manuel Castells), epitomized in Babylon. Basically, it is a movement of spreading out, of unfolding. Babylon, “dressed anew in the clothing of utopia” advanced to the model of the fantastic city since the end of the 18th century, i.e. with increasing enlightenment, culminating in imageries of the monumental city, epitome for civilization and progress. The myth of Babylon was strongly revitalized from the first half of the 19th century onwards. It was a paradigmatic “typology of the massive”, first of all because the myth could become reality - in the shape of the modern city, \textsuperscript{89} conceived as the environment for man the civilized being.

The other kind is a movement of retreat, of concentration instead of dispersal. In terms of history, epitomized in the Heavenly Jerusalem and later, after Christendom’s transformation into a secularized, ‘modern’ society, expressed in the ideal community (no matter of which kind) settling upon the archetype of the cloister: the eco commune, the Hippie settlement, the diverse Internet brotherhoods, the Arcosanti-approaches of new cities; all of them the attempts of the paradisus \textit{claustrialis-mode}. In its final terms, it is an attempt to overcome history by giving it a destined direction, one of redemption. Although such a mode of retreat is not confined to Christianity but also present in some antique, pagan approaches, it became pronounced in the era
of Christianity. Settling upon the books of revelation, for Christians, overcoming the ‘world as it is’ (to recur to that mythological term) was the only way to master history, that is: to overcome, to surrender it. On the other hand, it was a movement that aimed at the erection of the perfect city following the nostalgia of a paradise lost - for the chosen ones, i.e. those who participated in such a revelation.

The more since its counter-conception, the modern Babylon, had a quite ambivalent and Janus-headed nature as its mythic substrate is regarded. With the myths’ actual realization in the modern city and its inherent frictions and inequalities already expressed since the advent of the first cities (cf. The Ziggurat), the modern city became an utopia also in another direction of meaning: the big city, the modern Babylon, symbol of civilization, it would be devoured by its own demons. And hence, would become utopian for man the civilized being in another meaning: it would turn into an ou-topos as a place where man cannot live - if man wants to stay human, wants to keep a truly human condition. What started with the French Revolution as the deliberate construction of a new space for all, first and foremost in new conceptions of the public space as embodiment of a utopian space in the positive sense, soon after (in the 19th century already) led to the “visibility of its own history”, as a scholar formulated it at a time when the hope in urban utopias had reached its nadir. The history of utopia, writes
another scholar, is a history of the deficits and defects of the societies which developed it. There is no News from Nowhere with a look at the modern metropolis and its systemic entanglements. So, what to do apart from retreating? This is exactly the point where a Heavenly Jerusalem enters the stage, at all times and since all epochs. Retreat from the over-complex, the not to be manageable as a kind of flight backwards, into a ‘natural’ and ‘truly human’ condition, may it be a conceived and projected nature as man’s ‘natural state’ of being, or a future state more human. The alternative is to flight forward, to achieve more civilization for overcoming the pitfalls and problems of the existing one(s). These are the two basic utopian alternatives.

In the literal meaning of utopia as a nowhere-place, both movements - into more civilization or away from it - are utopian. The first one does not need a concrete place any longer, and the latest since the advent of the above mentioned Network Society, not even a physical spatiality; the second can be erected anywhere (‘utopian’) where the conditions are favourable. It can be an Arizona desert as in case of Arcosanti, a former jungle habitat as in case of Auroville - or it can be even a “virtual” place as in case of the Heavenly Jerusalem. Because it is important to have the heavenly city in one’s mind, to have an image of it; if this precondition is met, it can be placed wherever possible, it does not have to rely on a certain epoch or locality. It does not even have to rest in a certain religion, or ideology.
Fig. 110: After Paradise: The Heavenly City in Symbolic Space
Level 2: The Heavenly Jerusalem
Occidental Utopias

But in the literal terms of an ideology as a Logos, a specific meaning of ideas, it is ideological: it is an engrammatic image which can be realized everywhere, because its place can be anywhere. And at any time, due to its engrammatic character; after its first arrival, the idea persisted, stayed alive through all the epochs. Moreover, in being engrammatic, it gives direction - to the single individual believing in it as well as to history itself, a perspective to come to. After man's fall from a primordial paradise, no matter of which conception it is - an original since 'natural' way of living before Tubalkain came, or an artificial paradise constructed in real or virtual spaces, or other ways to achieve a 'real' because suited conditio humana - there is a new one to be achieved, to be re-gained, no matter where it lies and when it is to be gained. As are the world mountains of our installation, the heavenly city is a symbolic space. Ranging from atheist Marxists to US puritans to materialist contemporaries, as a myth in revealing histories’ course (to recur to the above), it has a primarily symbolic value, standing for fulfillment, and realization. Of the human being becoming really human. This is the real value of a Heavenly Jerusalem.
Since the days of Hans Sedlmayr who wrote about the genesis of cathedrals - in our terms established here, about that specific kind of gestalt - the issue has been raised whether these buildings are not a more or less direct symbolical expression of the Heavenly Jerusalem. It refers to a distinction made in the early Christian Church already, namely a “church of stones” as a realized place on earth, and a spiritual church of “living stones”, the latter denoting an imagined space, often symbolized by an ideal, ‘mental’ city. Although they were separate entities they were not totally distinct “...for the living stones of earth (which now erect buildings of inert stone) will one day be a part of the Heavenly Jerusalem.” They had to unite one day, in a utopian move of unification and redemption. Moreover, “even now the citizens of earth and the citizens of heaven are in communion and both participate in the symbolism of the physical building.” And as Sedlmayr already noted, “…there is a new function to symbolism. The symbolic is capable of transporting the man of faith to a new level of reality.”
It is not the place here to go into the details of this interesting concept. But: regarding the fundamentals of our world perception, understood here as the basic ways of how to conceive world at all (which comprises more than just ‘perceiving’ it), we are still anchored in the Christian heritage of our culture, even if this heritage acts as an Unthought Known, meanwhile, submerged under layers of secularization. Related to that, there are several strains of imagining in the above conception which deserve closer attention. Referring to Aby Warburg’s statement in the beginning about archetypal images and their “latent life”, not only the images in their outer form are resembling those basic ones - e.g., the city of Minas Tirith in the Lord of the Rings-saga resembling a Heavenly Jerusalem, or Coruscant from the Star Wars episodes, the rings of Hell by Dante Alighieri98 - being “old images” (Rolf Ulrich Kunze) and as such, part of our cultural memory. On top of that, such a memory reaches even deeper, beyond the mere outer forms these images adopt; it is about imagined spaces, their living stones and a new kind of symbolism capable of creating new levels of reality - and our faith in them, of course. In all these respects, our cultural heritage is not so far away from us as we might think at first glance. What we offer in the project is nothing else than such images, leading to new realities; and we do so in communion with the spectators, them transforming what is offered into new forms of a real. In a literal sense, it is an operation of transcendence as it already was attempted in the middle ages, using the
symbolism of visible forms - the “inert stones”, now transferred into graphics, so to say the ‘abstracted’ form of inertia.

God is light, and this credo should find its expression in the transcendence of the gothic cathedral, overcoming the inertia of the material world. And since the times of the high scholastics combining the Old with the New Testament, such a light becomes more and more human, devoted to rational thinking and analysis, trying to liberate man from inherited formalisms. By differentiating between will and action, it arrives at the conclusion that “besides the individual (person), nothing exists.” As in the cathedral where the multitude of different elements is combined in a system of unity, a “structured conception of reality” is gaining ground, and man has to explore the forces of nature. Such thinking describes the world in terms of the visible, and the analyzable\textsuperscript{99} - long before any Enlightenment era to come. The universe is still a sign, but in addition, it can be understood; and for doing so, that what merely seems has to be transcendened into an understanding of that what really is, with the help of the visible, that is, of nature and man’s translation of her forces. Inter alias into built space: when the universe comprises more than just an assemblage of signs but is a logical figure, the cathedral has the task to reconstitute that figure, and not to stick on the merely given any longer. It has to transcend the merely given. In the future, it is the task of the mathematicians to transform the Heavenly Jerusalem
into the concrete, to shape it in the gestalt of the cathedral. The transcendent and fluid nature of both space and time, finally aiming at the conception of a spiritual space - as said, a conception that became quite modern again - is also expressed by the interchangeability of (imagined) space and a concrete place. For a medieval conception, space and place can shift and become symbolically exchanged, one standing for the other. The heavenly city for instance may stand for an earthly paradise at the same time, the latter being a concrete place but despite that, locatable anywhere inside the realm of concrete physical space - which too is depicted as a primarily symbolic space: despite being located inside the frame of earth’s concrete geography, it is not a matter of prime importance where this ‘Where’ concretely is. It is there, here on earth as an entity, no doubt, but such a ‘being here’ can be anywhere.
As is the case in our installation, where the transformations of blueprints or general construction types (the ‘space’ where evolution takes place) towards their concrete emanations (‘places’) take place. Also here, the symbolic space of evolution matters, together with its archetypal gestalten symbolized by the blueprints, and not so much the respective concrete ‘places’ that are emerging out of those blueprints or paradigmatic signs. Although exactly these ‘places’ stand for the concrete history unfolding in the installation’s process; because it is a history needed to realize the paradigmata by making them visible as real entities.

One such entity is the gothic cathedral, a cosmological metaphor but even more important, a metaphor expressed as a realized symbolic space. In building the cathedral of Chartres for instance, a space was created that should resemble Noah’s Ark on the one hand, i.e. a space for the salvation of man, a space of transcendence so to speak, serving as a safe ‘container’; and on the other, the cathedral symbolized the point of arrival after such a transcendence, the Heavenly Jerusalem. A location placed at the end of a historical process that was seen as inevitable. Which was the symbol of main importance: to have arrived at a safe location, after the end of all days. All that, notions to return to.
Fig. 150: Tamed Forces and the Sense of Longing
But a cathedral was even more than “just” a symbolic building. Next to its embodiment as a Heavenly Jerusalem symbolically materialized, as concrete and at the same time ‘living’ stone (see above), it stands for several developments which prepared the way for a modern man to come. Developments which should turn into major tendencies of evolution one day, shaping the further course of things. What gets manifest in cathedrals is not a (historical) moment in time but a long line of development. It is a morphogenetic form enabling a variety of ‘modern’ phenomena to appear for the first time, and later on, to unfold. Expressed by its very architecture, growth appears, together with the replacement of God as world’s architect by man. The new vault construction was more than just a technological improvement but revolutionized space: a system of forces could be established, forces which were conceived as vectors and no longer as static, fixed entities. Forces which could be tamed and thus, allowed for a growth in height that would have been impossible in the era before, the Romanesque period with its churches - its embodiments of ‘heavenly’ Jerusalems - staying close to the ground, oriented horizontally rather than vertically, still more aligned to the earth than to the heavens. The gothic vectorial construction allowed for nature’s forces to get tamed, and hence, for buildings of unprecedented height, flooded with light and almost filigrane, an expression of longing carved in stone. Even the pillars, reaching high towards the heavens, were not merely architectural elements or metaphors but “the signature of growth itself.”
As a ‘morphogenetic form’, the gothic cathedral is more than just a building. It not only stands for the reciprocity between real and imagined space mentioned above, but moreover, real space itself gains new qualities. Taming nature’s forces let to a fluidity and elasticity that paved the way for conceiving these forces as a system, as a “body-space” which functions like a cybernetic circuit where changes in some of its parts instantaneously influence the whole. Opposed to its Romanesque forerunner, the cathedral is not identical with a sum of distinct parts but an organic building. Nevertheless, it is totally constructed, a kind of artificial organism erected by the world’s new architect. Already here, a state of mind comes into being which hundreds of years later should culminate in Baron Haussmann’s saying that with his new Paris, he intended to construct a “technical organism”, an entity which was conceived as a whole and which therefore allowed to be opened for all of its inhabitants. All this, Haussmann closes, is identical with progress.
The new space first appearing in the cathedrals, fluid and abstract, calculable on the base of vectorial movements and systemic forces paved the way for progress, empirical experience and perspective, by becoming transformed: from the vertical horizon of the cathedral to the horizontal view of the new times to come, leading to a “rational space of experience”. With such a move, the house of God turned into the house of nature and still later, into the one of technology. It enabled an horizon which is open to growth and expansion, a perspective at the end of which we live. Turning from symbolic space to real spatialities, it all started with the cathedral.

Level 2: The Heavenly Jerusalem
The Gothic Cathedral as Heavenly Jerusalem
Fig. 160: World Mountain as Teleological Cosmic Order
Associated with the symbolic space is the conception of history, and connected to it, the one of history as progress - either as a movement of an actual devolution (at least regarding actual human liberty) following the “locked in”-mode of civilisational progress described in The Ziggurat, or as a move towards a final liberation. A liberation first headed towards the surrender of all earthly and evil confinements by reaching an absolute end of history, culminating in the realized symbolic space of a Heavenly Jerusalem, God’s own city; and later on, after the era of Christendom, headed towards different earthly utopias. No matter which variant, the basic conception was that of history as a directed, i.e. teleological process: history has to have a final aim to be longed for, a telos which marked its end at the proverbial end of all days. To be reached either by the grace of God, and/or by that of gifted and determined human beings.
In either case, history (as a gestalt) was conceived as more than just the ever same recurring in different clothes. It had to comprise more than to be an open-ended process driven by mere contingency, in lack of any recognizable structure and direction. Moreover, such a mythos about history (at least man’s history) adopted the gestalt of salvation. Regarding the myth’s real historical development, salvation was to happen first in another kind of space (heaven), and later on, after the fall of the era of Christian belief, it had to happen here on earth, that kind of space common to all of us. In its latter variant, as one of the last remnants of a former Christian mythology, the move of history towards salvation adopted the shape of progress - technological, scientific, of civilization as such, of various individual freedoms, of being even liberated from physical constraints by reaching immateriality via The Net; to name a few. It was a search for paradise, for a nowhere-place to come, expression of an anthropological necessity and thus, becoming part of the conditio humana itself: “Looking back at history...mankind has always searched for that light beyond the horizon and yearned for the brightness that went before and that is to come. Elusive it may be, but throughout history paradise has appeared everywhere in a variety of secular and religious guises, always thought of as ‘elsewhere’ and ‘out of time’. Visions of the perfect happiness of past and future times and of present but distant places are common to all humanity.” A peculiar variety of such a general anthropological condition is its association with progress,
a conception that unlike its parental pattern, does not achieve paradise en bloc, in one instant, but by a gradual approach, by a constant movement towards the better until a state of the final best has been reached; a teleological version of paradise, so to speak, like the gothic cathedrals, it is paradise with vectorial properties. The myth that history equals progress had its origins in Christendom, and its epitome was the Heavenly Jerusalem. The newest versions of which are mobile, to be placed anywhere in the world’s oceans where favourable conditions exist, reserved for micro-societies experimenting with new forms of communal living, a new version of old puritan ideals and their calvinistic ethos of free market-driven individual forces who realize themselves - the recent version for achieving a Heavenly Jerusalem and its end of history, propagated by prominent members of the Silicon Valley community. But as mentioned, the pattern underlying such eucharistic movements is an old one, the embodiment of a deep-reaching Christian tradition (no matter its secularized, materialistic versions) that seeks to overcome earthly confines and pains. Even long before Calvinism, Joachim of Fiore developed a concept not only of an ideal city following the paradisus clausuris-mode (cf. above), but even more, such a city should be the expression of a directed, and through that, meaningful history. As a mental model, it was an attempt that reappeared over and over again: to express, and by that to explain, the proper cosmic order for man the zoon politikon in the architectural blueprint of
man's proper place to live; shaped as a symbolic space. In Fiore's case, it was a space closely resembling that of a cathedral - in other attempts that followed, the leading figure varied (often considerably), but the principle, that what has been called a 'mental model', nevertheless kept its constancy. In Fiore’s ideal city, its center is indicated with 1, and around it, there are the mansions of the inhabitants, members of the civitas. 3 stands for the suburb, and 4 for the villages, connecting the city with the surrounding

![Fig. 170: Fiore’s Ideal City](image-url)
landscape. The inhabitants of the city await the third, or final era of mankind to come, all are obliged to work (which isn’t toil), and all share everything as in a kind of basic Socialism, like the early Christians did before.\textsuperscript{116} The final age of mankind is reached after two ages of a dawn and of Christianity ruled by the Church. At the end of the second age, people await that final age in an ideal city depicted above. In this third age, a time sub \textit{tipico intellectu}, the rule of the Roman Church has ended (i.e., hierarchy and domination have ended) and an earthly paradise has been reached again where all men are truly equal\textsuperscript{116} - the original state of being, expression of humanities’ basic since ‘natural’ \textit{conditio humana} and subject of so many utopian concepts since then, has been reached again at the end. Mankind worked itself through history in order to fulfill it, and by that, itself. The goal of the katharsis mentioned in the beginning had been fulfilled. To take the exemplary case of Fiore again, in that Third Age, an interim of enlightenment and freedom between our world and the end of all time, a true democracy has established, “...without overlords and without a Church - an era of spiritual perfection and love, where there are no poor people or rich people.”\textsuperscript{117} The parallel of such a concept (12th century A.D.) to those of later Socialist-, Art Nouveau-, Hippie-, Eco- or early Internet-movements is remarkable. One can replace “Church” by other names and symbols, and one has it. The concrete shape of the respective Heavenly Jerusalem doesn’t count, its gestalt does.
Fig. 180: Prospect of a Teleological World
If utopia’s nature consists in prefiguring another reality, and if utopia is a myth itself, in that it ‘declares’ history in a progressive way, then “the myth is destined to remain a myth, and the ideal to remain an idea.” Important is the notion of progress, a notion aligned to that myth - not only in case of an “original” Christian teleological history, but also later, after that engrammatic image was deeply settled in the body of our cultural memory: to achieve a location, a symbolic space on both heaven and earth where final redemption is reached. Typically, referring to the exchangeability of real and symbolic topography, real and ‘imagined’ spaces addressed earlier, in the image to the left (very detailed and concise) the holy city and paradise are located in the vicinity of each other; in principle, following the paradisus claustulis-mode, they can be conceived as to embody (nearly) synonyms - in the utopian but nevertheless very sensual and concrete world depicted above, there is no real differentiation between the natural state of man, symbolized by paradise, and his existence as a cultural being living in cities. The dichotomy between nature and culture, determining man’s history for so long, with mankind as the victim of the “locked in”-mode associated with urban civilization (see above, The Ziggurat), it seems to have lost its relevance here. The symbolic space expressed in the image covers the whole earth -from which we see only a part, shown in the picture, but in looking at its gestalt, we can easily imagine the rest. In the above image, the symbolic history has reached its end, its point of destination. What started as a

Level 2: The Heavenly Jerusalem
Morphology and Symbolic History
superimposition of heaven on earth initiated mankind’s wait for the new heaven and the new earth\textsuperscript{119} - here, exemplified by the cathedral or Fiore’s ideal city - and in the above image, both these new spaces have melt into one: unification is reached, and history ends; the history so far, of a world ‘as it was’.

The transcendent and interchangeable nature of space and time addressed earlier, that feature so essential for medieval mappae \textit{mundi}, together with their associated notion of a symbolic space, they were to reappear later, in modernity. Spaces which became even immaterial, in that modernities’ further course, and as such, combined with the other utopian strain mentioned in the beginning, that of a perfected Babylon. What had started with the cathedral, namely to conceive space as a system of forces and as an essentially logical figure that follows certain functionalities reached its logical end in the Modern Grid (described in Level 4), combining the idea of a world as network - an essentially abstract, i.e. non-sensual space - with a move for cosmic pacification: in principle (as in case of the cathedrals), \textit{all} the world could be constructed in the ideal terms of a world as will and conception (to cite Schopenhauer), in line with a monotheist myth of domination to impose man’s signature on the whole earth. Corresponding to such a mental condition, Heavenly Jerusalems (or Babylons) can be erected anywhere, and everywhere.
Like in the case of Fiore, these ideal spaces can be expressed best as ideal cities, both rational and liberating. For Le Corbusier for instance, his Ville Contemporaine resembles a world as it shall be, erected like a Holy Jerusalem on the debris of history (the former Paris destroyed), and from its office windows “...will come to us the feeling of lookouts dominating a world in order.”120
Fig. 190: Morphology of World Orders
What we envisage on the left side is the so-called Psalter mappa mundi, depicting the symbolic space of the relevant world. Made in the times of the gothic cathedrals (around 1265 A.D.), we see Paradise on the image's top, and Jerusalem in its center. Through the map's construction, an idea gets realized that should fully unfold in modernity, namely “The idea that it would be possible to regain paradise was emphasized in geographical terms by the notion that the earthly paradise was simultaneously inaccessible and contiguous to the inhabited earth.”\textsuperscript{121} The entire world depicted here is essentially non-sensual and abstract, showing only relevant points of orientation (but no ‘real’ world). On the right side is a metroplan of modern Paris. Despite that both images of a relevant world look different at first glance, they are quite comparable. Not only regarding the state of mind out of which they had been constructed - portraying a world as a system of relevant connections in an abstracted, functional way - but as a result, also their gestalt which can be seen as complementary in both images. What Lavedan called “the inertia of the plan” gets visible here;\textsuperscript{122} it is a plan to dominate, and to order the ongoing contingency of events - of life, finally - according to a prescribed scheme, a telos. This is perhaps the most relevant heritage from a Christian age, together with its progressive, vectorial paradises.
To a modern mind, states Marcel Proust, true paradises are paradises lost. But every paradise lost carries the promise for a one to be regained, following the myth of utopia, and inside the frame of such a ‘symbolic history’, this paradise is accessible any time. For that modern attitude towards paradises, one has not to wait for the end of time to reach it; one can make it. The Heavenly Jerusalem arrived on earth, and as mentioned, adopted many shapes. But as an utopian mythos, it still is the telos of history; even if one needs no explicit teleology any more, and even when it became secularized. It is “...a region existing on earth yet beyond the reach of mankind.”

Fig. 200: Symbolic Morphology
The Christian heritage to dominate the world and to reach for infinity, a mythic desire finding its visible expression in the gothic cathedrals, shaped the Occident for long periods of time. It was not overtly counter forced but experienced an additional strain of ideas in the epoch we are used to call the Renaissance, associated with the rebirth of ideas and imageries stemming from the Antique. The latter was an epoch of occidental mankind that couldn’t be further away from a Christian concept of history as katharsis; even not in comparison with what is called modernity (our own age included) since modern and ‘secularized’ times owe much more to a Christian worldview than they are ready to admit - an aspect treated in the foregoing. Moreover, on mythological grounds, the Renaissance is associated with a core issue (and myth) of these modern times, namely the liberation of the individual. To use historical classifications trying to establish epochs - like in our installation, evolutionary niveaus according to the idea of history as progress outlined in the beginning - dividing the stream of histories’ course into meaningful sequences, little wonder that the Renaissance has been commonly conceived as the beginning of an era labeled the Modern Age. In a time very much concerned with historical issues and epochal classifications, the 19th century, one of its prominent historians wrote: Opposed to a medieval era where the “both sides of consciousness”, namely towards the world and towards the inner life were caught under a common haze, a new age began, first in today’s Italy. With regard to worldly
matters, what arises here for the first time was an “objective perception and treatment alike”; and alongside, long forgotten after the days of the ancient Greeks, the subjective, the individual. The human being, he closes, recognizes itself and becomes a mental individual. Before that, the individual human being was just the member of a community, and through that, merely the part of some “common” around it.\textsuperscript{126} With regard to the overall sociocultural and political context, it was a movement fostered by forces quite comparable to those of the Greek city-states, or poleis: also in this domain, individuality is what counts. Contrary to Babylon or Rome, there were no metropolises inhabited by anonymous masses, serving as centers of management for large empires (only). There existed important cities of course, like Milan, Florence, or Venice, but they were a city, not a metropolis. In both cases of Greece and Italy, there existed many political centers, not only one, and in the Italian case, one reason for the culturally leading role of its city states was the supremacy of their economy.\textsuperscript{127}

But there are other forces which are more important in the context we want to present in our project. Coming back to what had been said in the beginning about the relation between constancy and change, the so-called Renaissance rooted in factors deeply embedded in a European, i.e. occidental tradition, factors seen as remaining more or less constant over the ages.
One of these factors was the individuality - first of city states, and then of persons who had “re-awakened” their individuality in that Renaissance. And corresponding to it, another factor was the existence of diversity. The European Miracle, writes another historian, basically consists of diversity - a multitude of nations, landscapes, climates, and political centers struggling for supremacy. All of them triggering a dynamic driven by economic and technological progress in the prime instance and leading to an encompassing decentralization, even in the time of the Roman empire. It was a “mixed culture” characterized by differentiation and the central role of cities, a landscape of competition and not one of monocultural empires (as in Eastern Europe, Russia and Asia) settling upon essentially “archaic societies.” A phenomenon like the Renaissance, states Braudel, is no singular phenomenon, no unique episode in human history. He cites Gobineau that all societies face their decadence and fall but adds that a Renaissance remains also possible. A statement well in line with the rise and fall-model of historical development addressed in the beginning.

The rise of the individual gave rise to a new understanding of the conditio humana, and of the world as such. In a famous Renaissance tale narrating the creation of man, God said to him that opposed to all other creatures, man is free to go wherever he wants, and to “erect his home” wherever he thinks it is feasible. Because man is his “own sculptor and poet” and determines “the form in
Fig. 210: Open Possibilities. World Mountain, Individually Shaped
which he wants to live” by himself. Interestingly, with a glimpse at the real Modern Age to come, God leaves it open what will turn out of all this He says that man is neither mortal, as opposed to all the other creatures He created, stuck to their prescribed cosmic confinements, nor immortal. Man can become whoever he wants to be and can decide this; he can return to the status of an animal, or approach the angels - again, a resemblance to the rise and fall-model of history.

Fall had to be avoided. This new being at the doorway of a Modern Age, liberated from predefined cosmic confinements and free to roam in the world had to reconcile with its new position. Which was none, strictly speaking, at least in terms of place - in this regard, the new being was literally utopian, placeless. Although in the first instance, at the beginning of the new age, that posed no peculiar problem since there was so much to discover; in terms of world conception, it has its reasons that the period of the Renaissance was also the Age of Discoveries, opening up horizons never seen before. Recurring to the determinants of a world view introduced in the beginning, and looking at space as one of them, it was about a new space - not just geographically but first and foremost, mentally. One discovered that the world was not only bigger than assumed before, it was also much richer in variety. It was a richness and diversity that the ancestors of the new being never had imagined.
“New islands, new countries, new oceans, new human beings; and even more, a new sky and new stars”, one of the discoverers said. But if the world is so extended, what to do with it? Where is man’s genuine place when he is free to go wherever he wants? And, recurring to the age before, where is paradise? In some remote undiscovered areas of that new world, some Ilhas Fantasticas as they appear in the utopias of a Francesco Colonna, Thomas Morus, or Francis Bacon? Utopia became an allegorical place. If there is no place on earth where a Heavenly Jerusalem is actually locatable, and when the discoveries of potential candidates for an earthly paradise proved to be a failure - last but not least brought about by the discoverers themselves, destroying the myth of the noble savage in spoiling his paradisiacal aetas aurea - what to do? What if the newly detected geographies and locations are just some more places on the great wide earth, and nothing more?

The most secure, and probably most promising position was to recur to what God told man in della Mirandola’s tale: to build his own house, to construct a place by his own - with the whole range of possibilities already outlined by Him, between the poles of animal and angel. All the more since the new space, presented exemplary in the above picture, was no symbolic space any longer but just space - extending in dimensions never known before, and inhabited by an unpredictable variety of life forms.
In order to do so, it was necessary to comprehend space first - not as an entity merely imagined or dreamed of as in the epoch before, but in its real terms. It was a necessity not only for discoverers sailing on the high seas but also for those who lived within the frames of a *terra cognita*, the ‘old’ world of the occidental realm. As the discoverers had to do, the new space making up the new world ‘as it is’ had to be measured, and understood in its full dimensions. The central perspective came up, a new way of seeing, and of perceiving the world - large, extended, spatial. Contrary to the vertically oriented medieval view, symbolized by its cathedrals, the new view was more horizontally oriented, in order to grasp the variety of the world’s phenomena and their relative order, i.e. their relative positions to each other as they really were. It was an empirically minded approach towards reality, not a primarily symbolic one. But it was both significant and symbolic for the new worldview, in the latter's literal meaning.

A new relationship between symbol, sign and form emerged. If a symbol can be understood “...as a form that stands for something by relationship, suggestion, interpretation, resemblance, or association”, and if it are nonverbal signs and symbols that “...have always played a vital role in the communication of ideas”, then the new world view and attitude towards spatiality found its most imaginative and coining expression in the arts. Since the Renaissance,
states Panofsky, *idea* is primarily associated with arts. A medieval artist was looking at the world through some kind of haze and out of this, confined his presentations of realistic properties to details only, presentations embedded in never-questioned schemes depicting the world ‘as it is’. A Renaissance artist relied upon la *buona sperienza*, to conceive the world according to empirical data and direct evidence drawn from personal experience. Like the discoverers detected unknown lands, the artist detected new ways of seeing what already exists, and which had existed unknown so far. With the central perspective, an individual view came into being since this new perspective “...sealed the new fact that from now on, an empirical subject stands in front of an empirical object.” Like in the case of our installation, from now on, it is relevant how a certain segment of the world is seen by a certain individual, from a certain (individual) perspective, in a certain moment. In these terms, the world became subjective, a matter of the proverbial perspective; which is a paradoxical movement since it was enabled by the other one prevalent in the Renaissance, namely to gain a maximum of objectivity. Also in this regard, the Renaissance paved the way for a variety of forms of constructing a virtual cosmos, a variety to fully unfold in modernity. At the same time, the new worldview offered by the central perspective could become literally schematic. And through that, and in combination with a thinking in abstract vectorial systems developed in the cathedral (cf. The Heavenly Jerusalem), paved the way for the Modern...
Level 3: The Virtual Cosmos

Grid, the next evolutionary niveau (described in Level 4) - in its perspective upon the world, the latter a niveau as schematic as the medieval view addressed above.

What began as one central perspective upon the world poured into the aerial view so beloved by modern architects like Le Corbusier, Bruno Taut and others.139 Still in the Renaissance, it was a view developed to envisage entire areas from above, as in Leonardo da Vinci’s plan of Imola, or in the so-called “bird’s eye” view established by Jacopo de Barbari’s perspective upon Venice. Combined with the mindset to conceive objects in space as elements of an (essentially) abstract system of vectorial forces already developed in the Middle Ages, the central perspective allowed a monotheist myth of domination to come true, at least in terms of visibility. As said, entire areas could be overseen, both in terms of a world really existing as well as in the ones of a world to be planned, it became the “morphology of a symbolic function.”140 Leading to the gridded constructions of Level 4, it was first visible in a clear form when the Renaissance already headed towards its end, in the Uffizi in Florence, the “offices”, seat of the local management. Here, consequently following the aegis of an horizontal view, the “telescopic dream” of modern times was first realized in full consequence, and every individual form, as interesting as it may be, vanished in the tunnel of a symbolically endless central perspective. Since the
mid-16th century, says Linnenkamp, the importance of the single individual form faded away, and it began the era of “modern administrative architecture and the architecture of modern administration”: to dominate over larger entities of mass and space.141

To summarize the line of evolution presented so far in our project, it is an irony of history that an individual view led to all this. And in trying to overcome medieval confinements, paving the way for new ones to come which were even more depressing than those existent in the times of the real Babylon with the absolute managerial power of its kings. The world turned into a mountain of masses, of masses to be handled and administered by applying central schemes.
At the beginning of all this, when man was liberated by God according to della Mirandola’s tale, the point was to erect his own habitat. They were literally **worlds** as ideal artifacts since not just a single building, as a single symbol like the ziggurat or the cathedral stood in the focus of attention, but the entire surroundings, too. The basic idea was to construct **entireties**, and not singular epitomes; to build ideal expressions of a cosmic order as a whole, as a symbol for the world as such - as a world that should be, in its ideal, i.e. perfected terms. In short, it was about to build a virtual cosmos, with man in its center. Moreover, it was a cosmos open to individual expression, and it even could get “privatized”, as in case of villas or parks, or in case of entire cities that were constructed for specific individuals. Unlike the ziggurat or the cathedral, it was no longer a cosmic order for all (of a real or imagined community), for the “common” mentioned above; as was the case with the nascent individual human, it was a liberated cosmos open for individual use. And first and foremost, for individual design. Irrespective of their variations, the common feature of these new cosmic worlds was to embody a real world (no matter, if actually built or not) and not just a singularity, a symbolic sign standing departed from the world’s rest.

This paved the way for modernity. Because the new world was not realized by God, or nature, but by man - **planning** reality.
Vasari, the same man who built the *Uffizi* in Florence: The plan, by embodying a general judgement (*giudizio universale*), is able to recognize\(^{142}\) the measure of the whole in relation to its parts, as well as the measure of the parts related to each other, and their relation to the whole. Which closely resembles what has been said about the concept of gestalt. But now, the interesting point arises with regard to things to come in the later course of history: out of this recognition, Vasari continues, results a certain judgement, laid down in a plan. The plan is the manifestation of the idea, he says, of the inner image about what has to turn into reality. Such a conception directly leads to the construction of new worlds. Because it is not a conception that just exists in *parallel* to other conceptions *about* reality, it became the conception of reality.\(^{143}\) From now on, concludes Panofsky, the idea is not pre-existent in the artist’s soul as it was in case of Cicero or Thomas from Aquinas, nor is it pre-given from outside, but it emerges from reality, and even more important, will be “sculptured” by the artist.\(^{144}\) The idea became both an active and a subjective issue, based on personal evidence gained from an empirical outside; and in becoming the conception of reality, it could *mold* realities. From here it is a small step to the worlds of Francis Bacon and modern grids. From now on the world became a constructivist issue in its literal meaning. It was the freedom and the curse of modern man who first appeared in Mirandola’s tale. Because now, everything becomes possible: if the subject has the task of *gaining* the
rules underlying its constructions out of reality, instead of presupposing them above reality, the question arises why these rules should be justified. \[\text{Why for instance these ideal cities should match with a human condition, and no others; why it should not be allowed to subdue everything within reach under an encompassing grid; and so on.}\]

Beginning with the Renaissance, man could make his own worlds; it became a culturally grounded Unthought Known. On top of that, such worlds had to be perfect - ideal sceneries functioning as the stage for the new human being. Referring to another entity newly detected in those times, the Antique, perfection meant harmony; it was an idea that became one of those mentioned “engrammatic images” for the new artificial worlds. The built surroundings of man and their natural environments had to follow such a literal cosmic conception. It was an idea that never lost its actuality, at least not completely. Even Le Corbusier, one of the masters of the modern grid in his utopian attempts to find a new home for man the liberated being, explicitly referred to the Renaissance theorist Alberti. \[\text{Having been liberated from the rest of God’s Creation, man built his own worlds, and at the beginning of such a venture, he tried to do so harmoniously, and beautifully; informed by antique models.}\]
Fig. 240: Man's World as Ideal Scenery
The new cities were not just more or less symbolical images as it had been the case with Fiore’s ideal city, but were concrete entities designed to be actually inhabited. They were planned cities, each of them a human cosmos designed de novo and placed on the green meadow, so to speak, i.e., translated into mythological terms: to be positioned in an empty space not cultivated yet - cultura stems from the Latin colere, standing for the art of agriculture, for cultivation, both as a general attitude and a practical activity.

One of the main principles underlying those new cities’ construction was concinnitas, a term closely related to the idea of gestalt, and harmony. Concinnitas is the ordering of elements which are different by nature, and to do so according to a plan, so Alberti, by modifying Vitruvius, the great Roman blueprint for Renaissance- and later architects. And to order them in such a way that they appear beautiful through their interactions. With a look at things to come in modernity, but also with a look at the concept of gestalt as a dynamic entity introduced in the beginning, there are several major aspects of importance. First, there are elements which are different by their very nature - variety. Unlike the modern grid to come, this variety is not destroyed but explicitly kept alive. Although it needs a plan for doing so, a mental model of the kind as described later by Vasari; this is the second aspect. The world I want to construct as an architect is not free to evolve, is not a subject
of physis (e.g., in case of a city, of a certain historical development) but of a preconception - of an ideal artifact I have in mind ex ante. Third, it is about beauty, achieved by the harmonious ordering of those elements, an order established by the plan. But, and this is the most important aspect with a look at the world conception to come later because it is announced already here: the intended beauty becomes apparent only through the interactions of the elements ordered. Despite that these elements are static entities by nature, “inert stones”, to recur to the preceding chapter, they own no meaning if they would stay so. Their meaning derives from their interactions, the very term already indicating a dynamic relationship. Because how to realize an interaction (which is action, activity, dynamic) when having to deal with the inert stones of matter? As in our installation, it needs a spectator, an individual participating in that architecture who at all enables, through the very act of spectating, the relations prescribed by the plan to become active, alive. And only this reveals their beauty; otherwise, they would be just dead matter. Through the act of spectating, the architecture looked at also becomes active by showing its relations.

Such a conception not only of architecture but of the world as such is very important since very modern. Because what can be applied to “inert stones” can also be applied to the world around them. It is a conception differing from
its antique blueprints. For Aristotele, beauty was the result of proportions (not of interactions), mainly of one, the proportion between part and whole. Judged from the perspective of a modern world view, one could say that this was an essentially static conception of reality. Settling upon that, the three central categories of Vitruv, namely firmitas (firmity, solidity), utilitas (usefulness) and venustas (beauty), were applied by Vitruv to single buildings. For Alberti, they became categories of a general systemic nature because they were applied to entire ensembles of built matter. Ensembles which, as said, are to be understood only (in revealing their “beauty”) through active participation. To draw parallels to our own age, as is the case with our installation where the evolution, the literal unfolding of visible gestalten only takes place via the inclusion of the spectator in the entire process. from Alberti to our installation, systemic properties are essentially dynamic relationships between a system’s elements (“interactions”, Alberti would have said), properties which through that (and only through that), make their gestalt become apparent.

It is not the intention here to go into details of architectural theory; the point is the change in worldview. It is a change towards the dynamic, the openness, the progressive move into the future of history. Recurring to the above discoveries of a new world in their different domains, it was literally about new horizons. The very concept of a horizon is a modern one, and it is a concept focusing on transition; as opposed to a medieval one (realized in the cathedrals) that
focuses upon transcendence - both concepts are neighbours in that something existing shall be trespassed, by overcoming its confinements. Out of this, they are important constituents for a truly modern worldview to come, but they are nevertheless different. A transition is a more worldly matter than a transcendence since it concentrates upon what is, within the context of this world, and not upon surrendering it at all. A transition for Renaissance theorists was the one from the visible to the invisible, from the finite to the infinite - as indicated, not in religious but conceptual and real terms. Horizon was transition, from the microcosm of place to the macrocosm of space.150

On the other hand, what remains is that microcosm, man’s concrete place to be; even in Mirandola’s paradise, as an individual and physical being, man can only be at one place at one time. Moreover, even more important: how to reconcile micro- with macrocosm? Looking at the latter, Alberti’s famous metaphor of the window is applied: as through a window, one can look at the surrounding world, and first of all at its images, e.g., the one of a city. The world can be looked at as if it would be an image, and by that image, we gain an impression of it. Later, in modernity, this became the “transparency of the image” but first and foremost, it is about imagining spaces (as in our installation), that is, it is finally about spaces imagined.151 Further developed, it is about an artificial presence - first, also in case of cities and
Level 3: The Virtual Cosmos
The World as Scenery

later, also in case of man. Because the principle of concin-nitas is also possible with imagined, even with a-harmonic entities, and it is also possible with modules instead of carefully carved architectural ensembles. The “interactions” of Alberti can turn into the more abstract “junctures” of modernity, and this is also possible with modules since it is sufficient to have a “systematic potential of junction”.152 Man’s microcosm of an ideal city can also dissolve into sceneries of virtual or real worlds which are, by their very concept, endlessly extended, ungraspable, and as fantastic as the Renaissance islands before.

It could lead to the theatre streets designed by Sebastiano Serlio, complete virtual worlds shaped as sceneries which were (on top of that) adapted to certain basic mindsets (like “tragic”, or “natural”) they were the expression of.153 An approach that also enabled the construction of completely remote worlds like the world mountain of the Olympic Gods, realized by Andrea Palladio in the Teatro Olimpico.154 The forerunners of such worlds were still cosmic confines, as in case of Alberti’s own ideas about an ideal city which in its overall gestalt was intended to follow the ideal of a house (more closure isn’t possible).155 Or the ideal city of Sforzinda, showing the blueprint of an imagined world closely following the antique one of Vitruvius and crowned by a “tower of virtues”, the first conceptualized skyscraper in the Occident; a type of gestalt that was followed by many
Fig. 250: Imaginary Spaces
constructions of fortification, each of them a microcosm of its own. When we compare the last two images with this one here, we gain an impression of what this means. In particular a comparison of the last image with this one here is revealing.
Or it could be the attempt to really construct a complete virtual cosmos, containing both *natura* and *cultura.* After constructions like Pienza, or that of the Vatican Gardens by Bramante (achieving a real space totally constructed), it is pronounced at a time when the ‘original’ Renaissance began to fade away, in the Villa La Rotonda of Andrea Palladio, the case to be presented in the installation as an epitome for Level 3. Here, the concept of Alberti’s *fenestra prospectiva* gets combined with another strain of tradition of how to look at the world, namely the concept of a ‘natural theatre’. A theatre that was not artificially constructed but embodied within a natural environment. Together with the villa which, typically, was to be located at the top of a hill, the whole ensemble - to be seen as an entirety of culture (the villa with its surrounding garden) and nature (the landscape) - was a world mountain of specific kind, a virtual but nevertheless ‘natural’ cosmos. It was an arrangement that also reflected another important developmental strain first appearing in the Renaissance with full vigour: the trend towards the individual. Settings like that of the Villa rotonda were not designed as cities but as private places, as *topoi* for the individual ‘user’ (as such individuals were named later). Despite their natural environment, such settings were artificial. Carefully selected perspectives were chosen as vantage points towards the proverbial rest of the world represented by the landscape (a very individualistic attitude), and their windows served as a frame for looking at a real but nevertheless “pictorial” world. The individual begins to
Level 3: The Virtual Cosmos
The Virtual Cosmos, Exemplified

glance at the world, but from selected perspectives; and it is literally sitting at its top, by being its center. Therefore, with a look at things to come, the natural theatre will lose in importance whilst the look through “actual or fictional windows”, them both the metaphor and the model for “the architectonically acquired” world, will gain in importance.\textsuperscript{158}

The window ensures the theatre-like production of space (to cite Lefebvre), and the order of the “natural” achieved in this way is not necessarily identical with the real nature which it is looking at.\textsuperscript{159} The antique idea to which such a (basically modern) conception of the world ‘as it is’ is referring to, that of an \textit{ideal place} which is sacred, becomes less important. To draw an evolutionary line, the antique theatre of nature, the old paradigm of an ideal topography resembling the ‘order of nature’ which was dominant from Antiquity to the Middle Ages, it steps back in favor of a “nature as image”.\textsuperscript{160} Even later, after Level 3, it was enough to concentrate upon the sceneries’ very core, the \textit{cultura} in the midst of this virtual natural theatre: the construction of a constructed world.
Fig. 260: Perfect Constructions
At the dusk of the Renaissance, Blaise Pascal said: these empty spaces are frightening me. For him, space had evolved into an abyss, into a literally empty space, an infinite space extending endlessly in every direction. It was still a vertical view, states Blumenberg, a view searching for transcendence. For a technician like Leonardo, he says, the view towards that abyss would have been a horizontally oriented one instead, a one looking for the possibilities it has to offer\(^{161}\) - because it is an empty space. It is the space discovered by the voyagers of the epoch before, the Renaissance. Whereas the “vertical view” longing for transcendence, that old Christian attitude, is powerless in front of this vastness. This new attitude of a “horizontal” view, so Blumenberg, is a typically modern one since it relates to the world’s technification, a phenomenon that is not identical with the usual antithesis of nature - technique, he says, but based on the principal relation of a Modern Age’s man towards the world. Judged from such a perspective, technification equals the “constant growth and condensation of the Dingwelt”,\(^{162}\) of the material world ‘as it is’, to recur to that mythological term. Like it was the case of the two utopian alternatives treated in the chapter dealing with The Heavenly Jerusalem, namely either more Babylon or more retreat into the paradisus claustralis-mode, here, in front of the abyss, also two principal alternatives appear: to build man’s own house as in the ideal city-approach of the Renaissance, by creating a virtual cosmos within an existing world (a world which proved to be no cosmos but
Fig. 270: The World as Grid
The latter alternative was the way of modernity, and it gave rise to the modern grid - to be understood in terms of a general attitude, and not in terms of a mere instrument.

The modern grid is about technification, more than that, it is almost identical with technification. Because as a principle and as a state of mind at the same time, it is a general attitude towards the given (the world ‘as it is’), and as such, allows for a universal shaping of that given according to an algorithmic, formatted procedure. A procedure that creates, through being a format, other formats. Applied to spaces, it enables an encompassing functionalization, together with their ‘technification’. As already said, which is a matter of a specific state of mind, and not a matter of the instrument as such. On the contrary: for the purposes of city planning, the grid belongs to the oldest instruments in use, it is “...by far the commonest pattern for planned cities in history. It is universal both geographically and chronologically...No better urban solution recommends itself as a standard scheme for disparate sites, or as a means for the equal distribution of land or the easy parcelling and selling of real estate. The advantage of straight through-streets for defense has been recognized since Aristotle, and a rectilinear street pattern has also been resorted to in order to keep under watch a restless population.” Like the typically modern question about technique, the one about a distinctively modern grid is not so much a question of the grid,
but of its application - of the specific ways it is used. And these ways are a matter of a “state of mind”, a mindset of how such an instrument is used. In the answers given in the quotation, we gain a first impression of this mindset: a grid is an instrument suited almost perfectly to dominate. These answers enumerate the functions a grid is able to fulfill, by being a certain scheme of world order. When we look at these answers, they are all heading towards a certain goal: namely to achieve a maximum of functionality and through that, to achieve a maximum of control. In other words, it is a matter of how far the possibilities inherent to the instrument are realized, and this How Far is determined by the mindset in question. Also a uniform scheme of world order has limits regarding its application (despite being uni-form), it must not be realized totally - like any other instrument which is ‘technical’ by its essence, such as a grid.

The main purpose - and usefulness - of a grid was the modular division of land, facilitating, “...the creation, de novo, of land-use and occupational separation...” The first gridded city appeared around 450 B.C. by the Greek architect Hippodamos who used the instrument for the plan of Miletus, he probably being the first to bring the grid “into a body of morphological practice.” For our purposes, the modularity and the morphological practice are of prime interest since both allow for a de novo-construction. It is a mode of construction that does not have to consider what
has been before, i.e. that does not have to respect the ‘naturally grown’ it encounters. It can be an original, yet uninhabited nature; or a historically grown that was before such a ‘morphological practice’, for instance the old city core of Paris to be swept away by the grid of Le Corbusier’s new ideal city. What existed so far, in keeping its own identity and individuality, does not have to be respected by the grid. It is a new metron for a world to be constructed, making the world de novo, anew - in one word, it is an instrument perfectly suited for erecting utopias.
Fig. 280: Gridded Diversity
Not only in that term’s conventional meaning of longing for ideal states, but first and foremost in a literal one of a nowhere-place, or more exactly, a non-place. Because the grid owns no specific gestalt since it can adopt any gestalt possible. It can be enclosed by a cosmic confinement like a wall or some other kind of enclosure, it can be stretched out into infinity, it can reach in the horizontal as well as in the vertical dimension alike, as it was realized with the skyscraper; or it can be a combination of all this, as realized in Le Corbusier’s plan for a new Paris. The concrete shape the grid adopts depends on the circumstances of its application, and as it started in the days of the Renaissance with the paradigm that man creates his own worlds, this depends on the plan (we recall the sayings of Vasari), and not on the concrete surroundings that plan encounters. Essentially, the grid is a function, no concrete being, an abstract ‘gestalt’ so to say; and therefore, it can adopt any gestalt it wants, i.e. has been applied for. And by doing so, this “body of morphological practice” can manage any diversity it encounters. Again, opposed to all the other gestalten we have encountered, in the course of our historical sequence so far, the grid is no concrete being. Perhaps therefore, it could have been used in history for such a long time, and right from its very start as regards the shaping of urban structures (see above). It belongs to the nature of a function, of an \( Y = f(X) \) that every concrete entity, every individual \( Y \) has to follow the rules prescribed by the \( X \) in question, here: the grid.
This leads to the fact that the respective Y, the individual entity, is no longer an individual in the word’s genuine understanding of being something unique with its own identity. Since it has gained a new identity inscribed by the X. As it was tried in case of the gothic cathedral albeit in a total differing way, the ‘original’ identity of that Y - e.g., a forest or a landscape - is becoming transformed, turns into something other than it has been before. As a function, the grid is perfectly suited to transform realities. And, this is the important point, not just by changing the surface of the things, but by transforming their essence. The landscape for instance upon which a grid had been superimposed is not that landscape any longer but has turned into something other. Recurring to the notion of Physis introduced earlier as that which owns the capability to grow out of itself, and through that, gains an (historically grown) identity, the grid is no identity but an instruction - like every prescribed function. And the new ‘identities’ it gives (after the procedure of transformation) are no identities in the real sense but superimposed instructions. As regards the formatting procedure mentioned in the beginning, they became pseudo-identities, their ‘individual variety’ is just seemingly since in the final, they are merely versions of one and the same. Like in marketing processes where the package promises something about its content, a content that became functionalized out of the fact alone that it has to be sold with profit and therefore, is produced in masses; and which becomes functionalized a second time in that its usage
promises individuality for its ‘user’, for the customer who buys it. Looking at such a procedure, it is forgotten that what has been (a), produced and (b), in masses for (c), achieving certain predefined functionalities cannot be an individual and out of this, has no real identity.

It has been formulated “like” marketing because in the consequent application of the grid in ways which come close to the procedure outlined in (a) to (c), there is one crucial difference to such a marketing process: it is even more radical. In the marketing process, the ‘original’, ‘true’ (or however one may name them) identities survive, in one way or the other - the customer, the ‘user’ of the predefined functions nevertheless stays what he or she always had been, namely a human being. They have not been transformed into something else, at least not totally. In the consequent application of the grid, that is, in an application taking no regard of confining itself - the Greek idea of metron, and of cosmos - the transformation is total, as we have seen, by making the things transformed into something else. This is crucial for understanding a “gridded logic”, and by that, for understanding what happened with man the civilized being’s second nature, the urban environment.
Fig. 290: New Ziggurat
To give an example: What we see in the picture to the left is a gestalt that symbolizes a new *imago mundi*, after the idea of Le Corbusier was installed to create a new *unite d’habitation* for man the urban being, by concentrating him en bloc, so to say (an idea to recur at Level 5, in new shape). The building presented could be any other entity except a building, any kind of technical structure. But what looks like any structure is an assembly of places for *living*, packed like products or materials for industrial production.

When we recur to the preceding chapter, to Vasari’s definition of gestalt as the measure between the parts to the whole, between the parts themselves and in their relation to the whole (the “and” is important), and to the idea of concinnitas, it is all about the right proportion. And in those times, the *right proportion* was equivalent to a human proportion, finally, as expressed in Leonardo da Vinci’s famous figure of a man in the center of a circle. It is about what the Greeks, our very forefathers in conceptualizations, called *metron*, the “harmonious, ubiquitous measure” which implied the idea of a cosmos, denoting ornament (i.e. beauty), order and proportion at the same time. An idea that in the Renaissance again was established as a human measure, one oriented towards, and informed by human proportions. For Alberti, a building was a body consisting of lines and matter relating to the measures of the human body.
That is, it was a body, something sensual, and a body related to the human being. Even at the end of the 19th century, at a time when man’s urban environment became gridded and grew to an extent unprecedented in history, the art of architecture - which in its final terms, is the art of constructing artificial worlds - was conceived as the art to construct *Raumgefüge*, Schumacher said, one of the theorists of those days (like Alberti before). That means, to built spaces which could be experienced by a process of “vivid comprehension” as a consistent system of diverse spaces.\(^\text{168}\) As harmoniously ordered entities, in one word, as ensembles to be experienced as a “constant change in spatial impressions”, as Sedlmayr said. And not as solitaires disregarding their environment - for instance the skyscraper as a “vertical grid” - or an ubiquitous function stretching out everywhere, regardless of what it encounters during the course of its extension. Diversity and Raumgefüge remind of the Renaissance: it was about harmoniously ordered entities obeying some meta-measure (as one would say today), since “no space exists out of itself”, so another 19th century-theorist.\(^\text{169}\) Interpreted in these respects, the modern grid has no right proportion; since it is existing “out of itself”, the only proportion it has is the one of the function, i.e. of being a grid, that “morphological practice” addressed above. If not counter forced by confinements of a physical or human nature, the only “right proportion” is the function itself - matters of proportionality became completely self-referential
because there is no proportionality to be obeyed, except the one of the functional.

But the new spaces with their non-places created by the modern grid had a big advantage: they allowed for movement; like the modern grid itself, in a degree unprecedented in history. Resulting in a new kind of spatial experience as such, namely to conceive and comprehend spaces literally on the move. Up to that historical point, analyzing space was performed in terms of blueprints showing a ground plan; which was an essentially static way to look at things. And of how to conceive them at all. Up till now, the “constant change in spatial impressions” demanded by Sedlmayr happened on this base - which is the one of the Renaissance also, the one of a central perspective taken by an individual standing somewhere. Now, looking at space becomes looking within space by moving through it. To decipher space is not only possible from a fixed point of view but also through movement; space turns into a “rhythmical dynamic” and thus, becomes a “new space”, namely “the rhythm of the flowing movement of masses” (Hans Scharoun). To recur to the beginning: in the same way as gestalt can be understood in dynamic, not only in static terms, so is it in case of space. The new space addressed here, the dynamic and fluid one, became an epitome not only of modernity - which is a past already lying behind us - but first and foremost of our own time,
Fig. 300: Modern Space with Moving Bodies
assisted by a kind of spatiality which isn’t even physical any more but just, and only, flow. The Internet- or Web space became our third nature (after the second one of an urban environment) since we all totally depend upon it. It is a kind of space where both the conception of the “modern space” outlined here had fulfilled itself - pure flow, i.e. pure dynamics - as well as the old mythic dream of the cathedral: to transcend everything material into another state of Being. Following an understanding of rhythm as a continuous sequence (“flow”) of shaped masses - also of other ones as those of “inert stones” (to recur to the cathedral) - then the functionalist mindset predefines that rhythm, by predefining its sequences. Which means that a functionalist attitude is able to structure everything, not only ‘structures’ in a conventional understanding that equals structure with matter, and statics. It is an attitude we tried to reflect in our installation, through its very procedure of how to generate ‘history’. Both as a means to “produce” it, and as a critical reflexion.
But the masses still exist: of information to be handled in ‘flow’, of people living in gridded functionalities who have to be managed, in one word: of masses of materials of all kind. And what also exists is the absence of any metron brought about by this new way of thinking and its consequence of constructing the world ‘as it is’ today. Inter alias, manifest in the sheer ugliness of today’s cities, man’s second nature. Not just in a metaphorical but first and foremost real way since recently, the majority of the world’s population lives in cities.

It was a move towards a metropolization and “urban sprawl” that set in with the reconstruction of cities in the 19th century, a reconstruction that changed not just the image about cities, but the city as an image. Contrary to the Renaissance concept where city-images had been, first of all, the counter-images to the non-city, images of cultura posed against natura, the epitome of physis opposed to the planned, the cultural, the modern one is quite different. Because during modernity such clear-cut spatialities became blurred. Due to a lack of confinement, or metron: already in the 19th century, a third space emerged between town and country, a kind of in between-city, first in the shape of suburban sprawl, and later as the encompassing functional grid of a so-called logistic landscape, that multitude of transport lines, production and storage facilities, supermarkets, gasoline stations and settlements, a
product of movement. It became an intrinsic part of our *conditio humana* - next to be mobile as such - a condition Marc Auge called “an anthropology of supermodernity”, an anthropology that has to come to terms with non-places, with utopias in literal sense. It is a condition that defers any characteristics which make up a ‘traditional’, or real place, namely to be places of identity, social relations, and history. And stability: because “...place becomes necessarily historical from the moment when - combining identity with relations - it is defined by a minimal stability.” Which is not the case, in case of the logistic landscape: it can be reconstructed any time, constantly changing its form. Its *form* only, since as the grid itself, it has a structure but no gestalt.

The in-between city is no city any longer, states one of its main investigators, but an “urban agglomeration” - technical terms used to describe the outcomes of a certain technical mindset longing for encompassing functionalization. The in-between city became an international phenomenon, and a one of own rank. It lacks any spatially ordered structure but became an encompassing net - the city as a network, utopian since placeless, even spaceless by its nature, and essentially uninhabitable for large parts of its population. That is, translated for an understanding based on morphology, an anthropological determinant of a world ‘as it (meanwhile) is’ since it became the second nature of man resembles nothing but an amorphous mass in lack of any gestalt. Unlike the attempts at the doorway
to a Modern Age, there is no concern about spaces as an embodiment of architectural ensembles, i.e. about an urban space deserving the name. As an ever-growing phenomenon, the recent city can be described more adequately in terms of fractal mathematics than by the traditional terms of center vs. periphery, or town-country, and the mathematical models reveal the basic “self-similarity” of the underlying processes\textsuperscript{177} - as we do with our installation, albeit out of other reasons.

But as Auge already stated, man is in need of gestalt; not just for ‘orientation’ in a direct and technical sense, but as an anthropological necessity. This necessity cannot be fulfilled since today’s city, amorphous as it is, doesn’t provide an image of it. The recent city is essentially image-less,\textsuperscript{178} and expressed in literal terms, we (the inhabitants) cannot figure it out. During the so-called second modernity, summarizes the above investigator, an ever-growing economic globalization combined with global media led to the dissolvement of local, place-related cultures and through that, to an almost complete devaluation of both place and space. But both are fundamental for an urban society. The city, once place of the human community and the space for the zoon \textit{politikon} with the “solidary-community” of itsburghers, became de-communalized, de-socialized and fragmented, accompanied by concomitant forms of social decay.\textsuperscript{179} The today’s city as a psycho-topos, summarizes another investigator, is no \textit{human} environment any more.
Level 4: The Modern Grid
Massive Griddings

And since the today’s cities aren’t any longer what they essentially were supposed to be in the Occident, namely a political space, their fragmentation is accompanied by an actual loss of individual and communal freedom. Opposed to a traditional city, man’s supposed true albeit second nature, where it was a cities’ gestalt that generated the living space for its inhabitants and hence, their freedom and identity as individuals.

During the Delos conferences, in the vicinity of the place where the first occidental grid had been realized by Hippodamos, plans took shape of how to end this misery. Amongst others, Marshall McLuhan, Buckminster Fuller and C. Doxiadis considered of how it is possible to solve the misery portrayed in the foregoing by a strategy of more of the same - to overcome Babylon by erecting a Super-Babylon, consisting of a worldwide net of habitation, a gigantic grid to cover everything. Because, so Doxiadis, architecture is in transition. “The main reason for our confusion is that we find ourselves in an epoch of transition, the general nature of which is also reflected in our architecture... Architecture simply follows the general trends of its age. It is now in the process of evolution, as it has always been, but an evolution more intense and more rapid than ever before.” A situation which can be countered only by abandoning what has been, he concludes, freeing “the average citizen” from being a slave of the past - which is
the past of the city as a historical entity, with its architectural substance lasting for years.\textsuperscript{182} This is quite the opposite of what had been said above, about the relationship between individuals, cities and freedom. Despite the fact that such a statement is not so new as he might have thought - in very similar wordings, Le Corbusier speaks about an inherited past - it is a statement typically modern: modernity is change, and movement Overcoming the problems created by it consists of a flight forward-move, abbreviated: to overcome the functionality-driven Babylon of the present state with a new functional Babylon. As a historical pattern, it is that basic type of utopia introduced in the chapter dealing with The Heavenly Jerusalem.

Referring to the words of Campbell, it is really a creative mythology what got presented here. The new city, a final since global habitat for man adopting the shape of a global net, was called Ecumenopolis, literally translated the city (polis) for the community (oecumene) of mankind. Symbolically understood as representing a world mountain of peculiar class, namely a worldwide grid extending almost everywhere (only the oceans and some uninhabitable areas could not be covered), this massive grid was - like any other grid - modularly constructed. Opposed to the vertical grid rising high in the skyscraper and concentrated on one spot, the world mountain became extended, flattened, universal. At the top of that, the encompassing
scheme of the ever same - again, like any grid - should ensure a maximum of freedom, individuality, and happiness. Moreover, it was a reconciliation of an old occidental dichotomy that had plagued man since the emergence of the first cities (see The Ziggurat), i.e. since the dawn of his second nature: that he was no longer a ‘natural’ part of the world. Because Ecumenopolis united nature and culture, via the scheme of its encompassing grid. It was conceptualized as an earthly paradise, a gigantic Garden of Eden stretching out in all directions, organized alongside the lines and nodes of its global network. Opposed to Renaissance conceptions, it is a cosmology of the amorphous which is presented here, the most consequent outcome of a world as grid. At least in its material form; before it became an immaterial globalized net of Internet connections, a prolongation of the cathedral’s dream of “living stones”.
Coming back to the social cosmology addressed in the beginning, in particular to its component of man-man relations, “Any social cosmology will have to have something to say about relations between human beings...”\textsuperscript{184} And as has been tried to show with the sequence of levels presented in our project, one of the most prominent and visible expressions of such a cosmology is architecture, in particular city architecture as the physical expression of a certain form of society.\textsuperscript{185} These “forms of society” underwent a radical change with the introduction of functionalism - reflected in the modern grid - and its aligned secularized Christian mythos of dominating the world, and at the same time, to consequently “immaterialize” that world - the dream of the cathedral in its secularized variant.

The emergence of cities (Level 1) and after that, the magic ruse to ban the Being manifest in the cathedral (Level 2), followed by the attempts to construct a virtual cosmos as man’s new, and true home (Level 3) - it all led to Level 4, the encompassing functionalization of the real and through that, to its almost total virtualization. A situation and evolutionary niveau symbolized by the modern grid. Level 4 is the base of the one to come, a level (no. 5) abbreviated as Babel II.
To understand what happened we have to recur to its beginnings. When Hippodamos established his gridded city, it was conceived to embody the epitome of rationality. Such an approach to the world ‘as it is’ was regarded, as hundreds of years later in the Renaissance again, to be for the benefit of man. Aristotle was found of the conception realized in Miletus, since it was a conception that stood for (was ‘symbolizing’, to stay in the diction of our project) an entire attitude towards reality. A rectangular street system, writes a modern author, guarantees the homogeneity of the urban fabric and leads to “an immediate comprehension of spaces”\textsuperscript{186} - that very goal which also was a guideline for the Renaissance at the doorway of an age called modern: to realize the world’s entirety, and to do so via the embracing perception, comprehension and shaping of its spaces. The plan of Hippodamos aimed at systemic harmony, by enabling a diversity to unfold on the base of a unifying system that was established according to rational rules.\textsuperscript{187} To rational ones, and not according to the rules of monolithic power as in case of Babylon, or to those of a cathedral in its reach for transcending all worldly confinements. Already indicated by the very notion of a system which is an idea of Greek origin, it was a rationality that should ensure harmony. The idea of a ‘system’ was not so functionality-minded as today but reflected cosmic properties: a systema denoted an ordered wholeness and was equivalent to the world-order itself, to the cosmos.\textsuperscript{188}
In case of human belongings and its relevant world of the city, to be gained by the *metron* of the grid, ensuring the freedom of its burghers at the same time. For such a conception, the citizen, inhabitant of a city and a *zoon politikon*, a city-based communal animal, consequent application of rational and technical means (as the grid is) and cosmic harmony were no opposites. It was not about functionalizing everything, that Christian heritage of a mythic (and actual) domination of all what is (i.e., of the world) was not in existence yet.

For this first consequently performed rational construction for man’s second nature in the Occident, Miletus, the grid was applied but did not dominate everything. Within its terms, a clear hierarchical order of buildings was established, allowing for diversity of appearance and expressing the ‘social cosmology’ of that time. Opposed to today’s cities, the hierarchy of buildings is explained by the fact that Greek architecture almost exclusively served communal and not private interests, and as in other cultures which applied the grid too (for instance in Mesoamerica), the rigid scheme of the grid did not force eo ipso a concomitant systematic and uniform erection of buildings.\(^{189}\) In other words, there was a grid, but it was not uni-form. If morphology does include “…not only form and structure but also the actual physical expression of that form, and the manner, by chance or by consistent practice, in which the various physical components are related to each other in a system of form interaction”,\(^{190}\) then it was realized here.
As regards notions like ‘interaction’ or ‘system’, notions we already met in the preceding chapters, those interactions and systems can happen in very different ways despite that they rely upon the very same *technique*.

With a look at Babel II, it is worthwhile to consider the original occidental conception - exemplified in case of Miletus - since nearly all what has been desired for in constructions of the Babel II-type has its origins here, in our conception of Greek cities. Because it might be that the Mesopotamian cities with their mighty ziggurats and unified management schemes presented in Level 1 were the base of urban civilization, but in case of the Occident, that civilization started in Greece, and not in Mesopotamia. And related to it, the ‘social cosmology’ interpreted into the Greek city states (by us, living in entirely different conditions) has been the great ideal for almost all utopian ventures to come after their fall. Those Greek ‘political’ and polis-based conditions serving as a blueprint, an engrammatic image (to recur to earlier notions) standing for the *aetas aurea* of man the civilized being, at least in the Occident. A paradise to be regained by the respective utopia, even by those which followed a defined religious purpose - as for instance portrayed in Fiore’s ideal city - and prevalent in the 19th century- and modern utopias aiming at the re-liberation of man from his modern urban chains, those functionalized metropolises with their living conditions, and to ensure his real Renaissance.
At its base, the idea was simple: all humans should live free and equal, or at least a life fulfilled by realizing the human potential, and they should be united in terms of a community deserving the name, namely to embody a real *communitas*. Abbreviated, this was the basic idea, from Fiore to the dreams of free and equal internet communities of the recent past. Juxtaposed to it, the original idea of a world mountain as an expression for both a cosmic order and the world ‘as it is’ resulted in a placeless and from that alone, utopian model of a *world* that actually became world, in the latter’s very real and concrete terms. Such an urban reality became the counter-utopia of the one to be achieved by the basic ideal, its negative twin, so to speak.

Because the counter-utopia of a universal functional grid generates spatialities of a peculiar kind, but no places. Reasserting Greek and Renaissance ideals, Delfante states: It is the relation between two measures that can transform an urban space into a true place, an “absolute” and a “relative” measure. Regarding the former, it is impossible that a purely geometric space can ever turn into a place since it has no relation to the human being. A “primary” (as he calls it), simple and empty space lacks the combination so essential for generating the feeling of place, namely the combinations of forms and the relationships between them which result out of the combination. When we recall the definition of morphology given above and the Greek
ideal of city planning, this is what a “purely geometric space” cannot provide; because it is the expression of function, and is only function. It is faceless, does not allow for an image. If an image is the condensation of a cities’ nature, what kind of “mental maps” (Kevin Lynch) do we need today, at the peak of functionalism, in order to have an access to the urban space as a space of perception, and sensuality? In a way, what became modern and recent urbanism is a second Babylon, but lacking its counterpart of a Heavenly Jerusalem. Faced with such urban conditions as an epitome of a domineering functionalism, two principal utopian reactions were possible: flight into placelessness, or escape into new utopias of concentration.

The former variant has been taken by the so-called situationists in the 1960ies, and recently again by the networked individual in the “space” of The Net, the latter by constructions like Babel II. In an approach called Neo-Babylon, situationist Constant proposes that man can be truly liberated (thus making della Mirandola’s dream to come true) in that he does not has to live within the frame of fixed places any longer. As for The Net, place became meaningless, the new Mirandolian man can roam wherever he wants. And as regards the old ideas of polis and communitas, this poses no problem, too, because by being a free individual, he can choose any community he wants, at any time. The situation counts, the moment, not the durable (therefore
the movement’s name). As regards the symbol of durability, the built urban fabric, it can be superseded by a kind of ephemeral mega-grid, an amoeba of ever-changing shape laid over the existing urban fabric, depending on the prevalent social needs of the moment. Prolonging the scope of della Mirandola’s tale, what is needed, says Guy Debord, the founder of the situationists, is a psychogeography (we recall the idea of the city as a psychotopoe), a geography capable of detecting the influence of the geographical environment on human behavior. And combined with it, what is needed is a new human being, and a new conditio humana, that of a homo ludens.

Because man has lived for too long a time in conditions of functionality, conditions which are just simply not suited for the “new creative species of the Homo ludens.” This new species needs an environment which is flexible and first and foremost, changeable. Which is the death sentence for any kind of place-relatedness. As mentioned, it is a strain of thought that became prevalent again in the quite recent past, and present: with the existence of a Netspace (which isn’t a space in the latter’s traditional, i.e. physical terms), free-roaming individuals driven by personal purposes are the latest offspring of a Mirandolian man.
The other concept settled upon the built environment as a fixed entity, and its benefits of being (potentially) placeful. Its underlying basic idea had been formulated by Paolo Soleri, constructor of the exemplary second Babel we present in the installation. A social pattern, he says, is strongly informed, if not guided, by the material pattern within which it is located. Moreover, in the face of urban sprawl the “natural space” is not the suited habitat for man. Man has to shape the urban landscape according to “his own image”: a physically dense, compact, three-dimensional package, and not a thin layer of organic matter - which are the cityscapes of urban sprawl within which he lives now. When we look at the above picture, we see a city in the new image of man (referring to the title of Soleri’s series about new human habitats) - a mighty structure with a landscape in the background that is just indicated. The new tower of mankind, that massive solitaire in the foreground could stand everywhere and hence, anywhere. As its ‘natural theatre’ in the background is concerned, this idea of the Renaissance as the epoch which stood at the doorway to a truly Modern Age, becomes almost irrelevant. As in case of the first Sumerian cities, mankind concentrates again, lives on the spot. Hexahedron is for an estimated population of 170,000 inhabitants, 1.1 kilometers high and has sides of 1.0 kilometer length. It covers a surface area of 57 hectares. By drawing a long line of history, the object is also mythologically anchored, since its gestalt shall remind of the origin of life from inorganic matter. “Morphologically
and structurally, Hexahedron is...a pseudocrystal. Its validity would be in the high human and emotional standard texturing it.198 The general aim of such buildings, also of the one presented in the installation, consists in unifying man with nature again, by overcoming the nature/culture-divide that characterized such long periods of his history. It is about to leave an era of the instrumental, equalling the Technological World, towards a one of creativity, as he calls it. Since “The social superorganism, contriving and nursing mores, culture, and destinies, lives within the physical, social body.”199 A body presented in the above imago mundi and widened in the one of Babel II which Soleri delivered in several versions. Although it can be doubted if his megastructures really serve human needs, with a look at the things to come after Level 5, his sayings are prophetical: “The Babel of modern times is a technicality in search of purpose, a purpose it is destined not to find until the day when its subaltern position is understood and framed in the society, technicality is meant to serve. This is, in turn, unachievable unless the credulity of man in the neo-magic pose of technology is deflated to its proportion...”200

Needless to say that this adjustment in proportion has not taken place yet, mainly caused by the very system of functionality of recent capitalism - the mega-technology of functionalizing everything within its reach, by reifying and objectifying everything. After man reached the threshold to
the 21st century, writes Feuerstein, a “new utopia of Babylon” was to come up the horizon: “Barely a year after a second of horror, the elite of world architects is called upon to rebuild the New York Babylon. Naturally, it makes no sense economically to leave the site vacant as a memorial - it is one of the most expensive pieces of real estate in the world. In other words: The new “World Trade Center” is no utopia, is it?”

If we take the new world trade center symbolically, we have it.

So, what will happen after Level 5?
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<th>Cathedral</th>
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Table 1000: Table of morphological criteria
Fig. 1100: Start configuration of the World Mountain Machine
The World Mountain Machine (installation) has to be seen as an audiovisual *software performance*, running over the course of the RHIZOPE Art & Science 2014 exhibition at Estonian Museum of Applied Art and Design in Tallinn, Estonia, for a total of 87 days. During this time it is running the same configuration and same set of rules and is constantly changing shape depending on data gathered at the venue of the exhibition. It is important to note that what is shown is a performance as this highlights the connection to the performative aspect of history after all: a historical process, even though it is created on the fly, is essentially performative by *creating a unique temporal space* for a physical development. The World Mountain Machine is using this idea of the creation of a unique temporal space: Running over the course of the exhibition, it generates a digital floorplan of a fictional architecture while taking into account data which is gathered at the venue while it is running. This data is fed into the system in order to direct the processual development (the morphology) of the architecture from which the visible floor plan is derived. Meanwhile, the process of creation itself is observed by the software and the decisions made in order to create the architecture are codified and simultaneously represented.
The WMM installation might be seen as a pragmatic tool for the generation of an “unintentional” outcome, a structure that has been created not by the intention of the designer but by the codified rules of a computer system that operates outside of the aesthetic realm of the designer. The software creates a digital artifact in every iteration, an ever-changing phenotext based on a set of simple rules that were crafted to create the illusion of complexity. The rules will be visually described later in the book.

But not only the outcomes, also the process itself is the focus of interest - maybe even more than the final outcome. Watching the installation progressing over time and seeing that changes are only happening at specific points of time (with a lot of time in between where it seems that nothing except the gathering of data is happening) creates the illusion of a static present condition of the installation. An eternal present (being a key concept of post- or supermodernity and being in-line with the assumption to see a historical process, even though dynamic over time, to be static at any given point of time) is therefore exemplified and leads to the conclusion that all of the outcomes that the installation produces are only facade for the “real” processes taking place inside of the machine: the rules that are constructed during runtime, the way how the new generations are being created and the geometrical evolution and evaluation that is taking place at the same time.
Processual morphology as software

The natural way to deal with history as a slow process gets contrasted to the idea of the rapid development in modern CAD systems.

In parallel, the long time between updates allows the spectator to envision the future development and to actively change the development of the architecture by his presence. It also allows the software to statistically evaluate future configurations in order to choose the most viable one for the future generation. The world mountain machine is not only visual experiment, but also performative codified text, “coded performativity,” and therefore, genotext. It reflects the (appropriate) use of software as a means to mathematically describe the world (which is more a myth than a fact). Our machine is thus a hybrid: both generative art work and software art (the latter through the incorporation of the exhibition time). Rather than seeing the actual outcome of the World Mountain Machine as the goal of the software, every step on this way (i.e. every temporary outcome at any given time) is the “goal”: The creation of the architecture is the artistic process itself, not the resulting artifact.
Fig. 1200: Very hypothetical architecture from an early generative model
The decisions for the aesthetics used in the installation part of the artwork were mainly derived from the need to detect gestalt at its very basic core. This idea resulted in getting rid of as many visual components as possible, thus leaving more space for interpretation. This minimalist approach towards visual aesthetics is in-line with the interfaces of modern computer-aided design (CAD) systems, where only functional elements of the created object are visible and the rest is being omitted. Suitably, the World Mountain Machine is really creating the digital floorplan of a virtual architecture.

The formal “machine-like” aesthetics might seem mythologically opposing to the idea of the world mountain as the projection architecture of an understanding of the whole world, but seeing this from a society of functionalized entities that we have created over the last decades, the virtual-only, abstract-only and minimalist-only representation of a world mountain seems appropriate. The world mountain we are creating reflects our view of the world: it is only a hypothetical one.

In order to stay on the track of the minimalist user interface design of CAD systems, plain text is running through the screen, cryptically offering information to the spectator,
Fig. 1300: pdksh

Fig. 1400: Digital Oscilloscope
Aesthetics

disappearing as fast as they arrived and leaving a trace of an uncanny feeling for the “user” that is familiar with a *UNIX shell*\(^\text{205}\) and the isometric view of the structure reminds of old oscilloscope displays.

Reflecting on and playing with the idea of data analysis that we have recently been made to believe that every system is performing against us,\(^\text{206}\) the World Mountain Machine is analyzing and evaluating its own design decisions on a constant basis. Every new generation of the architecture is analyzed in terms of viability and the results are displayed as a diagram. However, the evaluation criteria remain a secret to the spectator, reducing the very analysis itself to absurdity. However, from a formal point of view, the diagrams represent the currently prevalent point of view of the need to understand the world (and with it, every entity of this world) in order to control it. Analysis plays the key role in this understanding, and following the trend of the *Quantified Self*,\(^\text{207}\) the World Mountain Machine quantifies itself, but does not take any consequences of the generated data.

The graphical elements that the floor plans and isometric view show are completely derived from computational models for the generation of complex systems as they have been widely used in computational biology, biologically-inspired computing\(^\text{208}\) and geometry.
The World Mountain Machine makes use of cellular automata\textsuperscript{209} and 2-dimensional Lindenmayer systems\textsuperscript{210} as well as rule-based geometric morphology models for the creation of the main geometries.

The rules that have been used to create the models on which the visual representation of the created digital architecture relies are shown throughout this chapter to give an insight into the visual aesthetics of the simple rules that have been used to create the more complex architecture of the World Mountain Machine.
One of the basic functions of the World Mountain Machine is the morphology of basic geometries, which are different depending on the level on which the World Mountain Machine is operating. At any level, the basic morphological operations (which are scaling and shape transition) stay the same, just their probability change and some shapes get added or subtracted.

On the next pages, the basic gestalten of the levels are depicted. The mythological or real equivalents where they are derived from can be found earlier in this book.
Fig. 1511: Level 1 basic gestalt, XY, XZ, YZ and isometry
Geometry
Basic geometries and morphology

Fig. 1512: Level 2 basic gestalt, XY, XZ, YZ and isometry
Fig. 1513: Level 3 basic gestalt, XY, XZ, YZ and isometry
Geometry
Basic geometries and morphology

Fig. 1514: Level 4 basic gestalt, XY, XZ, YZ and isometry
Fig. 1515: Level 5 basic gestalt, XY, XZ, YZ and isometry
The basic geometries described on the last pages are very simple abstractions of the geometries that classical world mountains have or might have shown. However, they are proportionally correct, thus capable of creating an impression of the spatial properties of the architecture on a very fundamental level. The simplification also leaves space for the spectator to imagine his own version of the world mountain that the World Mountain Machine confronts him with, thus giving back a freedom to the spectator in a world where almost everything you can experience (from the order of the trees next to a street to the chair in your living room) is designed; it leaves space for imagining the spectator’s own original of a world mountain.

While the last pages only focused on the boundaries of the architecture, the next pages will go into detail about the internal structures of the geometries, which, at least for the first two levels, is very simple. The following images depict the internal structures of the levels *Ziggurat* and *Cathedral.*
Fig. 1545: Fully solid architecture, represented in a CAD-like fashion

Fig. 1546: Matrix of columns, represented in a CAD-like fashion
Geometry

Complex internal structures

More complex internal structures can be found in the later levels, especially the fifth level, respectively Babel II. As one of the few hypothetical world mountains that actually possesses a magnitude of floor plans and maps to describe its internal structure and architecture, in Babel II we can see how natural patterns can be used to explain the internal structure of the architecture on every floor. The natural pattern of a snowflake is especially interesting in this case as it can easily be approximated by a very well-known fractal, the Koch snowflake. By mimicking a natural pattern the model of the internal structure becomes mathematically solid and can be constructed by a generative algorithm in order to respect the iterative morphological approach of the historical process that the World Mountain Machine is exemplifying during its runtime.
Fig. 1550: Babel II, viewed from above
Geometry
Complex internal structures

Fig. 1560: Snowflake close-up
Fig. 1570: Example of a Koch snowflake
Geometry
Complex internal structures

Fig. 1600: Lesser celandine corn cross section
Lindenmayer systems were originally designed as generative systems for the modelling and simulation of plant growth. Despite their original purpose, these systems can also be used to model other structures that are similar to plants, which also accounts for architectural interiors. For a technical description on Lindenmayer systems, please refer to the original book on the topic by Przemysław Prusinkiewicz and Aristid Lindenmayer.

Lindenmayer systems are used in the World Mountain Machine to model parts of the architectural interior of the world mountain, especially walls. Even though for many world mountains we do not know how they might have looked like exactly on the inside, we can try to imagine a model based on 90 degree angles, which can be created by Lindenmayer systems.

The Lindenmayer systems that we used in the World Mountain Machine differ a little from the ones usually found in literature as they have a few more features, such as the creation of “holes” (which we can see as passageways or doors) and a probabilistic framework that decides for each step in the system individually if it should be taken or not, leading to ever-changing outputs all derived from the same set of rules. More exact: “o” creates a hole, “O” creates a hole based on a randomized algorithm and “f” creates a movement based on
a randomized algorithm. The rest of the syntax is equivalent to common systems in literature. The following pages show examples of these outcomes and the appropriate rules and parameters used during the development and in the final implementation of the World Mountain Machine.
Geometry

Inner architecture from Lindenmayer systems

Rule: FOP[*fffo0]FOP[*fffo0]FOP
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399382416763

Rule: FOP[*fffo0]FOP[*fffo0]FOP
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399382417325

Rule: FOP[*fffo0]FOP[*fffo0]FOP
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399382416213

Rule: FOP[*fffo0]FOP[*fffo0]FOP
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399382420938
Rule: YOP[\*fefe0]YOP[\*fefe0]YOP[\*fefe0]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1196382423387

Rule: YOP[\*fefe0]YOP[\*fefe0]YOP[\*fefe0]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 11963824235284

Rule: YOP[\*fefe0]YOP[\*fefe0]YOP[\*fefe0]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 11963824237164

Rule: YOP[\*fefe0]YOP[\*fefe0]YOP[\*fefe0]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1196382429260
Geometry

Inner architecture from Lindenmayer systems
Rule: \text{F[\text{FoF}\text{FoF}\text{FoF}]P}
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1196398233883
Geometry
Inner architecture from Lindenmayer systems

Rule: F[*Po8]Po8[-Yo8]F
Iterations: 2
Extension: 10.0
Angle: 1.5707564
Seed: 1399388231999

Rule: F[*Po8]Po8[-Yo8]F
Iterations: 2
Extension: 10.0
Angle: 1.5707564
Seed: 1399388234503

Rule: F[*Po8]Po8[-Yo8]F
Iterations: 2
Extension: 10.0
Angle: 1.5707564
Seed: 1399388230526

Rule: F[*Po8]Po8[-Yo8]F
Iterations: 2
Extension: 10.0
Angle: 1.5707564
Seed: 1399388240652
Rule: P[+F]FoP[−oP]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399395246143

Rule: P[+F]FoP[−oP]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399395246148

Rule: P[+F]FoP[−oP]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399395251514

Rule: P[+F]FoP[−oP]
Iterations: 2
Extension: 10.0
Angle: 1.5707964
Seed: 1399395253292
Geometry

Inner architecture from recursive systems

While the Lindenmayer systems are interesting to create natural-looking patterns\textsuperscript{211} that seem to have evolved organically, in modern architecture (especially after Bauhaus and Constructivism) we experience a magnitude of technology-oriented patterns. What these patterns have in common is their geometrical simplicity and modularity. 90-degree angles make it easy to add and take away rooms, buildings or even complete quarters of a city. In order to create these inner architectures from scratch on the basis of a parameterized model as the World Mountain Machine does, it makes sense to search for hierarchical or recursive patterns in these architectures. The following images show the floor plan of a proposed hotel building in Trail, British Columbia, and the simple recursive approximation of this floor plan. A hotel is exemplified here as a modern variant of a world mountain, especially due to its ideas of having to provide shelter and basic infrastructure to its inhabitants, similar (but on a small scale) like a nation provides to its citizens. To underline the simplicity of the approximation, the generative code that lead to the creation of the graphical approximation is also depicted. It shows that the need for specific functionalities in organized systems (such as the hotel) leads to specific hierarchical structures in the architecture that can be modeled by recursive systems in a sophisticated manner, leaving space to the idea to model complete floors with more complex adaptations of this recursive algorithm.
Fig. 1810: Floor plan of a proposed hotel in Trail, British Columbia
Geometry

Inner architecture from recursive systems

Fig. 1820: Simple recursive approximation of the hotel floor plan
Fig. 1830: Overlay of hotel room and simple recursive approximation
void pttrn(int x, int y, int level) {
    if (level > 6) return;
    if (level == 1) LEN = 200; else LEN = 400;
    if (level % 2 > 0) {
        line(x, y-LEN/level/2, x, y+LEN/level/2);
        pttrn(x, y-LEN/level/2, level+1);
        pttrn(x, y+LEN/level/2, level+1);
    } else if (level % 2 == 0) {
        line(x-LEN/level/2, y, x+LEN/level/2, y);
        pttrn(x-LEN/level, y, level+1);
        pttrn(x-LEN/level, y, level+1);
        pttrn(x-LEN/level/2, y, level+1);
        pttrn(x+LEN/level/2, y, level+1);
    }
}
Fig. 1880: A recursive network made from random transit nodes

Fig. 1890: A radial grid structure from a simple recursive system
Geometry
Inner architecture from recursive systems

Similar to the algorithm for the approximation of the hotel room, there have been more attempts in order to model city proportions (which can be seen as equivalent to the proportions in the inside of a world mountain) through the hierarchical application of recursive systems.213

Inspired by hierarchical recursive systems and the usage of transit nodes in order to improve routing in big networks,214 part of the World Mountain Machine is an algorithm that creates infrastructure networks from defined transit nodes, which are points defined as infrastructural hotspots, such as that most movements inside of the infrastructure systems are passing through these nodes. Based on this idea, the algorithm creates strong connections between these transit nodes and from there starts to recursively generate smaller transit nodes and connecting them either to the bigger nodes or to already existing connections between nodes. That way, operable systems are created that reflect the idea of a functionally optimized infrastructure.
Fig. 1900: Satellite view of Manhattan
Manhattan geometry, also commonly referred to as Taxicab geometry, is a geometry introduced by Herman Minkowski in which the usual Euclidean distance function is replaced by another distance function, the so-called taxicab metric, in which the distance of two points is defined as the sum of the distances in each dimension. The name of the geometry (“Manhattan”) is an allusion to the grid layout of modern cities.

Manhattan geometry is used in the World Mountain Machine in order to describe the processes that are happening in the fourth level: the Modern Grid. In the Modern Grid level, the constructed world mountain experiences a shift towards expansion, multiplication and a restructuring based on aspects of functionality that necessarily have to hold in a complex system like a world mountain in order for it to function (if it was implemented as a real physical architecture of course). These functions are depending on the way how distances between points in the architecture are defined because they are used to model logistical processes, so the choice to build an architecture on the basis of a grid is a decision towards an infrastructure system in a Manhattan (non-Euclidean) geometry.
Fig. 1950: Conde Prates building Sao Paulo, Brazil, showing the grid as a 3-dimensional function
Seeing the need of the grid to expand as a result of what in the visual arts is often referred to as horror vacui, to define the grid not only as a grid based on its mathematical properties but also as a space-filling curve, the combination of both here simply referred to as a space-filling grid, seems appropriate and is part of the internal logic of the World Mountain Machine: in level 4 of the creation process of the world mountain, the grid gets implemented into the construction not as a geometry, but as a function on the existing geometry. The grid fills out everything which is not yet filled out: every unoccupied space can be occupied by the endless repetition of what is already existing in the occupied spaces. Multiplication takes place together with a functional segmentation described in the next subchapter.
Fig. 2000: Space-filling grid. Detail view of a map of Chicago by Blanchard Rufus, 1857
Geometry
Functional segmentation

In order to take into account the need for a working infrastructure inside of the world mountain, the World Mountain Machine implements a model for the functional segmentation of all floors. The need to do so becomes especially obvious in the levels 4 and 5, as the complexity of the floor plan increases dramatically in these stages.

The idea behind functional segmentation is that the development of the inner architecture gets split up geographically: some sections may become densely populated with rooms (living/housing segments), while others start to serve as infrastructure hubs, or “main arteries.”

Two levels in the World Mountain Machine already show an inherent segmentation: There is the La Rotonda level 3, in which only the parts that are outside of the dome (or outside of the area below the dome) can be used to create rooms, and level 5, the Babel II, where functional segmentation was even intended by design.
Fig. 2100: Inherent segmentation at La Rotonda
Geometry
Functional segmentation

Fig. 2200: Segmentation by design at Babel II
Fig. 2300: Detail view of an annotated map of Taihoku, Taiwan showing the hierarchical segmentation
Geometry
Functional segmentation

Two general forms of segmentation that have to be looked at separately here are the geographical segmentation (as described before) as it is inherent in the La Rotonda floor-plan and a hierarchical segmentation as will be shown below. The geographical segmentation describes a segmentation of the given area into different functional parts, such as in a house there is an area designated for the preparation of food, another one for sleeping and so on.

Hierarchical segmentation comes to play as soon as the system is getting more complex. If you look at a city from above, some certain “areas” (such as streets, churches, schools, kindergartens,...) are existing at all zoom levels in almost every part of the city. They are parts of the critical infrastructure that cities need to have in order to function, so they always have to be in relatively close proximity all inhabitants. In contrast to the geographical segmentation, there is no way to draw a line in order to separate the one “infrastructure” area from the non-infrastructure one: they are mixed through the whole geography of the city, yet at the same time we understand that they serve different functions and thus we mentally segment on their basis. These ideas that hold true for cities are of great interest for world mountains as they have the same level of complexity and therefore need similar design criteria. This is the reason why the World Mountain Machine uses inherent geographical segmentation in the early levels while in the later levels
4 and 5, the machine shifts towards the manifestation of more hierarchical segmentations, purposefully mixing different kinds of inner architectures to model a habitable complex world mountain.
Watanabe described the need for an evaluation of a program or algorithm that creates a generative architecture with the need to select one program in order to create the specific architecture for a task at hand. Different algorithms will lead to completely different architectural outcomes; each of them might be suited for specific purposes better than the others, but it is not the duty of the program to decide that. In the World Mountain Machine, the evaluation of the architecture will be based on different models depending on the level that the machine is running at that time. For example, while the Ziggurat evaluates on height of the structure and its physical density, an architecture sharing the gestalt of Babel II (level 5) has to be evaluated on logistical functions that hold true inside of each floor. Therefore, a general catalog of criteria for the evaluation of the created geometry can not be given.
In order to deal with the idea of archiving and recreating the process that led to the creation of the gestalten by the World Mountain Machine, we assume that a historical process itself possesses a gestalt, an abstract and formal representation of its integral appearance that can be codified (as a precondition to being stored for example on a hard disk), evaluated and translated into another form of representation. Seeing morphology as a 4-dimensional process (a 3-dimensional process over time), a process gestalt could be represented in a 2-dimensional cartesian space, relating (discrete) points of time to a property (or property change) at that point in time. Thus making patterns on the time scale visible, finally aligning these patterns in a way that daily comparisons are possible, the WMM creates a 2-dimensional sculpture as a representation of a codified gestalt that has been directly derived from the actions on the architecture that were triggered by the users.
Fig. 3000: Example process gestalt. Rendered as a 2-dimensional image. The image shows that the interaction with the World Mountain Machine happened in bursts with increasing intensity.
The World Mountain Machine is an experiment. As such, the outcomes will be unforeseen and honest. The method presented here in its first outlines offers the advantage to better understand historical processes, by simulating them in their essential characteristics. Which are randomness and contingency on the one hand, and path dependencies on the other. So, the method can be used for both research and visualization.

The World Mountain Machine is also an exploration towards art/science/humanities collaborations and towards the potential to show evident and emergent development through morphology of complex systems.
2 In 2010, the world’s highest building, Dubai (828m)
4 In a way, this is a rather Platonic approach to that “what really happened” in history - exactly that history which underlies the mountains presented here. Namely the basic assumption that the essentials of things determine those things in their final Being, i.e. their “nature”.
5 Oswald Spengler was one of the first to explicitly introduce that idea (first published 1923); cf. Spengler, O. (1983): 70
6 To newer cyclical models of history assuming certain patterns of development to occur see Burke, P. (1979): 351-353, to specific manifestations depending on the respective worldview (i.e., basic understanding of historical processes) and 345, to the general model.
7 Burke (op. cit): 344f. “Discontinuous transformations” closely correspond to what is conceived as contingency.
8 ibid.: 324f.
9 ibid.: 331 and 348, to the deep ideology; 333f., to space; 335 and 338 (literal quotation). And 338-341, to the other elements.
10 ibid.: 338, to the dramatic, and 336, to the other aspects inherent to such a conception of time. To the notion of progress see also Claeys, G. (2011): 151 ff., in his chapter about rationalism and progress.
11 ibid.: 336f.
Patzelt, W. J. (2010): 195. Teleonomy is a composite from Greek nomoi, laws or rules, and telos, goal.

Claeys (op. cit.): 7, and 13


Spengler (op. cit.): 70

Goethe cit. in Troll, W. (1926): 80. “Gestalten” is the plural of Gestalt; why some words have been deliberately kept in German will be explained in the text.

It is analogous to the autopoiesis-theory of Maturana and Varela which states that in case of organisms, the basic organizational pattern of its network of production processes - responsible for an organism’s very viability - tends to constancy, whereas the concrete structures within which that organization is realized may vary. In our case, the pattern or basic morphology is the analogon to an organism’s organization (of production processes).

Hoffmeister, J. (1955): 269

ibid.

Wölfflin, H. (1897): 296


From Hoffmeister (op. cit.): 414


To the relation between paradeigma and archetypus cf. Mittelstraß, J. (1981): 41

To the notion of evidence, cf. Hoffmeister (op. cit.): 223
29 It was not before the Cretaceous Age that angiosperm plants, as this tree is, came into being.
30 To the notions of physis, see Mittelstraße (op. cit.): 36; and 39, as opposed to the “artificially” made.
31 From Troll (op. cit): 116. As is the case with gestalt, Wirkung is a term not properly translatable into English since it comprises much more than ‘activity’; Wirklichkeit is related to it, which too comprises more than just ‘being real’, or ‘reality’. But regarding our whole venture, we have to recur to such notions in order to grasp the very nature of historical processes. Therefore the English circumscriptions used here.
32 To that, see the project Dynamik des Lebens (full citation in the References).
33 To the relation between “ideal” architecture and scenery see Vidler, A. (2011): 35, 39, 277
34 Lynch, K. (1960): 105
35 The term refers to a conception of Christopher Bollas, denoting that what we know without explicitly knowing that we know; cf. Bollas, Ch. (1987): 278f.
36 In its relations to morphology, see Gehmann, U. (2010): 17-47
38 Binding (op. cit.): 3
39 Schulz (op. cit.): 47
40 in Troll (op. cit.): 289
41 ibid.: 314-317. Again, such a conception closely resembles that of an autopoiesis or “self-making” mentioned earlier.
41 ibid.: 314-317. Again, such a conception closely resembles that of an autopoiesis or “self-making” mentioned earlier.
42 Hoffmeister (op. cit.): 594
43 ibid., also to Goethe.
45 ibid.: 12
47 For a synopsis see Gehmann, U. (2003)
48 Blumenberg (op. cit.): 19
50 Blumenberg (op. cit.): 166
51 Referring to Campbell, J. (1996): 15
52 Campbell (op. cit.): 14
53 Binding, G. (2009): 1
54 ibid.
55 From the Greek archen, rule from the beginning; and from typein, to coin.
57 Nowald, I (1982): 45
58 Mumford, L. (1980): 115, to the city as container; and 120, to the citadel.
59 cited in Schulz (op. cit.): 45
60 Lynch (op. cit.): 105f.
62 E.g., in Müller-Neuhof, B. (2008): 41
63 Andre-Salvini, B. (2008): 37


Allard (op. cit.): 162

Wadler, A. (1935): 5. The biblical passage he refers to is in Genesis 11, 1-9

To such a process in its general pattern see Moscovici, S. (1984): 466ff. And Mumford (op. cit.): 389, 415f., 423, 454f. to that pattern; and 111-140, to the emergence of the city in Mesopotamia and other “early” cultures.

Mumford (op. cit.): 135ff. to the urban drama; and 5, to the post-historical human. To stay inside the frame of understanding offered by mythological terms, remarkably, this was written before the advent of hybrid spaces and other achievements of Tubalkain.

ibid.: 137

Moscovici (op. cit.): 466

ibid.: 467

Müller-Neuhof (op. cit.): 41

Oberhuber, K. (1977)

Nowald, I. (op. cit.): 44

Mumford (op. cit.): 134

Allinger-Csollich (op. cit.): 568
ibid.: 568f., and 583, with the exact measurements of each of the seven floors from those times.

op. cit.

Allinger-Csölich (op. cit.): 582; and Marzahn, J./Schauerte, G. (2008): 24f., to the myth of Marduk, from the Enuma elish, the Babylonian cosmogenesis.


Andre-Salvini, B. (2008): 101

Mumford (op. cit.): 288f.

From Allard (op. cit.): 162f.; literal quotations: 162

From Santuccio, S. (2005): 365

ibid.: 163


Neuffer, M. (1970): 113. To that “bottom” mentioned: with the end of the sixties, the last official, i.e. public government-attempts to plan ideal environments for an assumed ‘optimized’ human condition on large scale (i.e., an urban scale) faded out.


ibid.: 37

ibid.: 37f.; and 38, citing Sedlmayr.

evident by its ground plan in Star Wars, Episode I, 1999

drom Duby, G. (1984): 202f., also the quotations. The saying about the individual, a statement that sounds astounding modern, stems from Abaelard who lived in the 12th century A.D.
Endnotes

100 ibid.: 203
101 Scafì, A. (2006): 75f., on the interchangeability of the heavenly city (the Heavenly Jerusalem) and the earthly paradise; and 99-107, on the symbolic space/concrete place-interrelations expressed in medieval world maps, or mappae mundi.
102 The conceptual parallel to recent network structures of communication is astonishing, by the way.
103 Burckhardt (op. cit.): 32
104 Ref. to Miller, M. (1996): 93. Interestingly, the idea of a Heavenly Jerusalem is drawn from the biblical apocalypse (ibid.), i.e. from a history having a defined teleology.
105 Burckhardt (op. cit.): 35
106 ibid.: 32f.
107 ibid.: 35
108 ibid.: 34f.
110 Burckhardt (op. cit.): 37
111 What is meant here: despite the fact that in todays’ Occident there is Christianity, and even groups which strongly believe in its values and mythology, the “official” time of such an era finally faded with the Enlightenment, and was definitively over with a secularized modernity. Therefore the expression used here, following the method to distinguish eras of history (although being aware of its shortcomings), eras which can be characterized by a body of consistent, and prevailing cultural expressions - as are belief systems, styles of expression (cf. above, on style), certain societal structurings and the like.
The Christian conception starts history with Eden as the first, and ends with the Heavenly Jerusalem as the second paradise. Opposed to the paradises of other religious traditions which lacked such a vectorial drive (p.12). For the Christian tradition, a view of the world and its history gained ground that conceived the former as “...the stage on which God’s plan for the salvation of mankind was to be enacted” (p.45).


Campbell (op. cit.): 571
Feuerstein (op. cit.):25
Scafi (op. cit.): 108; the new heaven and new earth relate to Revelation 21,1 of the Apocalypse.
Quoted in Vidler (op. cit.): 320
Scafi (op. cit.): 149. Such mappae mundi were the symbolical representation of a world ‘as it is’ (to recur to that mythological term), in the shape of a “cloth” (mappa) for the world (mundi): ibid.: 85
To Levedan’s saying, cf. Mumford (op. cit.): 287.
Scafi (op. cit.): 372, to Proust and modern paradises.
ibid: 51
As Jacob Burckhardt states (1985: 3), the most prominent difficulty of a cultural history consists in the necessity to divide a mental continuum into single categories.

ibid.: 93; italics by him.


Braudel (op. cit.): 10f.

Mirandola, G. P. (1996): 11. The metaphor is deep-layered since “poet” traces back to Greek poiesis, the art of making.

ibid.: 11f.

Pedro Nunez 1537, Tractate about the Spheres; cited in Clarke, K. (1999): 70

Viana, H., et al. (2001)


Panofsky, E. (1960): 4


ibid.: 300

cf. Vidler (op. cit.): 320

Damisch, H. (2010): 43. However, tt should be noted that the vista presented here is a rather condensed, and also simplifying perspective. A detailed treatment together with philosophical problems was delivered by Cassirer’s Philosophy of Symbolic Forms, and is summarized in Damisch (op. cit.): 43ff.

Vasari explicitly says “recognize”.

Panofsky, E. (1960):33, also the citation of Vasari.

ibid.: 34

ibid.; italics by Panofsky.

Cf. Vidler (op. cit.): 275, to Le Corbusier. To the conception of the cosmos in its Greek origins, it denoted order, harmony, and beauty at the same time; cf. Hoffmeister (op. cit.): 362


The details of these deviations, in particular in case of Alberti, are described in Fischer, G. (2012): 102ff.

Ref. to Fischer (op. cit.): 126. To Aristotle, cf. Kemp (op. cit.): 26

To the concept of horizon and its connotations see Blum (op. cit.): 193


Bötticher cited in Kemp (op. cit.):75, to the concept of the junction; and 82, to their systemic capabilities.


Vidler (op. cit.): 133

To Alberti’s own ideas see Feuerstein (op. cit.): 28f.

Feuerstein (op. cit.): 18f., to the ideal city of Vitruvius; 30, to Sforzinda with its tower; and 31-33, to its fortified followers. To Sforzinda and its architect Filarete see also Giedion, S. (2007): 57-60
To the general concept of ideal cities in the Modern Age see Kruft, H-J. (1990): 31-37. And Giedion (op. cit.)
Blum (op. cit.): 193
ibid.: 179
ibid.; and 178f., to the antique conceptions of a natural theatre.
ibid.: 183 and 185
To aspects of formatization see Gehmann, U. (2012)
Kostof, S. (2007). 95
Vance, J. E. (1990): 47
Hoffmeister (op. cit.): 362
Cited in Kemp (op. cit): 269
ibid.: 141; italics by Schumacher.
Herbert Muck, cited in Kemp (op. cit.): 141; and 140, to Sedlmayr.
ibid.: 141
ibid.: 145
ibid.: 104f.
Waldheim, Ch., and Berger, A. (2012): 76f.
Auge, M. (1995): 52; and 54, the literal quotation.
Sieverts, T. (2008): 14f., to the urban sprawl in its globalized reach; 18f., to the own rank of the in between-city; and 38f., to the city as network.
ibid.: 19, to mathematics; and 38, to the inadequacy of traditional terms of understanding.
Meier, H-R. (op. cit.): 105
Ref. to Sieferts (op. cit.): 173

Mitscherlich, A. (1971): 11f., to the psycho-topos; and 13f., to the political space and gestalt, and the loss of freedom.

To the Delos conferences see Wigley, M. (2001)

Doxiadis, C. A. (1963): 23, literal quotation; and 25, to abandoning the old in its slavery of the citizen.

Doxiadis, C. A. (1962), and Wigley (op. cit.): 88f., also to the underlying assumptions

Burke (op. cit.): 339

Benevolo (op. cit.): 164

Delfante, Ch. (1999): 41


Hoffmeister (op. cit.): 598

Delfante (op. cit.): 40

Vance (op. cit.): 4

In their translation into urban morphological features, outlined in Delfante (op. cit.): 40f.

ibid.: 267

From Meier, H-R. (op. cit.): 102

Eaton, R. (2001): 223 and 225f., to the situationists as movement; and 224f., to New Babylon.

ibid.: 226, to the psychogeography; and 227, to the homo ludens.

Cited in Eaton (op. cit.): 222

Soleri, ibid.: 223

Soleri, P. (1989): 113

ibid.: 18

ibid.: 51
Feuerstein (op. cit.): 339. He refers to the 2001-event of destroying the Twin Towers.


bourne-again shell, one of the most distributed command line tools for UNIX systems


cf. Holger Bast, Stefan Funke, Peter Sanders, Dominik Schultes (2007): Fast Routing in Road Networks with Transit Nodes, SCIENCE Vol. 316 no. 5824: 566


Multiplication can be seen as the excessive use of the principles of rhythm and hierarchy, both beautifully described in Francis D. K. Ching (2007): Architecture. Form, Space, and Order. Third Edition. John Wiley & Sons: 339


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0, Emerging Teleonomy: Graffitti on a railroad bridge, Karlsruhe. Photography Ulrich Gehmann

05, Pattern and Individuality: Schwäbisch Hall, Town Church, detail of the central ceiling. Photography Ulrich Gehmann

10, Gestalten and Forms: Facade of a shopping center with tree, Pforzheim, Germany. Photography Ulrich Gehmann

20, Processual Morphology: Marine snail, Seychelles, Praslin Island. Photography Ulrich Gehmann


31, Gestalt and Identity. Santa Maria Maggiore, Rome, floor mosaic. Photography Ulrich Gehmann

32, World Mountain as Symbolic Meaning. Regensburg, Dome, detail of the main facade. Photography Ulrich Gehmann

50, World Mountain. Ulm, Muenster. Photography Ulrich Gehmann


100, Heavenly Jerusalem, schematized. Laon Cathedral; detail of main portal. Photography Ulrich Gehmann
Figures


120, The City of God. Rome, Santa Maria Maggiore, detail of a mosaic. Photography Ulrich Gehmann


140, Symbolic Space. Laon Cathedral, interior. Photography Ulrich Gehmann

150, Tamed Forces and the Sense of Longing. Auxerre Cathedral, interior. Photography Ulrich Gehmann

160, World Mountain as Teleological Cosmic Order. Reims Cathedral, main facade. Photography Ulrich Gehmann


190, Morphology of World Orders. The two images are:
190 a, Psalter mappa mundi, late 13th century A.D.: : http://commons.wikimedia.org/wiki/File%3APsalter_Mappa_mundi.jpg
190b, Metroplan Paris:http://commons.wikimedia.org/wiki/File%3A%C3%A9tropolis.jpg. Typically, author Quentin Creuzet named it Metropolis.


210, Open Possibilities. World Mountain, Individually Shaped. Chateau Tanlay, France. Photography Ulrich Gehmann


240, Man’s World as Ideal Scenery. probably from Fra Carnevale, end of 15th century: http://commons.wikimedia.org/wiki/File%3AFra_Carnevale_-_The_Ideal_City_-_Walters_37677.jpg


260, Perfect Constructions. Ground plan of La Rotonda, showing the lines of construction and and the proportions http://commons.wikimedia.org/wiki/File%3ARotondaharmoniqueV2.jpg (Attribution: I, WilliamIII)

270, The World as Grid. Greensboro, North Carolina 1891.  http://memory.loc.gov/cgi-bin/query/r?ammem/gmd:@field%28NUMBER+@band%28g3904g.pm006620%29%29

280, Gridded Diversity. Britzingen, Germany, Church of St. John; ceiling detail. Photography Ulrich Gehmann

290, New Ziggurat. A unite d’ habitation realized after Le Corbusier. Mosch-Center, Karlsruhe/Germany. Photography Ulrich Gehmann

Figures
300, Modern Space with Moving Bodies. Bridge over the Tagus River, Lisbon. Photography Ulrich Gehmann


1300 Screenshot of a Korn shell (ksh) on an OpenBSD system. Public domain.

1400 Digital oscilloscope. Public domain.

1511 Level 1 basic gestalt, XY, XZ, YZ and isometry. Courtesy of Martin Reiche.

1512 Level 2 basic gestalt, XY, XZ, YZ and isometry. Courtesy of Martin Reiche.

1513 Level 3 basic gestalt, XY, XZ, YZ and isometry. Courtesy of Martin Reiche.
Figures

1514 Level 4 basic gestalt, XY, XZ, YZ and isometry. Courtesy of Martin Reiche.

1515 Level 5 basic gestalt, XY, XZ, YZ and isometry. Courtesy of Martin Reiche.

1545 Parallel lines as the World Mountain Machine’s representation of solid space. Hereby public domain.

1546 Dot matrix as the World Mountain Machine’s representation of columns in space. Hereby public domain.


1560 Close-up of a snowflake. Public domain.


1600 Lesser celandine corm cross section. Courtesy of Marcel Müller Köln, taken from http://commons.wikimedia.org/wiki/File:Scharbockskrautknolle_Querschnitt_Zentralzyylinder.JPG

1810 Floor plan of a proposed hotel building in Trail, British Columbia. Public domain.

1820 Simple recursive approximation of the hotel floor plan. Courtesy of Martin Reiche.

1830 Overlay of hotel floor plan and simple approximation. Courtesy of Martin Reiche.

1900 Satellite view of Manhattan, New York. Public domain.


2100 La Rotonda floor plan. Public domain.

2200 Detail view of BABEL IIB Arcology, Population 530,000. From „Arcology - City in the Image of Man“, by Paolo Soleri. Original drawing black ink on velum. 1969. Courtesy of Cosanti Foundation
Figures

2300 Detail view of an annotated map of Taihoku, Taiwan. Public domain.

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