



FIG. 3.0 San Marcos in the Desert Frank Lloyd Wright (Chapter 3.1.7, Rendering: Lloyd Wright 1927, FLW Foundation Archives, Columbia Univ., MoMa)

# 3 Architecture's involvement with Landscape

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While nature is an important component of architectural theory, we must reevaluate how architecture deals with nature in theory in order to place landscape in this thesis in the disciplinary context of architecture.

While revisiting 17 of architecture's crucial exponents throughout twenty centuries, I explore their dealings with landscape or nature and the concepts thereof. The beginning of this chapter (3.1) will touch on some crucial problems that lead to the polarity of 'wild' nature and human architecture, or more precisely, the divide between nature and humanity through architecture. Part of the theoretical problem elaborated in the beginning of the chapter is, that landscape and nature are oftentimes conflated if not confused, in particular by architects.

Out of my critique of a thematic selection of common architectural theories and within the methodological differentiation (3.2), I will argue for the necessity of research through analyses of landscape spatial composition in architecture. This argument should lead to introduce my application of the a twofold analytical model. One side of the analysis is about the form of the landscape architectural composition (Steenbergen & Reh 2003) with a method of drawing analysis of the formal composition of architectural projects in this thesis. The other side is evaluation of their strategies with the previously explained four attitudes. The introduction the twofold analytical methods will conclude with the research framework for our further investigation into Landscape Design Strategies drawing from the different theories of the conceptual landscape attitudes and the formal landscape composition, our research framework will merge these two theories into a complete picture of the phenomenon.

In section 3.3, I will propose what has led to the selection and varied analytical techniques throughout this study and motivated the selection of key cases. I will treat the three cited cases in each individual chapters 4, 5 and 6.

## 3.1 The Theoretical Divide between Landscape and Architecture

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Architecture and landscape in the Western tradition are defined by the difference between the two. Design of architecture works as a differentiation from the natural or cultivated landscape; and design of landscapes is used as a differentiation from the built architecture.

The object of either discipline's design has been always translated into the dichotomy between architecture and landscape. In a classical definition, no designed thing could be both landscape and architecture at the same time. Landscape design has been attributed to the domain outside the building. The formal garden inside a sacred temple might obey architectural rules, but then there always exists an outside of wilderness, however intense the relation or embedding of humans might be. This opposition of architecture and landscape is similar to the one between human and nature or the city and the countryside. In a simplistic picture, "architecture", "human", and "city" stand on one side, while "landscape", "nature", and "countryside" represent the other side of the divide.

As illustrated in the previous chapter, the relations of two design disciplines for landscapes and buildings are complex and intertwined. Commonly we understand designed landscapes as landscape architecture and therefore architecture by definition. Still, both disciplines contribute to an opposition in their theoretical framework.

The fact that we have regarded architecture and landscape architecture in opposition does not mean that architectural theory despises nature. On the contrary, in several, sometimes opposing, approaches to formulating a theory that would define aesthetics of architecture throughout history, nature served as an ideal. This chapter elaborates on some key positions regarding nature in architectural theory and aims to explain the tradition of architecture dealing with nature more often than with landscapes. This chapter will also underline the growing gap between architecture and landscape in the Greco-European tradition that can be seen as a missed thread in the canonical foundation of architecture as a modern discipline.

### 3.1.1 Vitruvius: the only yet problematic source

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One of the historical problems of architecture theory as a discipline - unresolved through its history - is the sharp contrast between the idealisation of classical ancient Greek architecture, referred to as the pure style of architecture (Elmes 1826), and the absence of theoretical text or treatise on architecture from ancient Greece. Hellenistic architecture was indisputably canonical in its orders, but we do not know of a canonical text until Vitruvius (80–70 BC - after 15 BC), a contemporary of the first Roman Emperors Caesar and Augustus. Vitruvius' "De architectura" is the "only preserved work of antiquity about architecture" (Fensterbusch 1987 p.3, also program and as such can be regarded until today as "the world's inaugural compendium of design theory" (Gage 2011 p. 65). Many authors (as in the following sections Alberti, Palladio and Laugier) have discussed Vitruvius since the rediscovery and wider dissemination of his treatise during the Renaissance (printed since ca. 1487 according to Fensterbusch 1987 p.13) as the appropriate interpretation - and reinterpretation - of the classical styles and orders. Some even corrected the systems of measurement with all the confusion of translation until the establishment of the metric system in the 19th century.

In Vitruvius' relatively simple view, ideal architecture defined itself in opposition to nature. Architecture has been conceived ex negativo from Wilderness ever since Vitruvius wrote, "The men of old were born like the wild beasts, in woods, caves, and groves, and lived on savage fare." (Fensterbusch 1964 p. 78: 2 1)<sup>10</sup> Later "they began ... to construct shelters" "and so passed from a rude and barbarous mode of life to civilisation and refinement." (Fensterbusch 1964 p. 78)<sup>11</sup>. Human has been seen as God's equal, placed on earth to dominate, as the custodian of Genesis (1:27-:28). While landscape is at best a mediator between human and nature, architecture was defined - in the Western tradition of Vitruvius and the Renaissance - exactly as the emancipation from nature.

The Vitruvian idea of architecture's origin as one of intellectual emancipation from nature, is similar to the paradigm of the founding mythology in Genesis. Men as descendants of God were expelled from nature, the Garden of Eden - thus separated eternally from the natural ideal. I interpret this as the deeper cultural root for the distinction of men and nature in Western culture.

The Vitruvian paradigm for architectural theory - in that his Latin text is the single most important source of architecture theory for two millennia to come - are *venustas*, *utilitas*, *firmitas* (beauty, usefulness and strength)<sup>12</sup>. This triad does not contain any relation to nature or its aesthetics. *Venustas* denies nature; even Venus is not a natural beauty as she is divine. Besides the factual (built) history of architecture, architecture history will not recover easily from this dogmatic preconditioning in its sole source from antiquity.

### 3.1.2 **Alberti and Palladio: 'concinnitas' in the renaissance architectures natural beauty**

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The rediscovery of Vitruvius in the Renaissance, which spread from the monastic libraries into the workshops of architects via book printing in 1487 (Verlioli, aldus Fensterbusch 1964 p.13), prompted a significant reenactment of the ancient Greek orders and coincided with growing interest in architecture among the ruling aristocracy and rich merchant class of Europe.

Leon Battista Alberti (1404-1472) can be seen as a founding father defining architecture and more explicitly the role of the professional architect today. His 'Ten Books of Architecture' (written in Latin in 1452, published 1485) draws on Vitruvius but also expands and updates the classic text with a compilation of important information on almost all aspects of architecture and design. "Alberti elevated architecture to a regular theoretical discipline" (Ching e.a. 2011. P.465)

The contemporary English translator and commentator Mark Foster Gage explains: "Alberti is among the first (in architectural theory) to call for a conceptual holism, reflecting the Aristotelian concept for the soul, where the whole is greater than the sum of its parts." (Gage 2011 p.73) This effect of architecture on our souls reads as follows in the original text. "The forms and figures of buildings contain something excellent and perfect by nature, which excites the soul and is sensed at once." (Alberti Book 9, transl. Gage 2011 p. 76)

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<sup>10</sup> "Homines vet ere more ut ferae in solvis et speluncis et nemoribus nascebantur ciboque agresti vescendo vital exigent." (Vitruv, Ed. Fensterbusch 1964 p. 78: 2 1, bilingual edition translated from German by the author)

<sup>11</sup> Translated from German by the author.

<sup>12</sup> translated from Latin by the author, using common English terms as discussed widely, i.e. in Gage 2011 p.65 - 72. They would be translated by Ware 1738 into "Utility or convenience, duration and beauty".

In Alberti's view, beauty in buildings comes from a "definite proportional relationship" ("Certa cum ratione concinnitas" Alberti Book 6, transl. Gage 2011. p. 76) "Beauty is a certain harmony and agreement of parts to which they belong, according to a definite number, determination of borders ('finitio'), and placement, that is required by 'concinnitas' as the absolute and primary order of nature. Architecture should strive to achieve this with greatest efforts, thus appropriating dignity, charm, authority, and repute." (Alberti Book 9 transl. Gage 2011 p.78)

Alberti assumes and defends nature as the ideal order of things to pursue in the "agreement of parts" that we could call composition in contemporary terms. I interpret Alberti's "agreement of parts" (Alberti Book 9 transl. Gage 2011 p.78) as an imitation of nature, not by ornament but by the perfect disposition of the parts in relation to the whole, as the ultimate goal of architectural design and measure of its aesthetic quality.

Alberti (in his stringent Latin) was rather critical of Vitruvius. One century later Palladio, another influential Renaissance architecture theorist, was much more moderate and humble in regard to Vitruvius as the source of architecture from antiquity. This also relates to a wider spread of the antique text and (re-)establishment of Vitruvius' divine status as the Bible of Architecture.

Andrea Palladio (1508-1580), with his Italian 'Four Books of Architecture' (1570) introduces Vitruvius' Latin text as his most important source from antiquity. As opposed to Alberti, Palladio directly underlines Vitruvius' famous categories "utilitas, firmitas, venustas"<sup>13</sup>. Palladio writes:

"Beauty will result from the form and correspondence of the whole, with respect to the several parts, of the parts with regard to each other, and of these again to the whole; that the structure may appear an entire and complete body, wherein each member agrees with the other, and all necessary to compose what you intend to form". (1570, translated by Ware 1738 1. Book Ch.1)

He uses this appeal to harmony as an introduction to the design process: "Great care ought to be taken, before a building is begun, of the several parts of the plan and elevation of the whole edifice intended to be raised." (1570, translated by Ware 1738 p.1)

For Palladio, the harmonious hegemony of nature, undisputed in the divine order of a renaissance man, is inherent in five classical orders ("tuscan", "doric", "ionic", "corinthian" and "composite" 1738 p. 14 – 25). "Barbarians" have made "abuses" of these orders (1738 p.25) and thus the divine, natural order. For Palladio nature is the mirror of divine perfection: "... architecture, as well as all other arts, being an imitatrix (imitator, note author) of nature, can suffer nothing that either alienates or deviates from that which is agreeable to nature". (1570, translated by Ware 1738 1. Book Ch.20 p.25)

Although Palladio as an architect is a master of placement of buildings in particular in the Venetian Landscape - little of his landscape mastery is discussed as part of his theoretical works. A brief advisement as to the convenience of arranging rooms according to sunlight and heating (1738 p. 38) is an exception in his otherwise material and practical introduction. In his second book, Palladio explains the advantages of the country estate for control and health of the noble owner and includes rounding walls and terraces of his own designs, as well as the roman ones he studied in Villa Trissino at Meledo (1738 p.51 and engraving XLIII) or Pomilius' Vesta Temple in Rome (1738 p.94 and engraving XXV).

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<sup>13</sup> translated from Latin into "usefulness, strength and beauty" by the author, using common English terms i.e. in Gage 2011 p.65 - 72. The same Latin terms would be translated in a classical English translation by Ware 1738 into "Utility or convenience, duration and beauty".

The simple concept of beauty derived from nature into the classical order became regarded as the canonical explanation for centuries to come for the status of nature in architecture. An architect's pragmatic and hands on approach to landscape should come as no surprise, as the Renaissance philosophy (Petrarca 1336 / 1995) already sharply contrasted the two with the humanist idea of "landscape as a relationship between the subject and nature." (Brock 1977, see Chapter 2.1.).

One cannot but wonder how the art of architecture seems to disconnect from the history of thought while adhering for ages to the study of antique Greco-Roman buildings. It seems that an intellectual gap between nature and architecture, despite contrary beliefs and affirmations, runs through the history of architectural theory and practice. That gap starts like a crack at the Greek temple and opens into a wide intellectual gap far into the Renaissance. It is revised only after the establishment of the Renaissance style as the leading approach to Architecture.

### 3.1.3 Laugier and Rousseau: a natural architecture of the 'noble savage'

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Nature has been, throughout the history of architecture, a measure of aesthetics. Theorists like Vitruvius, Alberti and Palladio repeatedly called upon nature in order to fight the confusion of their contemporary practitioners. In spite of this, nature was still often treated as an abstract ideal until the Jesuit Marc-Antoine Laugier (1713-1769). Laugier was alarmed by aberrant eclecticism, not unlike Palladio by the Barbarians' ignorance of Vitruvius and Alberti. He warned his contemporary architects from leaving behind classical purity. Laugier was a priest at the court of Louis XV. Such a position at the French royal court was influential in the architectural debate of the great works in Paris, Versailles and other places around the capital, while they flourished in the representation of the absolutist regime.

Most influential in Laugier's 'Essai sur l'architecture' (1753) was one simple idea: a new founding myth for Architecture, or rather the purification and humanisation of the Vitruvian myth (in the 1st chapter of the 2nd book). Laugier argues that through coping and assembling details without understanding the simplicity of the 'cabane rustique', architecture became Barbarian. The classics were misunderstood and therefore needed careful explanation by the theorist.

Laugier precisely describes in only four sentences (1753 p. 12) how a hut was formed by man from the four strongest branches of trees he could find. The trees, standing in a square, hold up a rectangle of four horizontal branches. The branches are fixed to a roof of more inclined branches that slope to shelter from the rain when covered with leaves, and form two triangular pediments on either side.

Laugier praises the simplicity and beauty of this hut with its columns, ceiling beams, and sloping roof with two fronts and contrasts it to the aberrations of contemporary and historic "bad" buildings. He then compares his "cabane rustique" to the Maison Carré in Nîmes (1753 p. 15), a Roman Temple from 16 BC (according to Anderson 2001 pp. 68-79) of Vitruvius' period, which Laugier alludes to as the most simple and perfect ideal architecture, directly inspired by ancient Greece.

The frontispiece of Laugier's Essai was published only in the 2nd Edition (1755, Fig. 3.1.3.1.). In it the naked genius, whose divine origin as an angel is indicated by his wings, is showing the simple "cabane rustique" to the somewhat tired looking allegory of architecture, that sits on a pile of stylish ornamental ruins of classical origin. Not surprisingly in the visual culture of architecture, this illustration is more famous than the text. The illustration may have led to the misleading translation as "primitive hut".

For Laugier, Greek architecture is the only valid one - only sufficiently esteemed by the Romans and the Renaissance: "The only Architecture was abandoned up until today to the caprices of the artists, that gave their rules without (revealing their) discernment." (Laugier 1753 p.V)<sup>14</sup>

He recalls first an account of man, from Arcadian origins, that first sought shelter in caves, looking for more comfort. He evokes a mythical origin by using a language that recalls the Greek and Roman myths and classical literature.

Novel in architecture theory is Laugier's appeal to natural human instinct as a measure of natural order. (Laugier 1953 p.10)<sup>15</sup>. He places human invention out of basic needs as the origin of art. With one original inventive myth he unites the Vitruvian triade *utilitas*, *firmitas*, and *venustas*, and puts architecture within the humanist tradition as an invention of man, organising and mastering nature. Laugier calls for a moral aesthetic in simplicity and reduction to the most archaic forms. This call echoes through architecture until long after his time.

Not only does Laugier calls back to nature, the establishment of a natural order is an important movement in arts and philosophy. His *Essai* was first published shortly after his contemporary Jean-Jacques Rousseau's (1712–78) 'Discours sur les arts et les sciences' (1750) that introduced the idea of the noble savage. Both Laugier and Rousseau can be seen in philosophy and architecture as the advocates of the reestablishment of wilderness as a source of wisdom. Particularly in France, the absolutist power in a decadent court called for critical voices. The intellectual turn to wilderness was also a source of individual liberation, later so ardent as a political movement.

Jacques Delille (1738-1813), Laugier's contemporary author of poems about ideal gardens, presents two allegories similar to Laugier's frontispiece (fig. 3.1.3.2). One of the allegories stood up from her pile of antique rubble and ordered things neatly and measuredly in classical order, also evidenced by her drawing tools and the round temple in the background. This female figure of *Architectura* bears close resemblance with Laugier's figure in her face, haircut and dress including similar sandals and feet. Even her posture is just a step forward from the sitting *Architectura* in Laugier. The other allegory of the natural garden style, which has the features of a painter, agitatedly (like Laugier's genius) points toward the forest and a mountain with two waterfalls, still holding a brush in her left hand on the paper of a garden plan.

The similarities may well have been intended by the (unknown) engraver. Certainly a success like Laugier's for this book would have motivated enough of its printing with a stylistically similar engraving. The dispute in gardening, as allegorised by Delille, arose between two equivalent and vivid styles, while architecture has one truth, one true style, to be defended with one ideal that persists through centuries. Other than Delille, Laugier tries to harmonise nature and humankind through architecture, not by changing anything but by reducing to its essence and establishing the art of the classical Greek orders in their original splendour.

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<sup>14</sup> "La seule Architecture a été abandonné jusqu'à présent au caprice des Artistes, qui en not donnée les préceptes sans discernment." (Laugier 1753 p.V, transl. by the author)

<sup>15</sup> "L' homme dans sa première origine sans autre secours, sans autre guide que l'instinct naturel de ses besoins." (Laugier 1953 p.10 )



FIG. 3.1.3.1 Genius and Architectura with 'cabane rustique' (Laugier 1755) (courtesy of Bibliothek Werner Oechslin)



FIG. 3.1.3.2. Natural and Architectural garden style debating (Delille 1782) (courtesy of Bibliothek Werner Oechslin)

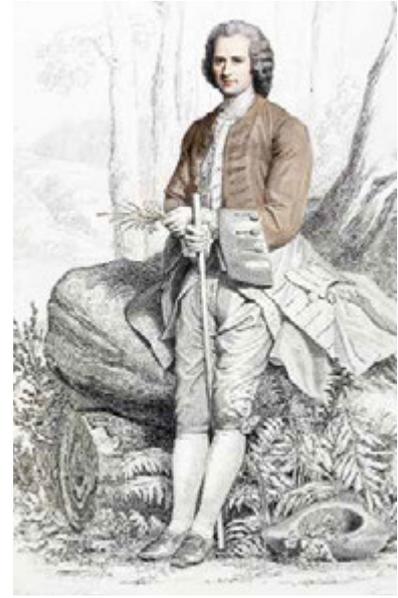


FIG. 3.1.3.3. Jean Jacques Rousseau (Engaving signed Touvenain)

So much has been written about the "cabane rustique" that it became a stereotype, even if many authors (i.e. Semper 1779 p. 200 see next section ) are opposed to simple interpretations. Later even Laugier himself writes again about his "cabane rustique" with a more nuanced tone. In the Hague edition of the 'Observations sur L'Architecture' (Laugier 1765 p.V), he places an advertisement (Engl. 'announcement') instead of his famous introduction:

"A lot of time was necessary for the creative spirit, in combining convenience and need, to overcome the great gap that is encountered between the rustic hut and a palace of corinthian order". (Laugier 1765 p.V)<sup>16</sup>

Obviously Laugier differentiates the interpretation of the creation myth and explains it as a long evolution of creativity. In fact this new 'advertisement' relativises Laugier's own much discussed polemical introduction, the same that had made him a much regarded theorist, so he must have known what was at stake. If he doubted his own myth or simply wanted to add nuance is hard to say.

Laugier was so influential for architecture that even details of his style guidance found many followers among architects. We see them in the works of Jaques Germain Soufflot (1709-1780) at the Panthéon in Paris (1757) or John Soane (1753-1837) at the Bank of England in London (1791-1793) (Ching 2011 p.611 and 618). Most influential was Laugier's recall to the classical order and pure proportions: Architectural order must be established at a higher level of composition than just the mere copying and combining of stylistic elements. Younger French architects Étienne-Louis Boullée (1728-1799) and Claude-Nicolas Ledoux (1736-1806) would apply style with high political ambitions, when two decades after Laugier's death the French revolution of 1789 began.

<sup>16</sup> "Il a fallut beaucoup de temps pour que l'esprit créateur, en combinant l'agrément avec le besoin, franchît le prodigieux intervalle que se rencontre entre la cabane rustique & un palais d'ordre corinthien" (Laugier 1765 p.V, transl. by the author)

Laugier establishes architecture at the origins of mankind. He creates mythical worship of both human and nature as two divine creations. He has the artistic genius dissolve the opposition of wild and civilised, propagating a common root for low and high culture, and denouncing simple fragmentary copies as insufficiently inspired.

Laugier's call to the natural ideal uniting architecture and landscape is not yet sufficiently heard. Paradoxically, his non-material, intellectual approach to the craft of building raises architecture into spheres of a divinely inspired art. By the force and legitimacy of divine inspiration, classicist architecture rises straight, perfect and far above the simple rural grounds that the hut stood on since antiquity.

### 3.1.4 **Semper and Goethe: the architectural-natural anthropological 'Stoffwechsel'**

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Gottfried Semper (1803-1879) took a particular position in regard to the nature analogy of architecture. Semper was an acclaimed architect in Germany and Switzerland, commissioned for crucial works in Vienna, and an established Professor at Zürich Polytechnic since 1851. Semper wrote his 'Der Stil' in two volumes and with a 3rd volume he could not finish before his death in 1879 (Semper 1860/1878 and 1868/1879)<sup>17</sup>.

While appraising classical Greek and Renaissance architecture, Semper took a counter position to the canons of his time in regard to architecture's development as an art form ('Kunstform' Semper 1860/1878 p.2) in analogy to the development of languages. He compared his studies into the development of architecture to linguistics. In a broader sense his studies are as novel and scientific as the following empirical models ('empirische Kunstlehre', 'Stillehre' 1860/1878 p.VIII).

Semper rejects the 'hundred times repeated' myth of the origin of architecture from Vitruvius (1863/1879 p.200). He argues that the art forms of architecture developed from textile, ceramics, carpentry, and masonry ('Tektonik' and 'Stereotomie' 1860/1878 p. 9). In his argumentation he takes into account the aspect of time related to the development of human craft: how human culture, dealing with nature and cultivating it, developed cultural refinement across various ethnicities. His crucial 'Bekleidungstheorie' explains how architecture develops from the craft of joining and preparing textiles, colouring them, and building furniture.

With his Bekleidungstheorie Semper relates to Karl Bötticher (1806 - 1889), who, like Semper, was a follower of influential Prussian Architect Karl Friedrich Schinkel (1781-1841). Bötticher differentiated between the architectural core form 'Kernform' and its dressing 'Bekleidung' with plaster, stucco, mosaics, bronze etc. (Bötticher 1852 p.2). Both Bötticher and Semper base their architectural theory on archaeology. In architectural history they are referred to as German Tectonics (Schwarzer 1996 and 2016).

Semper takes into account a series of different cultures from the Middle and Far East, including Chinese or Native American cultures. Although still focused on arguing for the development of the Hellenistic styles as the highest expression of art, this reference to cultural influences of Greece is

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<sup>17</sup> Semper is quoted in this thesis after after the 2014 facsimile edition of the original German the 2nd editions Vol.1 1878 (1st ed. 1860), Vol.2 1879 (1st ed. 1863) ) with translations by the author. The source for my referral here to the unfinished 3rd volume stems from the editors biographical note on Semper in the 2nd edition.

notably an early ancestor of similar architectural attempts by Ching, Jarzombek and Pakrash (2nd edition 2011) in our time. As the latter rightfully explains (p. 649) Semper's development of the art of architecture from craft is an anthropological one, placing architecture into human activity. The human 'instinct of making things' (Ching e.a. p. 649) provides Semper with the key natural component in architecture.

Semper argues that cultural techniques jumped from the more direct environment of clothing and dressing floors, walls, and ceilings. He introduces the textile art as the primary art, 'Urkunst', as opposed to the 'Urhütte' as a misleading and unfortunate German translation as the English 'primitive hut' for Laugier's 'cabane rurale'. Semper, also a critic of languages, uses his German idiom to develop a new original theory. Several of Semper's analogies have double meanings in the German language. The etymological transformation from ceiling ('Decke' literally cover, blanket) across dress ('Ge-Wand') to wall ('Wand') is in itself a metamorphosis ('Stoffwechsel' literally textile-change but also metabolism).

Semper's key argument is that culture arises as a form of expression for humankind before architecture. He sees the Assyrian and Egyptian influence on Greek architecture as the high point of culture. Later everything is in decline. Here Semper uses the idea that languages had reached a more complex stage in terms of vocabulary and inflexion in ancient times than in the modern day.

Dressing ('Bekleidung') and layering ('Inkrustation') are concept that Semper developed to defend his proof of a rich polychromy of Greek and Roman architecture (Zink 2019). Semper had taken a position in this academic dispute ('Federkrieg') since 1834 with acclamation from Schinkel (Semper 1860/1878 p. 489). In the later publication of his theory Semper includes as scientific proof the chemical investigation of samples of coloured marble he collected himself from the Theseus temple in Athens and Trajan's column (1860/1878 p.488 and 489) in Rome. He argues that as nature in its perfection forms an environment of many colours and shades, varying through days, seasons and aging, so does the artistic environment in its highest perfection.

Contrary to some critics it seems inadequate in the context of this thesis to divide Gottfried Semper's dominant theory from his practice. He fundamentally attacks deviations from the Greco-Roman tradition while becoming one of the most influential architects and educators. To illustrate the dominant 18th century architectural practice we may use one of his buildings. Semper built one of his favourite Buildings during his exile in Zürich: the Stadthaus Winterthur (1864-1870). (Lieblingsbauwerk Frei Wegmann 2015 p.2).

The actual architectural vocabulary used by Semper at Winterthur is in contrast to his progressive theories. Semper, the first professor of architecture at newly established ETH, can certainly be called progressive. He was actually a fugitive revolutionary in exile in then radically modern Switzerland. One of his political friends and later client of the Winterthur city hall was Johan Jakob Sulzer (1858-1873), a successful liberal politician and co-author of the Zürich democratic constitution of 1869. In Winterthur, Semper expresses the city's democracy, crowned by 'Pallas Athene' and relies on Greco-Roman tradition with some renaissance and rare baroque involvement. More important than the expression in his own 'favourite' building is how Semper brought German classicist thinking into architecture: His anthropocentric and humanistic view of architecture from within the individual dweller-craftsman and from mankind in cultural development as a whole was holistic in the best sense.



FIG. 3.1.4.1 Stadthaus Winterthur Design Drawing by Gottfried Semper 1864 (Image: semper-stadthaus.ch)

This humanism, as in human-centred argumentation for architecture, is a next step in the relation to nature from previous theoretical grounds. Similar to Semper's view of nature as an environment of many colours and to his argument for polychrome architecture in his 'Bekleidungstheorie' is also the methodological approach to natural science in the 'Farbenlehre' (1810) of Johann Wolfgang von Goethe (1749-1832). Goethe advocated a holistic description of nature through its human perception and in his fierce argumentation rigorously attacked and proved wrong Isaac Newton's Opticks (1704). "The phenomena have to be brought out of the dark empiric mechanic dogmatic torture-chambers in front of the jury of common human sense once and for all." (Goethe 1810)<sup>18</sup>

Goethe rigorously objects to science that would not trust the common sense of human experience. Landscape approaches to architecture have always existed besides the rationale based on experiential qualities. If I follow Goethe, the walking writer, architect of a Roman house, and landscape architect of the Park at the Ilm (started 1776) in Weimar, I think we should we understand architecture as a whole of experience rather than trying to decompose it.

The aim of this thesis, a scientific approach to landscape in architecture, does not mean I should like to see nature purely a a matter of object but with the term landscape I introduce nature as experience. What the poet Goethe reveals is that science is not a goal in itself but a means to an end. The same goes for architecture that shifts more and more from an internal logic to a holistic approach: to create a human environment in relation to nature based on experience. A holistic experience based approach as postulated by Goethe would reach architecture theory only much later, as I will show at the example of Wölflin and Frankl (in section 3.1.6).

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<sup>18</sup> "Die Phänomene müssen ein- für allemal aus der düstern empirisch- mechanisch- dogmatischen Marterkammer vor die Jury des gemeinen Menschenverstandes gebracht werden." (Goethe 1810 /1960 p. 538-545 translated by the author).

### 3.1.5 Semper against Paxton

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The history of London's Crystal Palace in 1851 (Fig. 3.1.5.1.&2.) by Joseph Paxton (1803 - 1865) is a good example to illustrate the divide between the emerging industrial practice of advanced building and the preoccupation of academic theory with antique architecture. Crystal Palace was built for the London World's Fair at a tremendous pace in 1851. It demanded the most advanced building technology of its age. It is considered today as of one of the first cases of modern architecture (Frampton 1983 p.11). The Crystal Palace used industrial standardisation and mass production with the relatively new materials of cast steel and glass. In particular these materials disconnect from the tectonic tradition of wood, stone and brick joinery - all of which would be too slow. The blend of interior and exterior design was programmatic. The building displayed the most advanced practice of industrial production, while being inside a hall filled with machinery and art of the different parts of the world. It also was filled with light and air to be able to become an interior landscape, including the warmer climates of the British colonies.

Paxton introduced elements of architecture more decoratively than in a structurally-tectonic manner (Fig. 3.1.5.3.). He added details of bows, capitals, rosettes, panels and a frieze crowned with a floral lily-pattern.

Crystal Palace was closer to the integration of landscape design and advanced architecture than any building before its time. With a great engineering effort one wing was built over a fully grown tree, lifting the whole roof structure in one piece. Air-conditioning and the installation of a tropical climate were tested with a mechanical HVAC system. The building acted as a climate machine. The fascination of the machine age celebrated in its festive gathering place. Crystal Palace contained a glass (hence 'crystal') fountain as a main attraction: water spilled as the symbol of life. The building became a global landscape habitat. These elements, however innovative, as well as the total and epochal work of art of Crystal Palace, did not influence the architecture of its time in a profound way.

Cast iron was despised in architecture theory. Both leading architecture theorists of the time, besides Semper in German and John Ruskin (1819-1900) in English despised cast iron. Only Eugène-Emanuel Violet-le-Duc (1814-79) advocated for iron. But not even Violet-le-Duc, who himself designed a concert hall (1886) with buttress like cast iron spatial framework would accept the Crystal Palace as architecture, objecting to its technological rationalism. (Ching 2011 p.646).

Semper himself wrote a fierce critique about the use of glass and iron in his time in a revealing article about a predecessor to Crystal Palace: the Paris Glasshouse of 1846 (German: Der Wintergarten zu Paris Semper 1848, abbreviated in Über Wintergärten Semper 1884 p.484-490). In his critique Semper first attacks the use of a bare cast iron structure and the glass roof spanning across the lecture hall of the Bibliotheque St.-Geneviève (1843-51 Fig. 2.4.5.5) designed by Henri Labrouste (1801-75) in Paris. Labrouste quite literally adopted a natural architecture analogy, and translated it into the most advanced techniques of his time. He used symbols and picturesque elements that suggest the inner world of the library lecture hall would be Arcadia: arches that evoke the tree branches of a sacred grove (Ching 2011 p.648). Semper calls these Paris experiments to use cast iron for serious architecture a "failure" (Semper 1884 p.485)<sup>19</sup>.

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<sup>19</sup> "Misslingen dieser Versuche, der Eisenkonstruktion für die ernste Architektur einen Ausdruck zu geben" (Semper 1884 p.485, translated by the author).

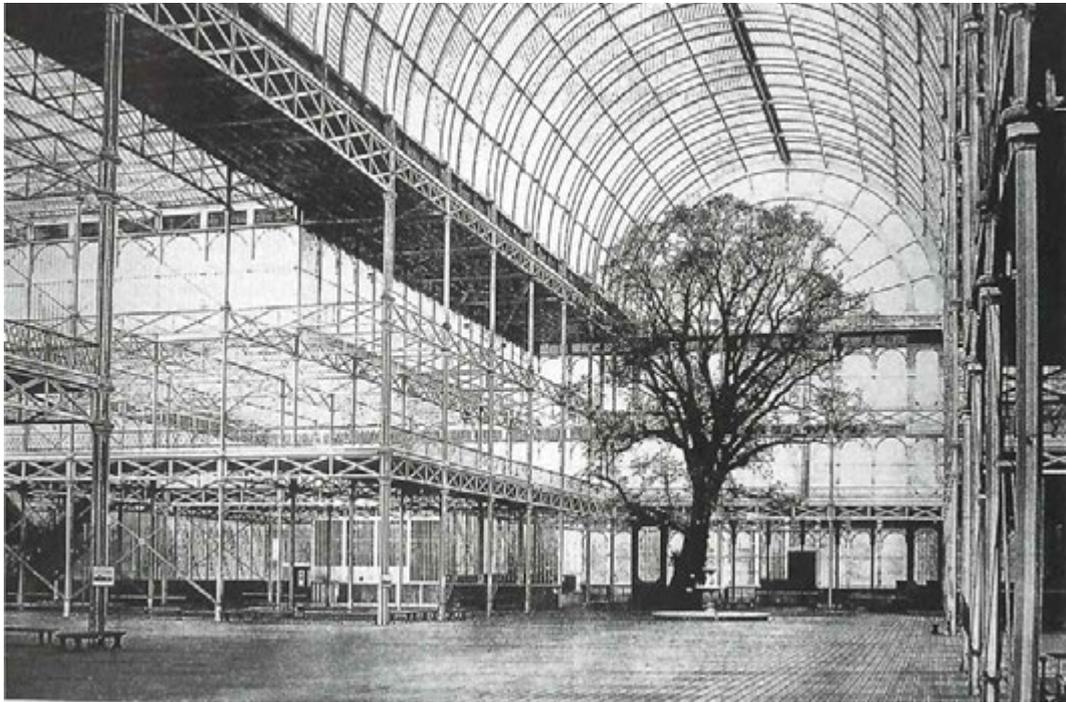


FIG. 3.1.5.1 Crystal Palace London 1851, Great Exhibition Hall with Tree (Schittich e.a. 2007 p.20)

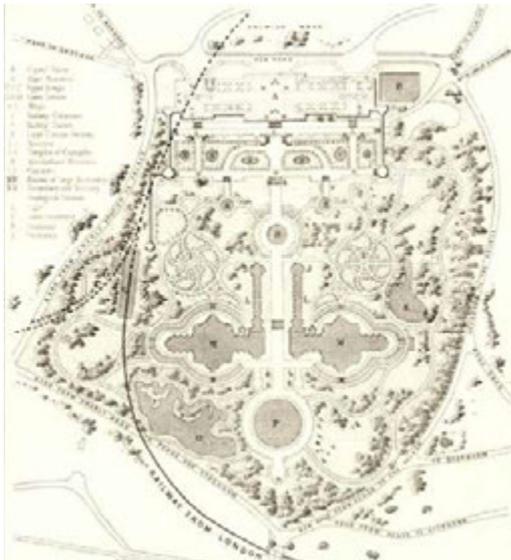


FIG. 3.1.5.2 Plan of Crystal Palace and Park (wikimedia.org)

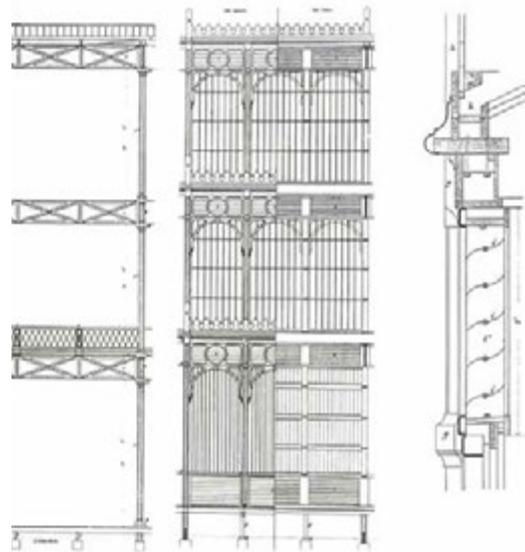


FIG. 3.1.5.3 Facade Details (Schittich e.a. 2007 p.20)

He does not value such eclectic transformation of natural elements: “ ... That thus architecture (literally: building-art), which is fabricating it's effects on the temper through the organ of sight may not deal with this seemingly invisible material, while it should be about (...) effects of massing.” (Semper 1884 p.485)<sup>20</sup>

<sup>20</sup> ‘... dass daher die Baukunst, welche ihre Wirkungen auf das Gemüt durch das Organ des Gesichtes bewerkstelligt, mit diesem gleichsam unsichtbaren Stoffe sich nicht einlassen darf, wenn es sich um Massenwirkungen (...) handelt.’ (Semper 1884 p.485 translated by the author)

In his critique Semper repeatedly refers to the Roman classics. He describes the sparse use of metal only for cladding and fencing in Roman antiquity. If the classics did not use metal structurally it can not have tectonic qualities and Semper qualifies his contemporaries as non-architectonic builders. This critique reveals an ideological argumentation of Stoffwechsel, which is to Semper a cultural process and not the one of physical material qualities.

The actual reason for Semper's opposition to the use of iron and other metals in construction stems from his own dissatisfaction with the Paris Winter-Garden (Jardin d'hivèr, Champs Elysées, Paris (1846) Fig. 3.1.5.5.). The tectonics there vex him as they seem structurally irrelevant as a kind of scaffolding ('Gerüst') that invades façades and other architectonic parts (Semper 1848 p.488). Semper harshly criticises the Jardin d'hivèr as an enormous "glass box" and denies the relation of art and nature in this work as "crippled" (Semper 1848 p. 488).<sup>21</sup>

Semper believes in the superiority of architects to gardeners, whose work he hardly recognises as a design discipline, with his critique. Paxton, the designer and engineer of Crystal Palace, was a gardener of Chatsworth garden (redesign 1826–58). Paxton himself was certainly inspired by the Paris Winter-Garden, and its popularity.



FIG. 3.1.5.4 Bibliotheque St.-Geneviève Paris 1851 (Thoma)



FIG. 3.1.5.5 Jardin d'hiver Paris 1846 (A.Provoost)

In as late as 1880 cast iron and steel would still be regarded lesser materials. A fierce discussion arose about the use steel for the choir roof structure of the Cologne Cathedral, the highest building in Europe at the time. Opposition against the new material centred around the fact that it was considered unnatural, and thus unsuitable for sacred space. (<http://www.koelner-dom.de/> visited February 2016). It was a close friend of Goethe, Johann Sulpiz Melchior Dominikus Boisserée (1783-1854) who had found a medieval facade plan in 1816 and founded the Dombau-Verein in 1840. The Gothic as the only Western architectural style with almost no Greco-Roman influence was long considered unarchitectural, just like industrial materials.

<sup>21</sup> "Kein Zusammenwirken der Kunst mit der künstlichen Natur. [sic] ... Der enorme Glaskasten ... lässt es (alles andere) als verkrüppelte Andeutung erscheinen." (Semper 1848 p. 488 translated by the author)



FIG. 3.1.5.6 Steel structure Kölner Dom (Photo: Kaspar H.)



FIG. 3.1.5.7 Cristal Palace on Fire (London News 5.12.1963)

According to Winston Churchill (1874-1965) the fire of Crystal Palace in the last years of the interbellum in 1936 marked the "end of an age" (Shears 2017 p.198). He was referring to the age of popular fascination in industrial progress leading up to the Great Depression of 1929. On the brink of WWII, the 'modern age' of industrialisation had come to an end, while the 'modern age' of architecture had only just begun. The emergence of new buildings with industrial techniques and the annexation of natural or landscaped space into air-conditioned interiors reflect societal change and the democratisation of Europe in the 19th century. Also gardens are made public to the exploding urban populations. But this societal change did not yet reach the theory of architecture. Semper's example shows how an established architect was opposed to accepting this new form of buildings as valid architecture.

That Crystal Palace was denied the status of architecture illustrates well how the debate and discussion on whether or not something is architecture is reduced to a discussion of materials or (at best) motives of antiquity with an impressive 1800 years of dogmatic continuity. Architecture remained in a stiff scheme. In underpinning his objections against the Paris Winter-Garden, Semper leaves no doubt that this fierce critique of the architecture establishment against these innovations is not a coincidence, but centred on the divide of landscape and architecture. A blend of garden and building is a fundamental mistake in the relation of nature and art according to Semper (1884):

"A garden necessarily needs a house to which it belongs, only this house makes it a real garden. Without the latter (a house) and without the continuation of its architectural order into the innermost area of the garden-nature, the garden is not a garden, but a tamed wildness, in one word nonsense. From the house as focusing point of art, that (art) should expand radiantly across nature, and nature should on its side have effect on art in a seemingly powerful exchange. This necessary relation, these first conditions of such a architectonic disposition lack at the Paris Winter-Garden" (Semper 1884 p.488-489)<sup>22</sup>

For Semper the divide between nature and architecture must persist. Exchange is desirable and even necessary, but the dichotomy is an absolute prerequisite for architectural design. For two millennia, all canonical theorists of architecture agree on the necessary divide of nature and architecture. Despite the popularity of these public venues in London and Paris, Semper's example clearly defends architecture from any integration with landscape elements.

<sup>22</sup> Ein Garten bedingt notwendig ein Haus, zu dem er gehört: dieses Haus macht ihn erst zum Garten. Ohne letzteres und ohne die Fortsetzung seiner architektonischen Ordnung bis in das innerste Gebiet der Gartennatur hinein, ist der Garten kein Garten, sondern eine zahme Wildnis, mit einem Worte ein Unding. Von dem Hause als Brennpunkt der Kunst soll die letztere sich strahlenförmig über die Natur ausbreiten, und die Natur soll ihrerseits in gleich mächtiger Wechselwirkung auf die Kunst hinüberwirken. Dieser notwendige Zusammenhang, diese ersten Bedingnisse einer derartigen architektonischen Anlage fehlen beim Pariser Wintergarten. (Semper 1848 p.488-489 translated by the author)

### 3.1.6 Wölfflin and Frankl: a natural phenomenology of living architecture

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In 1932-34 the Stadthaus Winterthur was extended with a concert hall. The extension fundamentally changed the proportions of the executive wing, which had represented the equal powers of the democratic branches of power in Semper's original idea. One of the defenders of Semper's original design was the influential art historian Heinrich Wölfflin (1864-1945), a Winterthur native.

Wölfflin as an art historian - began to question the rules established by architects like Alberti and Palladio by analysing and historically contextualising the great works of art and architecture in his own interpretation. Wölfflin is in turn a disciple of Jakob Burckhardt (1818-1897) who interpreted the art of the Italian Renaissance as the expression of cultural changes in Italy. (Die Kultur der Renaissance in Italien Burckhardt 1860, Engl. The Civilization of the Renaissance in Italy Burckhardt 1878 and 1990).

Wölfflin introduced the phenomenology of spatial perception into the critique of architecture, connecting it to the relatively young science of psychology. In his Introduction to a Psychology of Architecture "Prologema zu einer Psychologie der Architektur" (Wölfflin 1886), he relates the physical appearance of architectural bodies to the human aesthetic appropriation. Exploring the relation between the physical experience of architecture and its form, Wölfflin (1886 p.14) also relates the emergence of good architecture to nature in a fundamental way, proclaiming that beautiful form is conditioned by organic life<sup>23</sup> He establishes a novel natural force that he calls 'Formkraft'. Establishing the architectural form as the main question of design, Wölfflin's argument<sup>24</sup> (1886 p.15) destabilises canonical mechanisms of textbooks for architects to copy from.

According to Wölfflin each object of art just as each being in nature seeks perfection in the development of form. Formative force emerges from the human lust and is expressed with human will. The perfect form is regular, symmetrical, proportional and harmonious and can be expressed in materials as relations of length and width, horizontal and vertical development and ornament.

Already in the Prolegomena Wölfflin established the idea he later developed, that each epochal human condition expressed itself in a new architectural style: "an architectural style expresses the attitude and movement of the men of its time" (Wölfflin 1886 p.39)<sup>25</sup>. With his knowledge from Psychology Wölfflin opposed the kind of casuistic historiography of art and advocated the importance of human perception. This undermined not only his field of art history and the subject of past epochs but also the continuation of formal canon in a changed society.

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<sup>23</sup> "Und so behaupte ich, dass alle Bestimmungen, die die formal Aesthetik über die schöne Form gibt, nichts anderes sind, als die Bedingungen des organischen Lebens." (Wölfflin 1886 p.14, transl. by the author)

<sup>24</sup> "Nach all dem gesagten mann kein Zweifel seine, dass Form nicht als etwas äusserliches dem Stoff übergeworfen word, sondern aus dem Stoff herauswirkt." (Wölfflin 1886 p.15, transl. by the author)

<sup>25</sup> "... ein architektonischer Stil gibt die Haltung und Bewegung der Menschen seiner Zeit wieder." (Wölfflin 1886 p.39, transl. by the author)

Ich stelle zur Vergleichung zwei bramantische Profile (Abb. 5,

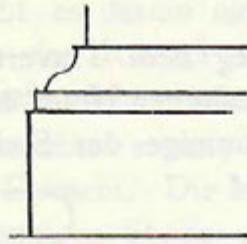


Abb. 5 a.

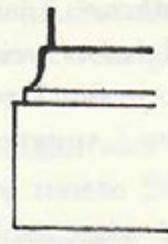


Abb. 5 b.

Profile von der Cancelleria.

Cancelleria, Sockel des Erdgeschosses, a, und Sockel der Pilaster des ersten Geschosses, b.) neben zwei spätere (Abb. 6, 7). Man

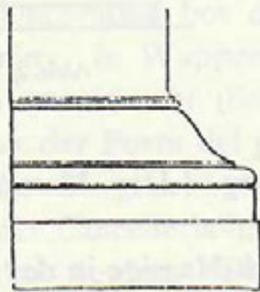


Abb. 6.

Profil vom Konservatorenpalast.

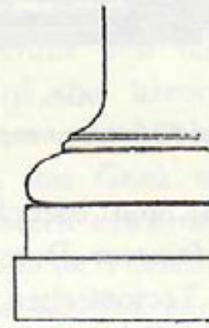


Abb. 7.

Profil von Porta di S. Spirito.

wird den exacten, scharf trennenden und das Kleinste noch durchführender Geschmack der Renaissance nicht verkennen. Dagegen im beginnenden Barock das sichtliche Bestreben, Alles weich, flüssig zu machen.

FIG. 3.1.6.1 Profiles of early Bramante in Renaissance above and later in Baroque below (Wölfflin 1961 p.36)

Soon after Wölfflin's theoretical rehabilitation of 'the will to form' as a human element in architecture, Wölfflin studied examples of Baroque Architecture in Rome and differentiated them from the Renaissance. Here he exemplifies the epochal change between the two styles. He also establishes the change in question as a self-inflicted and conscious evolution of its architects such as Antonio da Sangallo, Michelangelo, Vignola, Giacomo della Porta, Maderna, and late work of Bramante, Raffael and Peruzzi (Wölfflin 1961 p.4). Wölfflin does not explain "style determining geniuses" (Wölfflin 1961 p.4) in a biographical sense, but by crucial works and each and every design decision. He establishes a new kind of formal architectural critique involving analysis of formal elements of a style (e.g. The Illustrations 5 earlier Bramante in Renaissance or 6, 7 late Bramante in Baroque, 1961 p.45). For Wölfflin Baroque architecture is an art of massing and the expression of movement through principles of form.

In conclusion to his seminal study of churches and city-palaces Wölfflin finally examines the relation to the villas and gardens of Rome (Wölfflin 1961). His opinion about the villas and gardens

is completely opposed to Semper (1848). From a style determining perspective Wölfflin finds no architectural interest in the Roman Villas of Lante, Caprarola, D'Este or Aldobandini (Wölfflin 1961 p.118)<sup>26</sup> but acknowledges the (style determining) dominance of their gardens.

Wölfflin closes his architectural style history by describing crucial elements of the Italian Baroque gardens to determine architecture. In his last chapter of "Villas and Gardens" he establishes gardens as the epochal pacesetter, the style-determinant of architectural development in the Italian Renaissance and Baroque, illustrated by examples and their elements.

"one has to continuously keep in sight, that architecture can not play an independent role. ... Not only the direct environment of the house, but the whole garden is under the rule of an architectonic spirit" (Wölfflin 1961 p. 131)<sup>27</sup>.

Note the change: For ages architects, even up to the last generation before Wölfflin, subordinated landscape, gardens as nature to the architecture emancipated from a perspective of formal analysis as opposed to ideologically driven theory (i.e. last section, Semper 1884 p.488). Also, this shift in looking at the divide of landscape and architecture emerges from a reading of architectural form. Even from the 16th century when the theory of architecture was certainly not liberated from Vitruvius, even not with its own theory, architectural style itself in retrospect developed faster than its theory (Wölfflin 1961 p.9).

Paul Frankl provides an important text for a new view of architectural history: "Die Entwicklungsphasen der neueren Baukunst" (Frankl 1914)<sup>28</sup>. Frankl explicitly refers to his Munich University teacher Wölfflin in the introduction (Frankl 1914 p. V) and dedicates the book to him. Beyond Wölfflin's analysis of the change of styles on merely formal phenomena, Frankl establishes a complete categorisation for the analysis of buildings. Frankl's theory of architecture holistically involves phenomenological, spatial, temporal, metaphorical, and programmatic aspects. Frankl skillfully combines phenomenological and structural critiques of architecture into a complete system from a human perspective. He also combines the logic of making with that of perceiving architecture. In his opinion, "people are part of architecture". Without them a building would be a "mummy" (Frankl 1914 p.159). Here we look "for the intellectual substance, content, sense of the whole" (Frankl 1914 p.15<sup>29</sup>). Frankl, following Wölfflin, chooses his own inventory of categories: he identifies the historical epochs of art and architecture (Renaissance, Baroque, Rococo, Classicism) from existing monuments and decodes their meaning from what is there in spite of missing historiographic data. His contribution provides what to look for as essential qualities of a building design as a valuable model to filter the essence of any design.

Frankl divides the appearance of architectural works into four elements: Space, Mass, Light and Purpose ('Die vier Elemente: Raum, Körper, Licht und Zweck' Frankl 1914 p. V). As Frankl postulated, all these elements may be approached differently in each style. He determines polarities of style development for each element ('Poolpaare' Frankl 1914 p.174). In formal analysis of

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<sup>26</sup> "Es ist kein einziger bedeutender Bau daunter." (Wölfflin 1961 p.118)

<sup>27</sup> "... man muss hier stets im Auge behalten, dass Architektur gar keine selbstgünstige Rolle spielen kann. ... Nicht nur die nächste Umgebung des Hauses, sondern der gesamte Garten steht unter der Herrschaft eines architektonischen Geistes." (Wölfflin 1961 p. 131, trans. by the author)

<sup>28</sup> English translation: The Principles of Architectural History: The Four Phases of Architectural Style, 1420–1900 1968 and 1973. For this thesis I refer to the German original (Frankl 1914).

<sup>29</sup> "... [man] gelangt so zu dem geistigen Gehalt, dem Inhalt, dem Sinn des Ganzen" transl. by the author from (Frankl 1914 p.15, transl. by the author).

buildings, he explains how development of style is determined by a movement from one pole to another. According to Frankl, each polarity is in stylistic development. Additive spatial composition develops into dividing space (Raumaddition und Raumdivision). The architectural body develops from centripetal and centrifugal forces (Kraftzentrum und Kraftdurchlass), and individual images are replaced by many (Einvildigkeit und Vielbildigkeit). The freedom from use-definitions is replaced by use-bound building in typologies (Freiheit und Gebundenheit).

Frankl extrapolates the differentiation of Wölfflin (Renaissance and Baroque) across two further epochs (Rokoko and Classicism). But more important is how the model of Raumform, Körperform, Bildform und Zeckform provides an instrumental set for investigating the form of architecture as a total work of art. Compared to the theoretical body of previous centuries, Frankl provides a big leap in the theoretical toolbox to understanding architecture. Rather than devising and defining elements, materials, and reaching the history of style to a development of art as craft, Frankl addresses the intellectual and human dimensions of architecture. By combining these elements in a parallel history of style, Frankl finally establishes a holistic view<sup>30</sup>.

Besides being still valid today as a well-structured approach to the history of architectural style for the juxtaposition of architecture and nature, Frankl's connection between style and a holistic humanistic vision of architecture is most important. Frankl's phenomenological and morphological approach to art history is a key to understanding the design of architecture more effectively than any deterministic approach. His four-element model was adopted as a scheme for design analysis planalyse at TU Delft and later transposed into a 4 layer approach to landscape architecture by Clemens Steenbergen and Wouter Reh (see 3.2.2. and 3.2.3.). Frankl's theory not only simplifies architecture to form and appearance but emphasises the complex interactive forces of different elements. Frankl's scientific approach to architecture opens a way to understand spatial design in a more complete way, not far from the holistic visions of Goethe on light. Such a holistic understanding of analysis helps understand the principles of landscape phenomena in architecture.

### 3.1.7 Wright: natural architecture

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From the six previous examples of architectural theory since antiquity I demonstrate that, even if the position of nature as an ideal for architecture was always present, still architecture as object art - would keep its distance from nature. In Western architecture nature was kept at a safe dialectical distance. The following three sections show how the nature - architecture divide in the 20th century was almost overcome and why it persisted. With three prominent figures and two of their key works I exemplify the modern architect's diverging attitudes toward nature. Kaufmann House, named Fallingwater<sup>31</sup> (1934 - 1937) outside Pittsburgh, Pennsylvania by Frank Lloyd Wright in this section will be compared to Farnsworth House (1945 - 1951) outside Chicago, Illinois by Mies van der Rohe in the next (3.1.8.). Le Corbusier's "Plan Voisin" for Paris (1926-1966, 3.1.9.) exemplifies an

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<sup>30</sup> The influence of Frankl in architectural theory was seriously affected by his forced retirement from Halle University by the Nazi regime and its censorship against disseminating his main work in 1934. His systematic approach to art history, *System der Kunstwissenschaft* (1938), was among the books burned by the Nazis in public. In his Exile in the US, Frankl held a position at Princeton with a fellow emigrant, Erwin Panofsky (1892-1968), but apparently Frankl's English was too poor to lecture (Sorensen 2016).

<sup>31</sup> I use this given name "Fallingwater" instead of the also common "Kaufmann house" because of the significance of the naming of a house design after a landscape feature in the context of this thesis. The name was given by Wright. Edgar Tafel reports the design and naming on one single day in Fall 1935 at Taliesin. "Then the gold title across the bottom: "Fallingwater". A house had to have a name" (Tafel 1979 p.3) see for design history also Levine 1996 p.225.

ideology followed by a whole generation of modern architects. Each architect's attitude towards nature illustrates major differences resulting from a search for different kinds of landscape perfection. At an important moment in architecture, when modernity freed it from classical rules, landscape integration and an idea of natural architecture came up strongly, but finally modern architecture established an even stronger divide.

Frank Lloyd Wright (1867 - 1959) was a descendant of the Chicago School where he had worked for Louis Henry Sullivan (1856 - 1924). Leaving Chicago to a voluntary exile in Florence in 1909-10, Wright had developed an understanding of Italian Renaissance Architecture as "an intimate bond with culture through the land" (Levine 1996 p. 72). Wright became the most prominent exponent of the Prairie School at the turn of the 20th century in the Midwest of the United States, and represented a national architectural style which alluded to the American prairie landscape with its expression, space and materials (Pond 1918 p.174<sup>32</sup>, Brooks 1972).

Throughout his life and career, Wright had been engaged in Nature and Landscape preservation. Traces go back to his Chicago years where he was involved with the landscape architect Jens Jensen and joined his "Charter of friends of our native landscapes" (Jensen 1913 and 1933)<sup>33</sup>.

At the time of his work on Fallingwater in the 1930s, Wright had not had a major architectural commission for several years. Landscape architect and architectural educator Alfred Caldwell (1903-1998) had worked with the same Jens Jensen in Chicago and lost his job there in the aftermath of the 1929 stock market crisis. Caldwell remembers one of his encounters with Wright "in bad shape" at his residence and fellowship Taliesin in 1930:

"Mr. Wright said: 'Alfred, I haven't had a building for eight years. It's impossible for a genuine architect to operate in America. So what am I going to do, I'm going to be a farmer. You see this land over there? That's real good soil. ... I'm going to farm it. You stay and we'll farm it together. How's that? Stay with me.' " (Caldwell 1997 p.13)<sup>34</sup>.

Wright had personal financial problems with his divorce following the denouncement<sup>35</sup> of an extramarital relationship and a second fire at Taliesin in 1925 (Levine 1996 p.195) which he described as a descent to "the bottom of the vulgar pit" (Wright 1932/1977 p.273). As a last major project, Wright had engaged in a large hotel project in the South Mountains of Phoenix, Arizona. The San Marcos-in-the-desert hotel project blended into the Mesa landscape, which Wright studied intensely, including its indigenous architecture ruins. He even moved with his staff and family into the Ocatilla campsite a few miles from the intended hotel site, but that project ended soon after the 1929 economic crisis. Levine (1996 p.215) calls the hotel design in the desert a predecessor to Fallingwater.

In Levine's contemporary interpretation of Wright's work, both examples engage with the reading of the building site in a "radical identification of architecture with nature" (Levine 1996 p. 215).

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<sup>32</sup> "In imitation of a certain broad and horizontal disposition of lines individually employed, a school of design has sprung up, for which its authors claim the title 'American'. The horizontal lines of the new expression appeal to the disciples of this school as echoing the spirit of the prairies of the great Middle West, which to them embodies the essence of democracy." (Pond 1918 p.174)

<sup>33</sup> see on Wrights contribution to Jensen (1933) in Matthew Skjonsberg (2018 p.407)

<sup>34</sup> In this source Caldwell is paraphrasing Wright from his visit in 1930 in a transcript of an interview with Dennis Domer in 1991

<sup>35</sup> At that time extramarital relationship was a criminal offence.

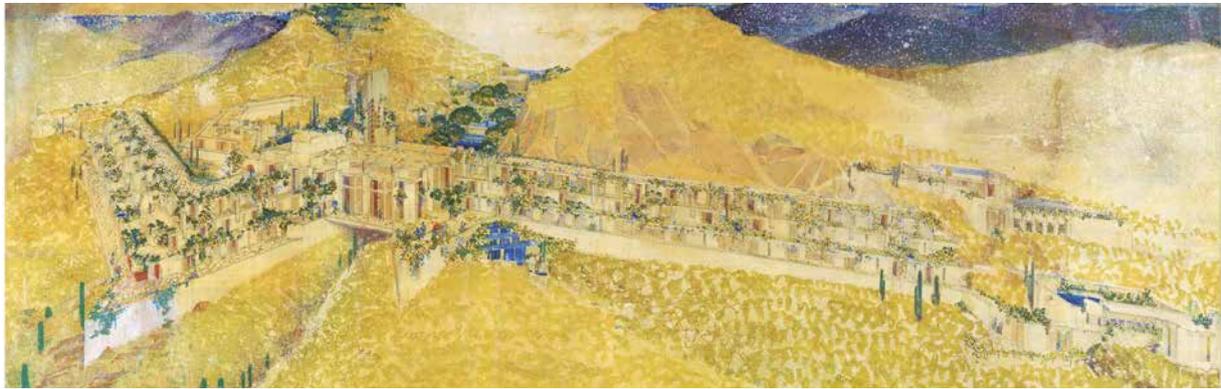


FIG. 3.1.7.1 Night View San Marcos in The Desert Hotel Project (Rendering: Lloyd Wright 1927, FLW Foundation Archives, Columbia Univ., MoMa)

Out of the crisis years however came what is considered Wright's most important and influential work - Fallingwater. The Kaufmann weekend residence in Mill Run, Pennsylvania is in many ways the utmost expression in a individual building design of what Wright considers a modern - and as he also said organic - architecture, adequate for modern America. It clearly demonstrates Wright's use of his own landscape strategies in design. For Edgar and Liliame Kaufmann and their son Edgar Jr., Wright interprets a natural site of Bear Run Waterfall.

The clients owned a weekend cabin close by, and initially planned to replace it. Wright insisted on building the house on the very place that the Kaufmanns loved most, the nearby waterfall. A boulder at the waterfall that the Kaufmanns sat on was used as the datum level of the House and Wright was forbidden by Kaufmann to shave it off (Mosher in Tafel 1993 p.152<sup>36</sup>). "That spot, Mr. Kaufmann's stone seat, was to become the heart and hearthstone of the most famous house of the twentieth century" (Tafel 1979 p.3).

The house was to enable its owners to live with the waterfall, the space involves its sounds, and plays a game of both disguising and enhancing the natural feature. A triangular foundation is laid on rocks and the house spans and cantilevers across the Bear Run. <sup>37</sup>The house has a strong differentiation of vertical and horizontal elements in different materials. The vertical walls are built into rock beds and executed in stone masonry, with the same coloured rocks quarried in the vicinity of the site. Different horizontal slabs of two meter high concrete balustrades in light o<sup>38</sup>ckre allow large cantilevering of the slabs, up to five meters. Fallingwater was meant to recede into and emerge from the landscape like the formation of rocks that triggered the waterfall. The materials allude to the natural formation, the layout dances with the rocks in the water. The sound of the waterfall fills its space - the spectacle of nature is enhanced and put into an artistic expression by the architect. The inhabitants are to live with the waterfall, and the house provides a direct stair access from the living room to the water. The house is a built landscape.

<sup>36</sup> Mosher recalls the importance of that boulder form Wrights answer to his question of measuring a datum level when sent to supervise the construction sit in 1936

<sup>37</sup> According to his collaborators Wright hat long prepared this designs exterior expression "in his head" before he drew it with the help of his assistants in only a day, finishing two elevations while Mr. Kaufmann had lunch with Wright (Tafel 1979 p.3). The main floor-plans however where meticulously drawn onto a topographical map and the construction was turned into position to river shore.

<sup>38</sup> The light ocker shelves where intially imagined by Wright to be gold or aluminium plated, of then with glittery paint: They should "'glisten' down among the masses of green leaves" (Wright in Levine 1996 p.237 quoting Wright - Kaufmann correspondence from 1937).



FIG. 3.1.7.2 Fallingwater Frank Lloyd Wright 1935  
(Photo: Daderot, wikimedia.org)



FIG. 3.1.7.3 Topographical Site Survey, Bear Run Camp  
(Levine 1996 p.230)

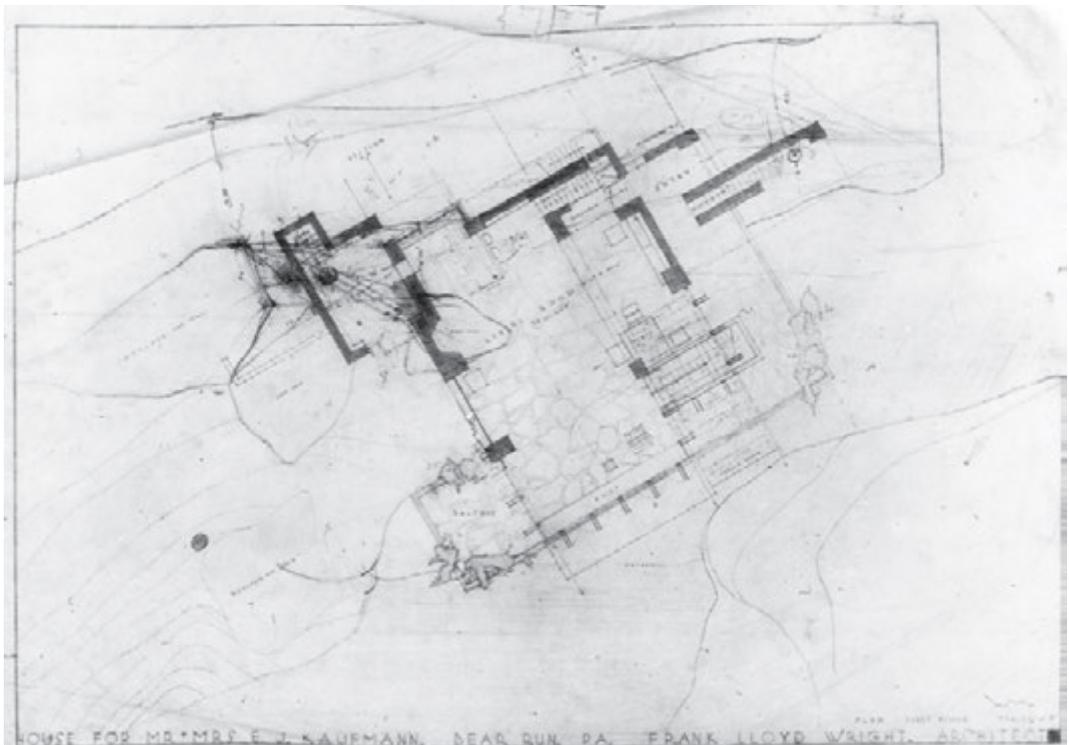


FIG. 3.1.7.4 Preliminary Plan House for Mr. + Mrs. E.J. Kaufmann Bear Run PA. Frank Lloyd Wright Architect (Levine 1996 p.231)



FIG. 3.1.7.5 Hiroshige Night Snow at Kambara, 1834 (Fallingwater.org 1985.298)



FIG. 3.1.7.6 Fallingwater, Perspective from southwest (Frank Lloyd Wright 1935, Levine 1996 p.243)

Wright gave a Hiroshige woodblock print to the Kaufmanns in December 1935. I use it here in order to illustrate his attitude toward the house. (Fig. 3.1.7.5). In this graphical representation of a Japanese winter landscape, not only do the shapes of humans and their harsh natural environment blur. The figures' sticks and legs are treated in dark like the trees and the facades of the village houses. Their snow covered backs and hats look like the village rooftops and the mountains. The movement of snow falling and the footsteps of the slowed travellers in the snow in the foreground, merges with rocks on the mountain-slopes in the background to associatively jump through scales of time and space. This print provides the pictorial strategy of the Fallingwater design.

Replace black 'woods' by brown 'rocks' and falling-'snow' by '-water' and the same amalgam of architecture and nature is expressed in the famous perspective rendering of Fallingwater, which summarises the idea in an image but does not represent the experience of the house.

As Levine puts it, the Fallingwater experience should "end with" the rendering (1996 p.243). The carefully selected Hiroshige print also explains the dimension of time and movement of Wright's architecture: Understanding Fallingwater needs the dimension of time, the time of walking through the house that is filled with sounds of the waterfall, orientation in space organised not only visually but through hearing and a full involvement with an environment that never stops.

"Fallingwater ... remains almost unique even in Wright's work. It relies on the purely architectural forms of it's natural imagery to enforce a temporal reading ... (It is not) ... merely a representation of natural activity. Rather, it is an elaboration and a compounding of preexisting conditions into the realm of phenomena. One is therefore reminded of a long tradition of architecture using nature in movement. As in the gardens of Renaissance and Baroque Italy and France, to give buildings a more direct connection with the changing natural world they in fact replace. ... What is so extraordinary about Fallingwater is that it never stops." (Levine 1996 p.252)

In Fallingwater Wright realised his vision of what 'natural architecture' could become. Instead of 'timelessness' often used by other modern architects, he talks about the 'naturalness' of architecture at a London speech in 1939. According to Wright, modern architecture was to reestablish a new connection of architecture and nature against the 'classic':

"Architecture is a necessary interpretation of such human life as we know it ourselves are to live with individuality and beauty. The 'classic' of course made no such statement; the 'classic' ideal can allow nothing of the kind to transpire. The 'classic' was more a mask for life to wear than an expression of life itself. Then how much more so was pseudo-classic? So modern architecture rejects the major-axis and the minor-axis of classic architecture. It rejects all grandomania, every building that would stand in military fashion heels together, eyes front, something on the right hand

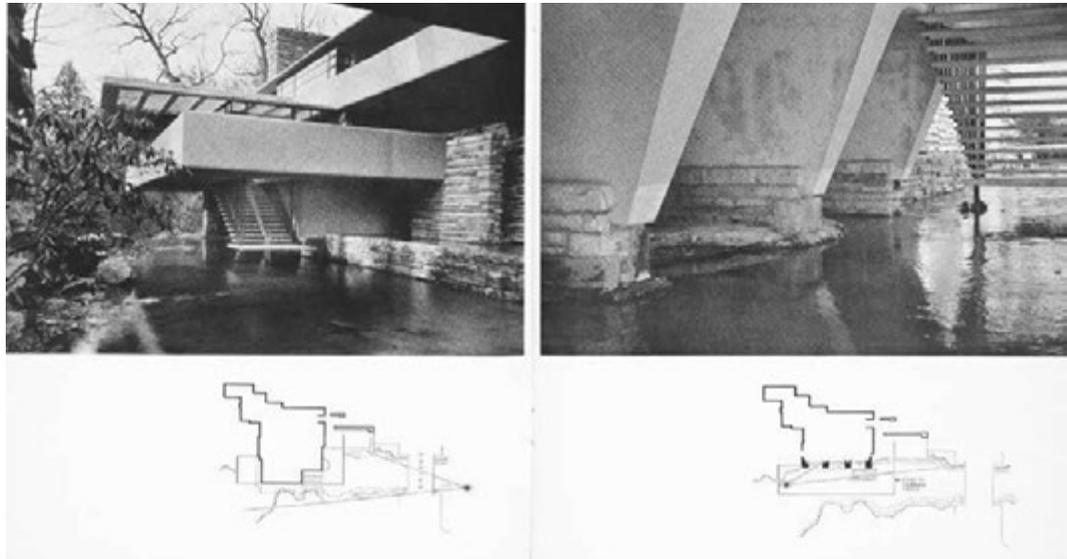


FIG. 3.1.7.7 View From under The Bridge (left) Under the Living Room Balcony (right) (Wright MoMA Catalogue 1938 P.11-12)

and something on the left hand. Architecture already favours the reflex, the natural easy attitude, the occult symmetry of grace and rhythm affirming the ease, grace, and naturalness of natural life. Modern architecture - let us now say organic architecture - is a natural architecture. The architecture of nature, for nature." (Speech at RIBA Wright 1939)

Fallingwater and this speech give us a picture of what Wright had in mind as the modern architecture: "a natural architecture, ... of nature and for nature." (Wright 1939). The house that was one of the clearest demonstrations of this "natural easy attitude" (Wright 1939) was realised in the time that German modern architects of the Bauhaus Walter Gropius, Mies van der Rohe and Ludwig Hilbersheimer came to the USA fleeing Nazi Germany. Their influence in the USA would steer modern architecture in a very different direction than Wright had imagined at the time of their arrival.

### 3.1.8 Mies: nature through glass walls

The architecture of Mies van der Rohe in its extreme form at Farnsworth House (1945 - 1951, Fig. 3.1.8.1-.3) represents a completely different approach of architecture towards nature.

Mies (1886 - 1989) was the last director of the Bauhaus, founded in 1919 in Weimar under Walter Gropius. In 1937, under pressure of the Nazi Regime, Mies was forced to close down the last Bauhaus in Berlin. He emigrated to the United States and became director of the architecture school at Armour Institute in Chicago in 1938 and developed the campus master-plan and buildings that became the Illinois Institute of Technology IIT. Among several refugee Bauhaus architects, Mies has in retrospect gained the biggest influence in the USA (Cohen 2018, Wolfe 1981).

Mies was warmly received by Wright in 1937, as opposed to other leading European modernists. Before Mies, Walter Gropius on a lecture tour in the USA visited a Wright construction site and was bluntly "left standing there" (Jacobs House in Middleton Wisconsin, as witnessed by Tafel 1979 p. 66/67 ) and Le Corbusier lecturing in the mid 1930s in Madison was refused a visit at Taliesin by Wright (Tafel 1979 p. 66). Tafel recalls outspoken opinion about the European modernists at the Wright fellowship in Taliesin:

“... He (Wright) thought these Internationalists were damaging our country with their functionalism, their infatuation with the machine, and their architectural style that was supposed to fit anywhere but in truth was at home nowhere. ... . By 1929 he could demonstrate that American architecture, like everything else, had gone bankrupt, sterile. And after the depression, when the Eastern seaboard decided it could use something architecturally new, did it look to the West of the United States, to its own sons? Certainly not! It went to the Bauhaus.” (Tafel 1979 p. 66)

Wright was not included in the important 1932 ‘International Style’ exhibition at Museum of Modern Art (Hitchcock and Johnson 1932) and clearly took a distance from this style definition too. But the work of Gropius, Le Corbusier and Mies had been shown with great influence at this exhibition.

At this time Wright had a strong influence<sup>39</sup> on the European immigrant architect Mies. In text for a Frank Lloyd Wright exhibition at Museum of Modern Art in 1940 Mies (1946 quoted after Neumeyer 2016 p.385) clearly admitted Wright’s influence, in particular on his house designs. Specifically he mentioned the exhibition and large format publication of Wright’s early works by Ernst Wasmuth in Berlin (Wright 1910). Wright on the other hand respected Mies works in particular the Tugendhat House in Brno and the German Pavilion in the Barcelona World’s Fair in 1929 (Tafel 1979 p.69 , see 3.1.9.). Mies visited Wright at Taliesin in 1938; not speaking English, the two relied on an interpreter and travelled four days around construction sites of the Johnson Wax Building with Assistant Tafel (1979 p.70). Tafel himself recalls the discussion of the meeting of Mies and Wright among Fellows at Taliesin in “Apprentice to Genius”:

“The greatest difference between Mies and Mr. Wright, we felt, talking it over later, was that while Mies dedicated his entire life to search for one style, refining and purifying, Mr. Wright kept evolving, growing, and developing new styles. He was never locked into one design establishment, which bore out his favourite phrase: ‘What we did yesterday, we won’t do today. And what we don’t do tomorrow will not be what we’ll be doing the day after.’ By the time architectural copyists had caught on to an idea of Mr. Wright’s, he was already onto something new. Mies’ credo was just the opposite: “You don’t start a new style each Monday”. (Tafel 1979 p.70).

Shortly after this personal encounter Wright gave an introductory address for Mies at Armour Institute in Chicago in 1938. Apparently annoyed that all other speakers disregarded any reference to Wright’s own influence on Mies, he said “I give you Mies van der Rohe” and abruptly left (Wright 1943 p.460, David Wright in Tafel 1993 p. 27, )<sup>40</sup>. With his Bauhaus fellows Hilbersheimer and Peterhans, Mies totally changed the curriculum at Armour, later IIT. In 1945, while student numbers increased, Mies hired Landscape Architect Alfred Caldwell who developed a role as influential educator there for over 15 years.

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<sup>39</sup> In the Press Release to the 1938 Monographic exhibition of Fallingwater MoMA writes: “Early in the 20th century his (FLWs) theories became more famous abroad than in this country and influenced young architects in Europe, who developed a style based on Wright’s principles. This architecture has since become known as the International Style and in the guise of a European influence has returned to this country where it actually originated.” (MoMA 1938)

<sup>40</sup> Wright agreed to introduce Mies at a dinner celebration of his nomination to director of the Armour Institute in Chicago in 1938. Wrights son David recalls his speech after Mies was hailed by many speakers.: “Finally after all the kudos - none of the speakers had even alluded to the fact that he had been influenced by Frank Lloyd Wright - and telling about ... how great Mies van der Rohe was, they asked Dad to present him. So Dad walked up the aisle, got on the platform, ... and said “I give you Mies van der Rohe,” turned around and walked off the stage” (David Wright in Tafel 1993 p. 27). In Frank Lloyd Wrights Autobiography he notes it slightly more flattering, but still with a bitter undertone. “I give you Mies van der Rohe. But for me there would have been no Mies - certainly none here tonight. I admire him as an architect and respect and love him as a man. Armour Institute, I give you my Mies van der Rohe. You treat him well as I do. He will reward you.” (Wright, F.L. 1943 p.460)☒



FIG. 3.1.8.1 Farnsworth House: entrance across platform  
(Photos: Lodewijk Balion)



FIG. 3.1.8.2 Farnsworth House in Fox River floodplain

Shortly after Caldwell started teaching with Mies in October 1945 both visited the site. Dr. Edith Farnsworth had in mind for Mies' first house in the United States. Dr. Farnsworth had initiated to commission Mies for designing a weekend house on a plot in the floodplain of Fox River in Plano, Illinois after being deeply impressed by him at a dinner encounter. Mies took up the work immediately. Caldwell remembers a site visit with Mies:

“There was conversation as to where the house should be put. Mr. Van der Rohe said that it was the feature of the property and he would prefer to put in in the floodplain”. (Deposition of Caldwell 1951 in Caldwell 1997 p.272)

Curiously, landscape architect Caldwell - who had been invited to farm with Wright at Taliesin 15 years before- was not only consulted as to potential flood levels on the site and land measuring but even involved in the design. In the first Summer break of his teaching at IIT in June 1947, Caldwell volunteered for five weeks to work at Mies' office, while the architect was too involved in bigger projects. Mies had said “Everything has been worked out, you know there's just a few lines to draw”(Mies paraphrased by Caldwell 1997 p.272). According to Caldwell the work did not advance however “because Mies didn't give it any time at all” (1997 p.272). Myron Goldsmith, who was responsible for technical detailing at Mies' office from 1946 to 1953, also recalls Caldwell's involvement (Cohen 2018 p.117, Dunlap 1996, Caldwell 1997 p.290). Finally the house got built only after 1949 when Dr. Farnsworth received a heritage.

For Farnsworth, Mies designed a reduction of a house in the same industrial materials he preferred in any context. The facades only show white painted steel and large glass panels. A single rectangular box of glass walls carried by steel columns. It's single open room is separated from outside by continuous glass walls from floor to ceiling. The floor is a platform elevated above ground at six feet above the expected flood level. Eight outward H-profile columns carry the platform and the flat roof. The house has no outer bearing walls nor separating wall except for a long wood clad core with bathrooms and service rooms that carries the kitchen on the smaller side and the fireplace on the living room side. On one side the outer glass wall is recessed, allowing a veranda and entrance to occupy almost a third of the platform. Towards the river, a lower, smaller platform halfway elevated is attached sideways to two of the main columns and four shorter ones.

Mies emphasised the modesty of his architecture vis-a-vis the site of the green lavishly forested floodplain that surrounded it, referring to it's white colour.



FIG. 3.1.8.3 Farnsworth House floorplan with trees and edge of the forest (Drawing: MoMA Mies van der Rohe Archive)

“Nature should also live it’s own life; we should not destroy it with the colours of our houses and interiors. But we should try to bring nature, houses and human beings to a higher unity. When you see nature through the glass walls of Farnsworth House, it gets a deeper meaning than outside. More is asked from nature, because it becomes part of a large whole.” (Mies quoted by Norberg-Schulz 1958 p.41<sup>41</sup>)

Numerous interpretations related Farnsworth to the tradition of Greek temples or Shinto shrines, but Mies himself emphasised that this nature experience was the primary understanding of his house design.

“The Farnsworth House has never been truly understood. I think. I myself have been in this house from morning until evening. Until then I had not known how colourful nature can be. One must be careful to use neutral tones in interior spaces, for outside one has all sorts of colours. These colours are continually changing completely, and I would like to say that it’s simply glorious.” (Mies 1959)

At Farnsworth house Mies had perfected the reduction of architectural elements of the house and freed the plan. Mies claims that this reduction works in favour of a natural experience. However in its reduction, the house-object itself became an icon to modern architecture - mostly disconnected from it’s surroundings. It also lent itself to being copied<sup>42</sup>. A typical Mies drawing from this period would be an interior perspective, where behind a glass wall a photograph of the surrounding environment would be collaged. Be it a project for a living room in Illinois (1939) or a for an open plan office space in Cuba (1957): the images are similar and the background seems even interchangeable.

<sup>41</sup> Translated in Cohen 2018 p.114

<sup>42</sup> Farnsworth House was mass reproduced in literature, not unlike Fallingwater, but with different effect. It was famous before completion as the same Philip Johnson (1906-2005) that had initiated the International Style Exhibition 1932 had exhibited Mies’ project for Farnsworth at MoMA in 1947 (Johnson 1947) featuring a nearly context less model of the design of Farnsworth House. Johnson also built his own Glass House (1948-49) in New Canaan Connecticut in that is seen as a copy of Mies initial idea.



FIG. 3.1.8.4 & .5 Resor House project in Wyoming 1937-38



collages of living's north and south glass walls

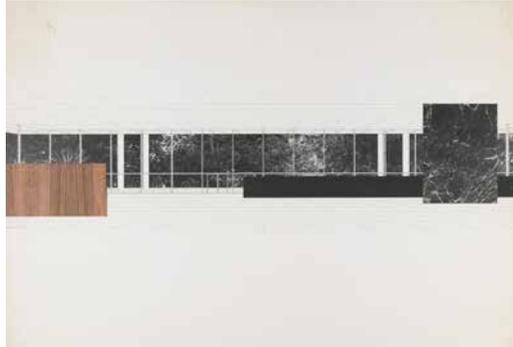
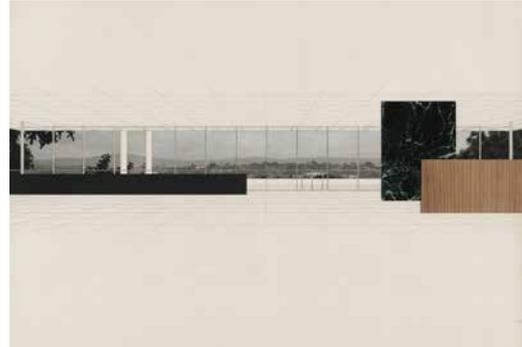


FIG. 3.1.8.6 & .7 Bacardi & Co. project on Cuba 1957



collages of two different office spaces

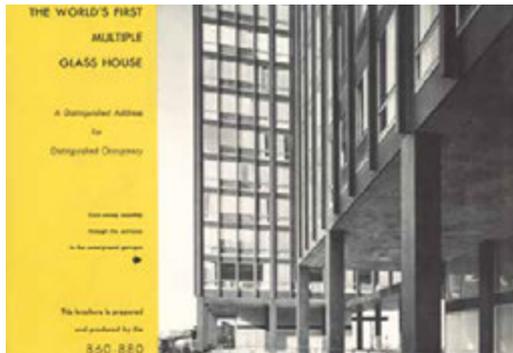


FIG. 3.1.8.8 Brochure of 860-880 Lake Shore Drive (1957)



FIG. 3.1.8.9 Film still from "Playtime" (Jacques Tati 1967)

(Collages above FIG. 3.1.8.4 to .7: MoMA Mies van der Rohe Archive)

Mies developed a universal architectural language completely separate from the nature behind it. The same principles and materials of Farnsworth were used for high-rise buildings. In parallel with Farnsworth, Mies designed the 860-880 Lake Shore Drive Buildings in Chicago (1948 - 1951). The twin tower project was advertised as "the worlds first multiple Glass House" (Fig. 3.1.8.8).

The prototype was reproduced across the USA "row after Mies van der row (sic!) of glass boxes" (Wolfe 1981 p.5.) and the rectangular steel and glass tower became a worldwide model within only a decade (Milnarik 2012). In 1967 French cinematographer Jaques Tati would poignantly caricature the global spread of the international style after Mies' prototype. Posters indicating all different cities with photographs of the same steel and glass high-rise were placed in his depiction of modern Paris (Tati 1967<sup>43</sup>). These types of travelling posters would show landscapes, but thanks to architecture's universal response to nature, the places can only be distinguished by the name of the city.

<sup>43</sup> I studied the representation of architecture in this science fiction film and two others produced in Paris in the late 1960ies. University graduation thesis in humanities /cinema at ETHZ (Jauslin 1997)

The differences in impact of the compared two modern buildings are a consequence of different modes of design. Beyond differences in materials between Fallingwater and Farnsworth House, there are completely opposite landscape attitudes in architecture. Fallingwater is designed to be unique and site related, while Farnsworth House is aimed to be universal and placeless. Both were built as weekend houses, both had clearly the nature of a commission where the client and architect intended the house to have a particular dealing with the landscape: as weekend houses, they were meant to give an experience of landscape and nature as a relief to their inhabitants' city dwellings. Both individual houses incorporated significant personal involvement and enthusiasm from the architects that included a conscious answer to nature (Levine 1996 p.225, Caldwell 1997 p.274). But the way the two most prominent modern architects in the United States treat the subject could not have been more different.

Despite modern architecture's declared will to break with classic architecture principles, we see at Farnsworth the same object-centric architecture treating nature as a distant ideal, repeating a remnant of classical architecture, like I found in the architecture theory of previous centuries.

Modern architecture has evolved in a different direction in regard to landscape than Frank Lloyd Wright would have suggested with "architecture of nature, for nature." (1939 see 3.1.7.) because the international style in general, and Farnsworth in particular, was "eminently copyable" (Johnson in Tafel 1993 p.47)<sup>44</sup>.

At Farnsworth, Mies van der Rohe along with perfection of his architectural style established a new hut-object and contrasted it to an undifferentiated wild landscape. With the steel beam skeleton of uncladded H-profile beams he "redraws Laugier's primitive hut" (Neumeyer 2016 p.174)<sup>45</sup>. Farnsworth House thus connects to the logic of architectural theory of a future-minded modernity to seemingly eternal rules of the past. For Mies the emancipation of human space through technique is one of utter control of the image of nature in a fixed framing behind glass.

From my thesis' perspective of landscape design strategies in architecture, no two examples of 20th century architecture are as opposed in the attitude towards nature than Fallingwater and Farnsworth House - despite that they are in the same region and era, of similar use and designed by two architects that respected and influenced each other.

With the modern Farnsworth, Mies promoted antique architecture's ideal of distant nature. Through its elevation to a universal icon, what western architecture had established throughout the centuries has persisted throughout modern times.

At Fallingwater, Frank Lloyd Wright meant the modern to overcome that distance by establishing a "natural architecture" (1939). But it remained a unique work (Levine 1996 p.252). The diverging attitudes between Wright's involvement with nature against Mies' distancing from nature is apparent in these key works. With Farnsworth, I exemplify how Mies' architecture understands nature at best as a backdrop to a non-interfering design. His architecture became mass produced and so

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<sup>44</sup> In historical retrospective his prominent Mies' Farnsworth copyist Philip Johnson talks about the differences of Mies and Wright with former Wright-fellow Edgar Tafel: "Frank Lloyd Wright is in every one of our mentalities, but you notice that the influence of the actual forms and shapes is minimal. ... The International Style was eminently copyable, adaptable, and quite broad ... but where is the direct line to Wright?" (Johnson in Tafel 1993 p.47)

<sup>45</sup> Fritz Neumeyer sees Mies' rationalistic approach to architecture as "reasonably contained and sensually experiential building-art, in which the idea transforms the necessary and truth and logic claim the form-building primacy" (Neumeyer 2016 p.158). «vernunftmässig gefasste und sinnlich erfassbare Baukunst, in der die Idee das Notwendige umbildete und Wahrheit und Logik das formbildende Primat beanspruchten» transl. by the author

did the ancient divide of architecture versus nature persist: In the 20th century the separation of architecture from nature grew to larger than it had ever known.

How the aesthetics of 'international' modernism enhance the divide between nature and architecture will become even more apparent if I return to an example of it's roots in Europe in the next section.

### 3.1.9 **Le Corbusier's 'Paysage Urbain': Destroying Paris for 'Verdure'**

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What arrived as "international style" in the United States (section 3.1.8.) and was established commercially during and after WWII had more radical roots in Europe. In the early 20th century modernism found its way through Europe with several parallel movements like Futurism, De Stijl, Bauhaus, Russian Constructivism and the Esprit Nouveau of Le Corbusier. Part of these modernist movements' common denominator was a self understanding as (more or less) revolutionary counter movement to the late historicist establishment of academic architecture. Its protagonists express that in written manifestos using the martial terminology of an "avant grade". They read as if architects were involved in one of the revolutionary street-fights at the end of WWI (for example Saint'Elia 1915, van Doesburg e.a. 1919. Le Corbusier 1923, Van der Rohe 1924, collected and translated in Conrads 1970).

Furious in fighting academic traditions in Europe is for example Swiss born architect Charles-Edouard Jeanneret with his nom de plume Le Corbusier (1884 - 1965) who established himself as a painter and architect in Paris since 1917 (Joly 1987 p.261). In his early manifesto "vers une architecture" (1923 1966, Engl. "Towards a New Architecture" 1926) he elaborates on rules for modern architecture derived from machine-aesthetics of boats, aircrafts and cars. Le Corbusier despised the earth-bound nature of classical architecture as an old-fashioned anti-modern concept to be overcome with the liberation of the modern industrial materials concrete, steel and glass. The rules for modern architecture according to Le Corbusier are later summarised in his "five points" published with his two model houses at the Werkbund exhibition at Weissenhof Stuttgart in 1927 (Roth 1927). The 5 points also touch upon the subject of landscape. In his first point he insists of separating the building volume from the ground.

With his famous pilotis - emblematic of the Villa Savoye in Poissy near Paris (1928-31) (Fig. 3.1.9.1) - Le Corbusier completely separates the building from the landscape. Likewise will he proceed in the larger Unité d'Habitation (5 similar projects 'cite radieuse' in Marseille 1947-1953, Nantes 1955, Berlin 1957, Briey 1963 and Firminy 1965) as a model for mass housing (Fig. 3.1.9.2). In consequence of his dogmatically founded modern architecture, designs of Le Corbusier on any scale lead to disconnection of architecture and landscape.



FIG. 3.1.9.1 Villa Savoye in Poissy near Paris (Hitchcock and Johnson, MoMA 1932 p.127)



FIG. 3.1.9.2 Unité d'Habitation "Cité Radieuse" Marseille (Gschwind 2019 p.105 Photo: Paul Kozlowski)

An influential book of Le Corbusier is “Urbanisme”<sup>46</sup> (1925 1966) where he extends his principles of modern architecture onto the scale of the city. He begins the first part of his book with a ‘Débat Général’ and the capitalised phrase:

“THE WAY OF THE DONKEY - THE WAY OF MAN - Man walks straight because he has a goal: he knows where he goes, he decided to go somewhere and walks straight. The donkey zig-zags, drifts a little (etc.) .... The donkey has drawn all the towns of the continent, Paris too, unfortunately” (Le Corbusier 1925 1966 p.5-6<sup>47</sup>).

The author sets the tone straight: all towns are wrong, their organic growth is savage - civilisation asks for ... him. The saviour architect to establish order, the right angle, make the right choices and organise the “Contemporary Town”<sup>48</sup> (first exhibited in 1922, in Le Corbusier 1925 1966 p.157). In this design he later called “Radiant City” (Franz. “La Ville Radieuse”) Le Corbusier proposes an ideal city based on declared rational principles<sup>49</sup> as a “surgical cure” of geometry to organise “nature” or “naturally” “grown settlements (Le Corbusier 1925 1966 p.260)<sup>50</sup>.

Modelled after his ideal city design, Le Corbusier makes 6 versions of modern “surgical” plans to completely change Paris between 1922 and 1946 (Joly 1987 p.113-161, Bergdoll p.246-249 and Cohen p.250-265 both in Cohen e.a. 2013). In essence they all resemble each other in placing an East-West-axis parallel to the Avenue des Champs-Élysées and a north south axis on Boulevard de Sébastopol. His plans propose to tear down the narrow streets in the centre of Paris (most of the 1st to 4th and 8th to 10th Arrondissements) and completely replace all buildings with “Cartesian Skyscrapers”.

<sup>46</sup> The English translation used here is “urbanism”. The word “urbanisme” was relatively new in French used in lexicon since 1910, according to Cohen (2013 p.34) to replace “la construction des villes”. In German it is analogous to “Städtebau” (i.e. Sitté 1886, Schultze-Naumburg 1906) oder “Stadtbaukunst” or Dutch ‘stede(n)bouw’. ‘Stedenbouw’ is ‘town making’ and the current spelling. “Stedebouw” also means “place making” and the ancient spelling as for example in Kuiper (1991) Visueel & dynamisch. De stedebouw van Granpré Molière en Verhagen 1915-1950.

<sup>47</sup> “LE CHEMIN DES ANES - LE CHEMIN DES HOMMES - L'homme marche droit parce qu'il a un but ; il sait où il va. Il a décidé d'aller quelque part et il y marche droit. L'âne zigzague, muse un peu (etc.) ... L'âne a tracé toutes les villes du continent, Paris aussi, malheureusement. “ (Le Corbusier 1925 1966 p.5-6. transl. by the author).

<sup>48</sup> “Une Ville Contemporaine” (transl. author from Le Corbusier 1925 1966 p.157) referring to his project “Ville Contemporaine de trois million d'habitants” 1922, exhibited at the Salon d'automne in Paris and published in “Urbanisme” in a dedicated chapter.

<sup>49</sup> “par le moyen de l'analyse technique et la synthèse architecturale” (Le Corbusier 1925 1966 p.157)

<sup>50</sup> “Organiser, c'est faire de la géométrie; faire de la géométrie dans la nature ou dans le magma “naturellement” issu du groupement des hommes en agglomérations urbaines, c'est faire de la chirurgie” (Le Corbusier 1925 1966 p.260)

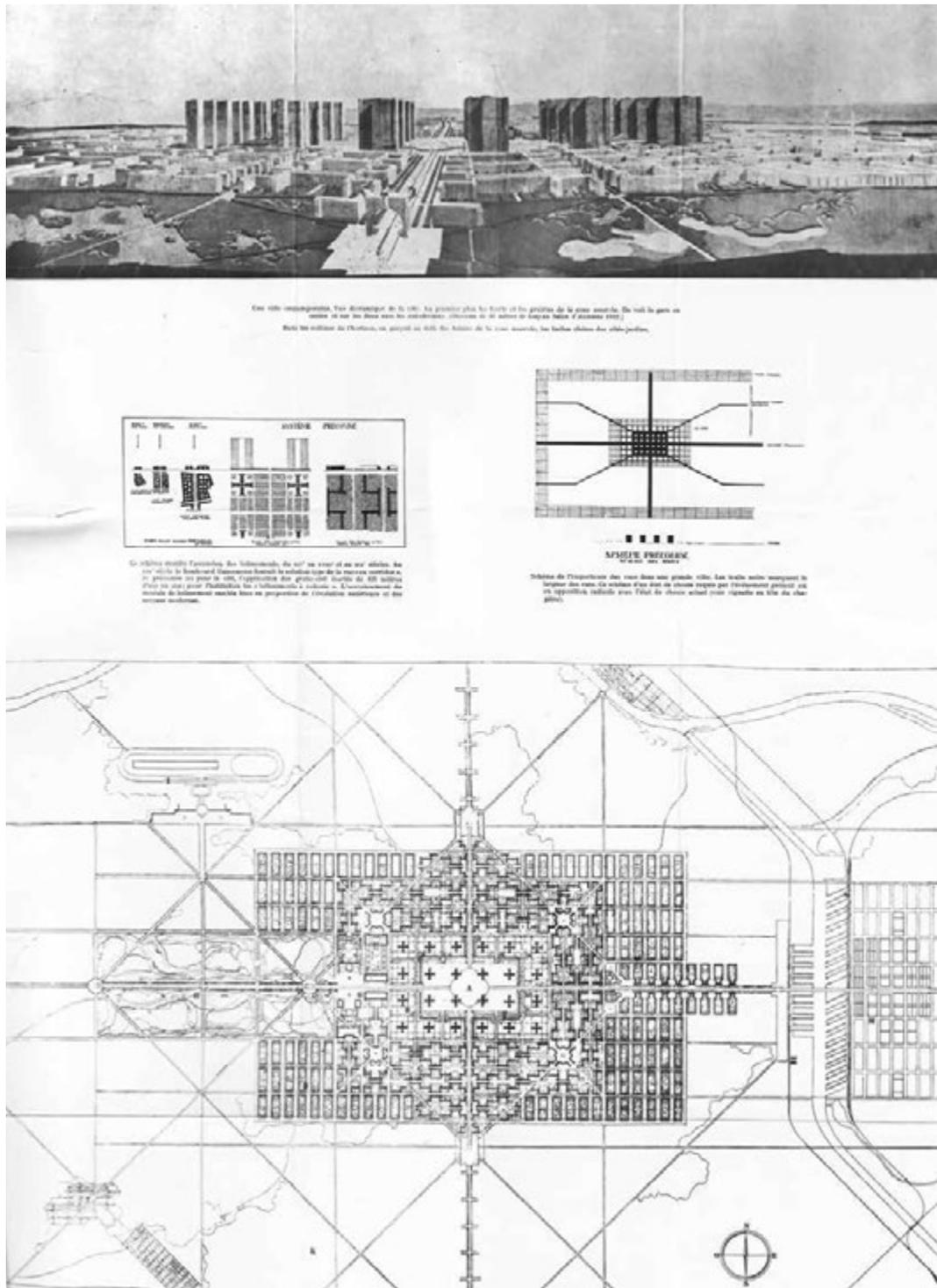


FIG. 3.1.9.3 Ville Contemporaine from "Urbanisme" (Le Corbusier 1966 1925 Insert After p.168)

These towers that appear in his work since 1923 (p.56) recall French philosopher and mathematician Descartes and his widespread mathematical publications of the mathematical coordinate system (1637). With this naming architect Le Corbusier underlines the universal order principle of geometry. He uses the seemingly scientific foundation of his approach for a forced logical argumentation for his plans. He calls his plan from Paris "Le plan Voisin" after aircraft and

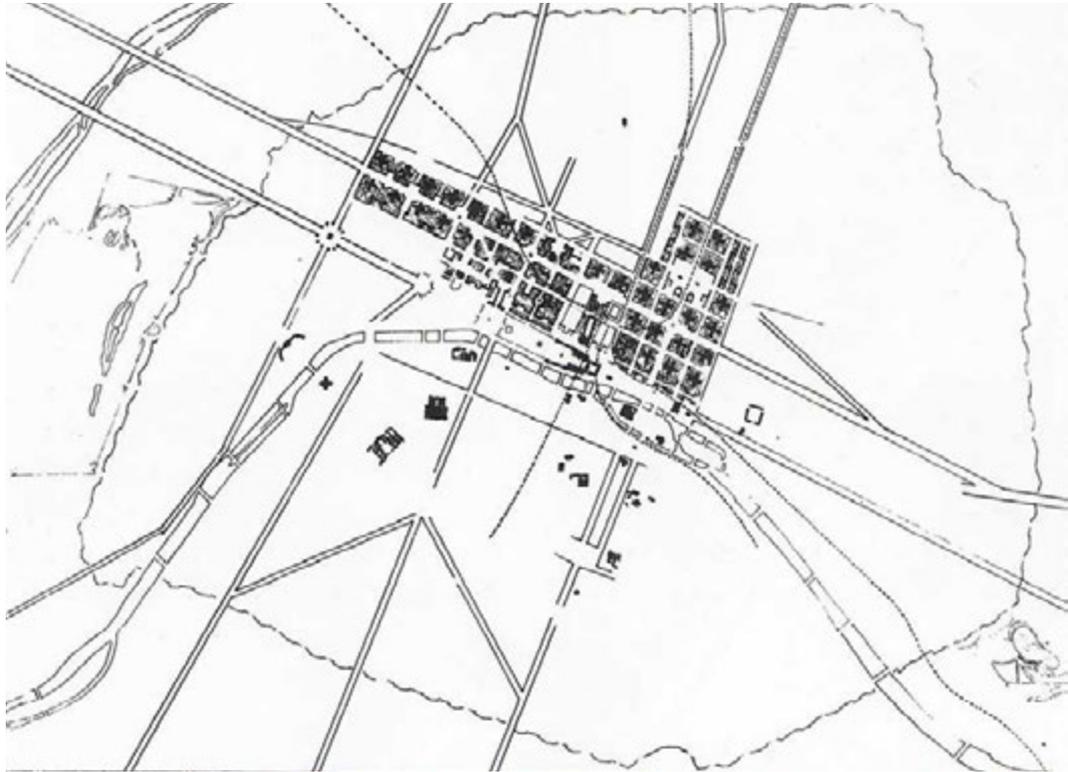


FIG. 3.1.9.4 Plan Voisin for Paris (Joly 1987 p.119)i

automobile builder Gabriel Voisin (1880-1973) referring to him in both the accessibility for cars<sup>51</sup> and the views from the air. Le Corbusier leaves no doubt that his intention with “Plan Voisin” is to completely replace the structure of the city of Paris, which he sees in crisis.

“The ‘Marais’ and ‘Archives’ and ‘Temple’ neighbourhoods, etc., would be destroyed. But the old churches will be saved. They will present themselves in the middle of greenery, nothing is more seductive!” (Le Corbusier 1925 1966 p.272)<sup>52</sup>

Le Corbusier’s “greenery” (French: “verdures”) remain strangely undefined. He envisions his cartesian skyscrapers and the preserved monuments surrounded by trees, lawns, birds, air and sun.

“From now on the Tuileries could extend across whole neighbourhoods, French gardens, English gardens, geometry of architectures” (Le Corbusier 1925 1966 p.224)<sup>53</sup>.

Despite critique ever since its first publication Le Corbusier would insist and repeat publications of his “Plan Voisin” for Paris and the model of “Ville Contemporaine” or later “Ville Radieuse” until his death in 1965. In lectures and sketched projects similar to “Plan Voisin” he proposes to destroy other cities like Buenos Aires (1929-49, see Cohen 2013 p.322) or New York City. He uses Images of Manhattan in “Urbanisme” (1925 1966) as a bad example in “striking contrast” to his ideal

<sup>51</sup> Le Corbusier drove a Avions Voisin C12 automobile himself (Cohen 2013 p.36)

<sup>52</sup> Les quartier du «Marais», des «Archives», du «Temple», etc., seraient détruits. Mais les églises anciennes sont sauvegardées. Elles se présenteraient au milieu des verdures; rien de plus séduisant!» (Le Corbusier 1925 1966 p.272. transl. by the author)

<sup>53</sup> “Les Tuileries pourront s’étendre dorénavant sur des quartiers entiers, jardins français, jardins anglais, géométrie des architectures.” (Le Corbusier 1925 1966 p.272. transl. by the author)



FIG. 3.1.9.5 & .6 Plan Voisin for Paris (July 1929 p.119)...



... vs. existing urban pattern (Koolhaas 1978 p.214)

“Ville Contemporaine”. He will attack it also directly: Having arrived in New York City Le Corbusier sketches his vision on the eyes of his audience at Columbia University to replace Manhattan Skyscrapers (21 Lecture tour in 1935, Bacon in Cohen 2013 p.347). Later he publishes these sketches in recollections from this voyage (Le Corbusier 1937). The same sketches are used for his design proposal for the UN Headquarters in New York in 1947, which is until today a rare exception to the Manhattan grid. Even as a Christmas card painting in 1951 Le Corbusier joyfully overrules the Manhattan grid with his ideal city (Koolhaas 1978 p.223).

None of these plans for Paris, Buenos Aires or New York City significantly improved the landscape of these cities; a vague landscape remains a filling between “radiant” architecture. Le Corbusier is interested in gardens and trees as backdrop to clear geometries of repetitive architecture, only as a contrast. He integrates greenery in a narrative of improving the hygienic conditions of cities but does not propose their integration with his urban architecture. Rather he uses the extension of greenery to generate a pure “line that profiles the city on the sky ... the presence of ordering power” (Le Corbusier 1925 1966 p.220) <sup>54</sup> As a suprematist abstract painter Le Corbusier favours an evenly abstract idea of landscape.

The propagation of urbanism with principles of modern architecture was also the goal of the CIAM, the Congrès Internationaux d'Architecture Moderne, that took place ten times between 1929 and 1956. They were founded with the intention to establish “the right to live for contemporary architecture, that had to fight the strong antagonistic forces of academism” (Gideon 1976)<sup>55</sup>

The promotion of rational urbanism in various countries was an explicit political goal of the CIAM. Le Corbusier had great influence on the setting of urban themes. Modern urbanism according to CIAM was to separate functions, just like Le Corbusier had proposed to in his plans for Paris. The first declaration was signed by him and 24 other architects from across Europe<sup>56</sup> on 26th of

<sup>54</sup> “Nous serions autrement émus si cette ligne qui profile la ville sur le ciel était pure et si nous ressentions par elle la présence d'une puissance ordnatrice.” (Le Corbusier 1925 1966 p.220. transl. by author)

<sup>55</sup> «... das Lebensrecht der Zeitgenössischen Architektur einzustehen, die gegen die starken antagonistischen Kräfte eines Akademismus anzukämpfen hatte.» (Gideon 1976 transl. by the author). Gideon was author of the widespread book about modern architecture “Space, Time, Architecture” (1941) but also the Secretary-General of the CIAM since 1928.

<sup>56</sup> “H.-P. Berlage (La Haye); Victor Bourgeois (Bruxelles); Pierre Chareau (Paris); Josef Frank (Vienne); Gabriel Guevrékian (Paris); Max Ernst Haefeli (Zurich); Hugo Haering (Berlin); A. Høchel (Genève); H. Hoste (Bruges); Pierre Jeanneret (Paris); Le Corbusier (Paris); André Lurçat (Paris); Ernst May (Frankfurt); Garcia Mercadal (Madrid); Hannes Meyer (Dessau); W.-M. Moser (Zurich); Carlo Enrico Rava (Milan); Rieveld (Utrecht); Alberto Sartoris (Turin); Hans Schmidt (Bâle); Mart Stam (Rotterdam); R. Steiger (Zurich); Robert Von der Muhll (Lausanne); Juan de Zavala (Madrid)” (CIAM 1928)



FIG. 3.1.9.7 "the academism says no" (to Plan Voisin transl. author from Joly)

June 1928 in La Sarraz, Switzerland. It uses even Le Corbusier's repetitive words from "Urbanisme" (1925 1966) in fighting academism and promoting modern urbanism and functional ordering.

"Urbanism is the organisation of the functions of collective life; it extends both the urban agglomerations and the countryside. Urbanism is the organisation of life in all regions. ... Urbanisation cannot be conditioned by the claims of pre-existent aestheticism: its essence is of a functional order." (CIAM 1928) <sup>57</sup>

The word landscape or "paysage" does not appear once in the declaration of La Sarraz (CIAM 1928). The CIAM discuss the basis for mass production of housing. They try to introduce scientific objectivity and draw comparable plans of different urban patterns to optimise orientation, separation of functions, traffic and density.

In France Le Corbusier will not be able to realise his "Plan Voisin", although he never abandons its defence against fierce opposition (Cassou in foreword to Le Corbusier 1966). The ideas of the "radiant city" however are realised partially in projects like the textile factory in Saint-Die (1946-1959) or the house of culture at the Firminy extension to Lyon (1955 - 1967) as with the model government district and new town of Chandigarh in Punjab, India (1952-1962).

The post war reconstruction of European cities and the economic boom of the 1960s will evolve with a much less ideological emphasis than the early modernist movement could believe. Contrary to Le Corbusier's suggestive writing from the 1920s onward, architecture of mass production and the introduction of repetitive and large scale plans will never introduce a particularly valuable landscape space into the European city. On the contrary, propagation of the modern city is realised in the neglect of landscape. In Paris for example Schein's historical architecture guide from 1971 shows results of "new era of social city planning" that intends to "provide man with surroundings attuned to our times" (Schein 1971 and 1961). Shortly after, the realisation of giant urban

<sup>57</sup> Urbanism was translated in *Programs and Manifestoes on 20th-Century Architecture* by Michael Bullock (1971) as town planning but the French declarations states "L'urbanisme est l'organisation des fonctions de la vie collective; il s'étend aussi bien aux agglomérations urbaines qu'aux campagnes. L'urbanisme est l'organisation de la vie dans tous les pays. ... L'urbanisation ne saurait être conditionnée par les prétentions d'un esthétisme préalable: son essence est d'ordre fonctionnel." (CIAM 1928, transl. Bullock 1971 with above precision by the author)



FIG. 3.1.9.8 Massy Antony by Sonrel and Duthileul architects 1960 near Paris showing "Cartesian" geometry

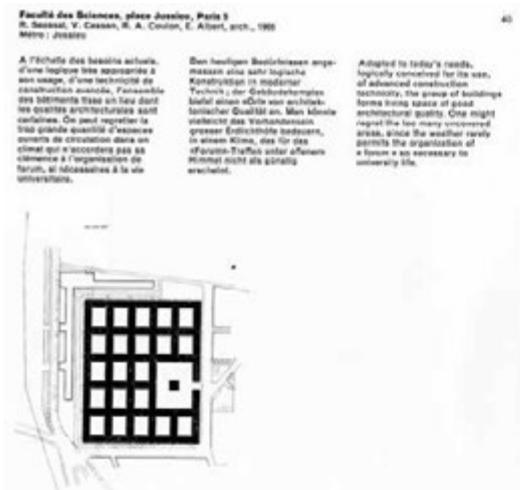


FIG. 3.1.9.9 Campus Jussieu in Paris 5th arrondissement by Eduard Albert with "pilotis" and "Cartesian" crossed volumes ... modern Paris as in a contemporary architecture guide (Schein 1971 p.132-133 and p.40-41)

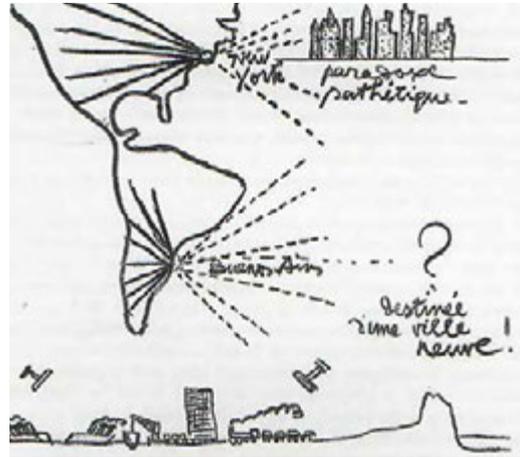
extension projects like Massy-Antony (Sonrel and Duthileul 1960, Schien 1971 p.132-133) or the Cite des Sablons in Sarcelles (Boileau and Labourdette 1959, Schien 1971 p.228-229) "[serve] as a lesson to the young architects ... who want to be sure never to commit such errors again" (Schein 1971 p.228). Most of the major modern post-war projects are realised in the periphery of Paris. In fact the development of La Defense (since 1958) east of the Seine river not far from Porte Maillot promotes a satellite business district contrary to Le Corbusier's vision to replace the centre. Inside the urban area of Paris only few large projects get realised. One of which is the Jussieu Campus, a project by Eduard Albert who was largely influenced by Le Corbusier's architectural and urbanist ideas (see 4.2.).

In a reaction to such results of his ideology Le Corbusier has been fiercely attacked by younger generations of architects, inclusive of the protagonist of my first case study, Rem Koolhaas (ch. 4). In his early theoretical work "Delirious New York" (1978). Koolhaas describes Le Corbusier's proposed typology for "Plan Voisin" as a "naked skyscraper" (1978 p.212) that would leave the individual admire an abstract distant nature "jungle"(1978 p.212) in total isolation of a roof terrace.

"in ... his speculative universe, (Le Corbusier in Plan Voisin, note author) adds jungle, nature in its purest possible form, then shakes up the incompatible elements ... and ... pulls out the Horizontal Skyscraper, Le Corbusier's Cartesian rabbit" (Koolhaas 1978 p. 210-11).



FIG. 3.1.9.10 & 11 Le Corbusiers' vision of greenery in Plan Voisin (Koolhaas 1978)



Le Corbusier sketching globalisation of Plan Voisin New York: pathetic paradox. Buenos Aires ? destiny of a new city?

Landscape according to Koolhaas is treated indifferently by Le Corbusier in his urbanism. Le Corbusier's "program for the true Machine Age is the efficiency of banality: ... sky ... , tree... , lawn ... (only exist) to go from one skyscraper to another." (Koolhaas 1978 p.225).

Koolhaas literally dissects Le Corbusier's urban theories and his "retroactive manifesto" for "Manhattism". He writes that Le Corbusier's plan "introduces honesty on such a scale that it exists only at the price of banality" (abbreviated from Koolhaas 1978 p.212). He comments above drawing of "Le Corbusier's Radiant City as a pedestrian would see - or not see - it." (Koolhaas 1978 p.212 on Le Corbusier's drawing Fig. 3.1.9.8)

In a recent trend of critique since 2010 - many straightforward modernists were put into a different light in regard to their attitudes towards landscapes. The shift towards landscape does not only concern contemporary production of architecture from 1990 on - it occurs in critical historiography of the 20th century modernist architecture. One advocate for a rewriting of modern architecture history is Caroline Constant in "The Modern Architectural Landscape" (2012). She proposes a differentiated view on the landscape in the work of Le Corbusier (p.149 - 168) among other modern architects<sup>58</sup>. After decades of critical separation from Le Corbusier a "new generation of researchers" (Cohen et al. 2013, back-cover) set out to propose that Le Corbusier was an intensely landscape oriented architect arguing that "even the most generic of his (Le Corbusier's) projects responded to specific geographies" (Cohen idem.). Cohen curated a large MoMA Exhibition and monumental Catalogue entitled "Le Corbusier: An Atlas of Modern Landscapes" (2013). Whether this is a blunt attempt of "greenwashing" modernism is not a judgement this thesis should be making (Fig. 3.1.9.11 Villa Savoye presented as green cover). It is plausible that a real reframing of the whole thinking in dichotomies is needed and in the face of many overruled nuances.

Maybe the vision of the "Radiant City" as it has not been realised in "Plan Voisin" for Paris still evokes a dream from its authors original narrative, that influences these "new" researchers. However invisible in effect, the modern towns that have been built, did not fulfil such a dream but in fact further enhanced the distance of nature and architecture. From today's perspective of urban landscape architecture Le Corbusier's endless green continuum of "verdure" is just a "shapeless

<sup>58</sup> Constant also interprets the Barcelona Pavillion by Mies van der Rohe as Landscape Garden (2012 p.45 - 60).



FIG. 3.1.9.12 "grotesque Radiant City on Manhattan" (Koolhaas 1978 p.223) Christmas greetings signed "L.C."

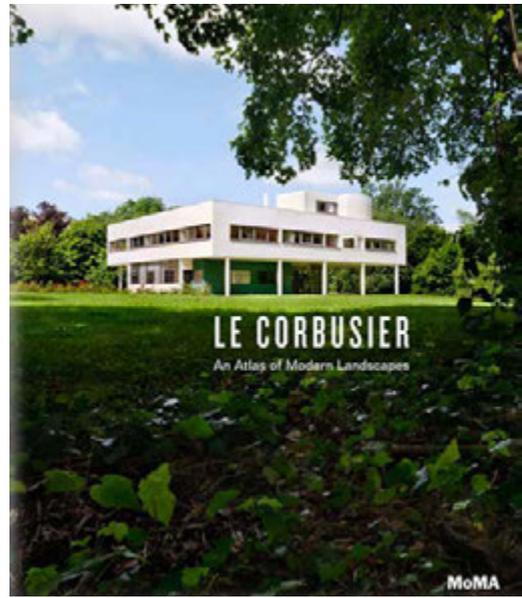


FIG. 3.1.9.13 Villa Savoye in "verdure": green cover of recent MoMA catalogue (Cohen2013)

concept - flowing, park-like space, democratic and boundless - or at best an image, a grand composition of sun, green, horizon and mountains<sup>59</sup>" (de Wit 2014 p. 46). Le Corbusier with his original writing also contributed to this distancing, always insisting on the supremacy of order and civilisation above nature and wild grown human settlements. As much as Le Corbusier used the pilotis as a space divider between ground and architectural form, he elevated modern architecture out of nature onto a new urban scale. The landscape of "Plan Voisin" and it's repetitions in Paris or America is never specific. Generic green is reduced to a commodity, garden spaces are a collateral benefit. Landscape for Le Corbusier only shows the superiority of his architecture. He does not differentiate between designed landscapes and nature. Nature appears however as a term to describe what he wants to organise with his architectural cure on any scale from a villa, to the centre of Paris, to the whole of New York City.

### 3.1.10 Soleri and Le Roy take their Time to Grow Architecture

In the 1970s modern architecture was well established. Profit driven architects and planners dominated. Fundamental critique would lead some exceptional personalities on paths completely outside the system and also academic discourse of architecture that involved landscape. I introduce two examples here of protagonists that provoke a change in the making of architecture using landscapes in a fundamentally different way. They propose different design strategies and another making of architecture. Both independently critique their contemporary building and planning procedures. In consequence they question the existing practice of distancing nature and building. Both not only theoretically explain a landscape approach as a counter position to architecture, but build it with each of their own practical solutions.

<sup>59</sup> Landscape architect and phd-research colleague of the author Saskia de Wit critiques Le Corbusier here in the context of her own thesis.



FIG. 3.1.10.1 Arcosanti near Phoenix Arizona  
(Photos: author)



FIG. 3.1.10.2 Bioclimatic ceramics workshop in Arcosanti

Paolo Soleri (1919-2013) is a good example of a generation of architects who became critical of modern architecture and turned away from its modern conventions in a radical way. The example of his urban development project and ecological model city Arcosanti<sup>60</sup> in Arizona US (since 1970) is an early precedent of architecture with employment of landscape design strategy.

Soleri's vision was to establish a completely new life-enhancing humane city (McCulloch 2012) out of his fundamental critique of American urbanisation. As such it is to be seen as a counter position to the urban design ideology of Le Corbusier<sup>61</sup> or the CIAM. Key factors of Soleri's alternative urbanisation strategy are the denial of car dependence and a refusal of functional zoning and separation of work and living facilities. Soleri also questions the need for air-conditioned space even in desert conditions, and proposes work with natural ventilation and non-mechanical cooling systems called bio-climatic structures. Soleri also consciously engaged in finding a balance of "production, consumption, and worth" (Soleri 2012) in the flow of goods and materials.

Soleri was an important charismatic figure at Taliesin, where he worked with his mentor the American architect Frank Lloyd Wright. With Soleri ideas of bio-climatic design returned to the same Mesa landscape where Frank Lloyd Wright had to abandon them with the San Marcos-in-the-desert hotel project in the 1929 financial crisis (ch. 3.1.7.). To realise his visions Soleri consciously left mainstream architecture of the US. He became an exceptional figure and is hard to frame (or find) in the canonical history of architecture. He understood that the system of mortgage credits and land development inherently propagated "the current car-based city model promoting the freedom of mobility by maximising individual vehicle is arterial sclerosis. By removing people from the street and designing it for car traffic instead, the circulation system puts distance between people and impedes social contacts and civic activities in the city" (Kim in Soleri 2012). Instead Soleri designed Arcosanti based not on separation of programmes but on proximity. In the 1970s this was a fundamental shift from modern town planning.

He started experimenting with urban utopian projects, bio-climatic structures and the earth-cast house Cosanti (1956) in Paradise Valley in Scottsdale, Arizona with his wife Carolyn 'Colly' Woods Solely (1925-1982). In his projects artistic experimental elements were executed mostly in self building or with the own means of the client like the Italian ceramics factory in Vietri (1953).

<sup>60</sup> Site visit of the author 16.7.2016

<sup>61</sup> This opposition refers to their concepts as nor Ville Radieuse nor Arcosanti have been realised at the scale imagined.



FIG. 3.1.10.3 Arcosanti. Model of realized (grey) and original plan (white) for 5000 inhabitants (Photo: author)

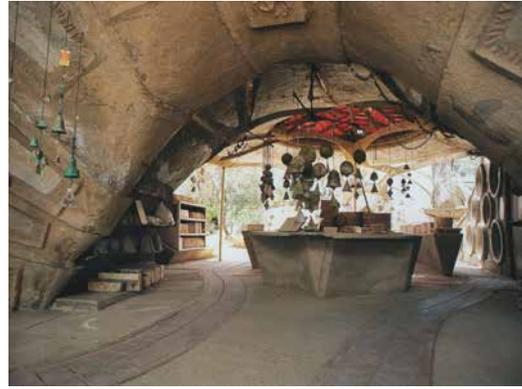


FIG. 3.1.10.4 Cosanti ceramics studio 1957 Scottsdale Arizona (Cosanti Foundation. Lima 2000 p.163)

Other than just giving form to materials imported, Soleri always preferred experimental building with organic shapes, building on site and from the site while decorating it in a sculptural and painterly way.

Soleri developed an outstanding creativity by reinventing architecture as a mediation between the needs of the human inhabitant and the means available at the site. As an architect Soleri did not have many clients in his life, but found ways to nevertheless produce buildings. Out of urge and need to realise his vision he started to plan and build Arcosanti in 1970 as a self-sustaining ecological city on a seemingly arid plot of land close to Cosanti. Arcosanti is a realised city but also a utopian project. Soleri self-commissioned the Arcosanti project as an urban laboratory. Planned as a giant structure for 5000 inhabitants, Arcosanti now on average hosts about a dozen but receives 50'000 visitors on an annual basis (Rosenfield 2013). Inside the site a model displays in grey the existing buildings as to the foreseen structure of a series of giant half domes (Fig. 3.1.10.4).

The dome shape is used also for two open workspaces and two large arch-structures for assemblies. Soleri chose the arch form for providing workspace outdoors in a naturally controlled climate. In relation to the sun it provides shadow in the summer while storing heat in the walls in the winter. <sup>62</sup>

In Arcosanti Soleri provides an artificial landscape to be inhabited. More than just a giant structure it is designed as an organically functioning urban system or “hyper-organism” (Arcosanti 2012). Arcosanti is based on Soleri’s own theoretical Arcology (a composition of Architecture + Ecology, see SMOCA 2013, Arcosanti 2012). The design involves also a strong vegetational structure. The agricultural self-support of the communities is consciously integrated into the urban design.

Arcosanti is related to the hippie culture of the early 1970s. It was built in years of consecutive workshops with young volunteers. Financial resources were always scarce as the whole project was founded on the income of the wind bell manufacturing that still functions today. Soleri with

<sup>62</sup> Soleri has been inspired by prehistoric structures like the Montezuma Castle that was a living structure that the Sinagua indigenous people inhabited between 1100 and 1425. It is today a National Monument in Arizona only 50km North from Arcosanti (Ontiveros 2007, National Parks Service: Montezuma Castle, fig. 8.3.5.). The dwelling spaces similarly to Arcosanti are covered by an arch - in this case not a built structure but a natural apsis shaped opening in a steep cliff dwellings, like Mesa Verde National Park in Colorado (National Parks Service: Mesa Verde). As a difference to the native american dwellings of Montezuma and Mesa Verde the ‘Mesa City’ in Arcosanti the architectural form - not the natural one - provide for a microclimate that makes the dry desert inhabitable.



FIG. 3.1.10.5 Ecokathedraal in Mildam (Photo: author)



FIG. 3.1.10.6 Ecokathedraal in Mildam (Photo: author)

his proposed alternative to American urbanisation managed to fascinate many young people, in particular young men that escaped the draft for the Vietnam War. Many found refuge and fulfilment in working and learning at this place that still today is a permanent construction site. Experiments in building were always programmed and so the structure consists today as a variety of buildings, also representing changes of ideas or influences of many associates and different builders.

Arcosanti is an early experiment in dedicating a structure, a city, a giant continuous building project to finding a balance between human and nature. It shows a great potential for landscape strategies in architecture. It has a systemic approach (Arcology) that is based on the will to change architecture of the city fundamentally - it is a laboratory that engages the creativity of design to find a lean balance instead of just solving a client's problem or demolishing an unwanted historic city structure. The project in the Arizona desert still today addresses the very essential question of how we could live in urban settlements that harmonise with nature. It leads to a fundamentally different relation to nature than modern architecture.

Louis G. Le Roy (1924-2012), the artist and mind behind the Ecokathedraal (1983-ca.3000) in Mildam in the Netherlands, goes even further. Like Soleri, Le Roy looked for a production-alternative to the mainstream of modern architecture and urban planning. An artist trained at the Royal Academy in The Hague, he started working on wild and natural garden projects in the 1960s. In raising criticism of monocultures and the massively propagated use of herbicides and pesticides in the 1970s, Le Roy formulated an independent natural garden movement with his book "Natuur uitschakelen, natuur inschakelen"<sup>63</sup>(1973). In his gardening theory, Le Roy never ceased to condemn conventional planning culture, or what his 1973 editor named the contemporary "concrete"<sup>64</sup> culture.

Le Roy departs on 12 points that show a fundamental shift in gardening, based on natural succession and ecological principles. Later, Ecokathedraal starts as a gigantic building project that is based on the same principles. Natural landscaping is the nucleus of Le Roy's approach to building. That approach completely undermines architectural conventions back to the Renaissance. This is a conscious provocation - hence the term "cathedral" alluding to a medieval times. Willingly Le Roy promotes a pre-modern and pre-renaissance approach to building, one that leaves out all principles that lead to the separation of architecture and nature as discussed in this chapter so far (3.1.1.-3.1.9).

<sup>63</sup> "Switching Nature Off, Switching Nature On" transl. by the author

<sup>64</sup> Transl. by author from Dutch: "knuppel in het betonnen hondehok" (Preface to LeRoy 1973).



FIG. 3.1.10.7 Ecokatedraal in Mildam (Photo: author)



FIG. 3.1.10.8 Ecokatedraal in Mildam (Photo: author)

Le Roy the gardener, artist, and philosopher has a very practical approach. He despises the abstraction of planning that separates culture from nature. Le Roy believes in the transformation of society and - in the end - all planning and dwelling with the nucleus of exception he introduces. He explains in his “one percent rule” how if “one percent” of all planned land was left free, given to projects of no predefined purpose like the Ecokathedraal, this one percent would be enough to prove and finally propagate a completely different approach that would move away from commonly accepted planning practices. “Little bits given free to nature, will grow gradually and finally prevail” (Le Roy in Lendt 2009<sup>65</sup>).

According to Le Roy the striving for simplicity is contrary to nature<sup>66</sup>. Complexity is a positive quality in Le Roy’s natural philosophy -he is attacking the aesthetic eradication of complexity- founded by the greek philosophy. He draws a parallel with monocultures that are erasing biodiversity and sees both as a cultural aberration. Not by chance will Le Roy fight a similar scheme between nature and culture than the one I have observed in architectural theory so far (in this chapter 3.1.). Le Roy departs from a practical and aesthetic standpoint into a new philosophical foundation of life:

“classical statements are no longer adequate ... that simplicity is a hallmark of the truth ... we are ... being inhuman when we commit the population unduly to a simplified environment that is obtained in one go. The French biologist François Jacob once said ... the more complex an organism is, the more he is free ! ...” (LeRoy 2002 p.39.)<sup>67</sup>

In many ways Le Roy’s Mildam Ecokathedraal is not just based on a different philosophy. Le Roy breaks open the disciplinary boundaries of architecture and attempts to undermine them. Ecokatherdaal is entirely built of rubble - every material is obtained from disposable building waste, mostly concrete. Around 1979 Le Roy bought a plot of land and started to pile up the rubble to dry walls (Le Roy and Koppandy 2005 p.9). He did not draw up a plan but just started a day’s work laying stone on stone, forming foundations and higher structures that could be pillars to a giant project. He allows and uses mistakes as part of the process.

<sup>65</sup> Video commentary translated into English by the author.

<sup>66</sup> ‘If every individual is producing a complexity on his own, and is not willing to let his complexity flow into what all others do, there will be no culture and now bigger order. We all make -typically for our individualist time- individual products that we put next to each other in a sort of diversity. But to make a complexity in the connection of this diversity, the precondition is that the individuality of the product disappears into the totality of the complexity’ (Le Roy in Lendt 2009).

<sup>67</sup> “Plus l’organisme est complexe; plus il est libre” (Jacob 1970)

Volunteers join him, many of them from the “planning industry”. Like Soleri, Le Roy never ceases criticising the planned modern city with its division of functions. Time is the key term to understand Le Roy’s work. The Ekokathedraal<sup>68</sup>, he once explained to a city official, would be finished around the year 3000 (LeRoy in Lendt 2009). Le Roy does not impose order to solve any problem but triggers a landscape process to make solutions. He intends his aesthetics to be only a starting point to “give back to nature” (LeRoy in Lendt 2009).

If Mildam looks like a ruin site, it is because of this intended decay. Louis Le Roy remained small but persistent in his ambition. The grand scale of a cathedral built with limited resources, one stone at a time, remains an artistic fantasy up to today.

Le Roy puts the time horizon far beyond his own possible life span, leaving behind a foundation that takes most of what it needs and is named accordingly: “Stichting De Tijd”<sup>69</sup>.

Regarding my question if landscape design strategies are changing architecture, the Ekokathedraal is about a fundamentally different way of relating time to an architectural project. The fact that both Arcosanti and Ekokathedraal are works-in-progress continued today, long after their authors death also shows how their strategies meant to last beyond one architect LeRoy. He was not envisioning his project finished in his lifetime.

A little bit of Archology and a piece of Ekokathedraal (merely one percent) could undermine architecture’s established division from nature - if only in a very long time. But these outstanding projects have not been integrated into a mainstream movement nor have they been studied much in an academic context, nor mentioned in my reference literature. If they stand here isolated, this shows the large discrepancies between early fundamental critique of architecture and the common practice of their period.

### 3.1.11 **Maaskant and Koolhaas build Polders and Dikes in the Netherlands**

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The Netherlands are a built landscape. A large part of the agrarian and urbanised country has been gained from the sea and from lakes, rivers and swamps wrested in centuries of tensions and struggles, with many technical and cultural innovations, but most of all with polders and dykes. ( Geuze, Feddes e.a. 2005, Steenbergen and Reh 2010 and 2011, and Bobbink 2013 and 2016)

Dutch history has been shaped by the “polder mentality” up to the present day. The core of the political organisation is that the farmers can only get their land out of the water with a joint effort. Even with the fragmentation and individualisation of society, which are much-favoured today, the idea of the “polder mentality” still characterises politics. Even today, “poldering” takes place regularly in the cabinet, in parliament or between employers and employees unions. It is what Dutch people call their form of consensus building.

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<sup>68</sup> Site visits of the author with students of Wageningen UR Master Studio Park Design September 2016 and 2017

<sup>69</sup> Engl. “Foundation of Time”



FIG. 3.1.11.1 Johnson Wax Mijndrecht in pond (Photo: author)



FIG. 3.1.11.2 Johnson Wax: view into polders (Photo: author)

The landscape engineering performance of draining the Netherlands - often in reaction to catastrophic floods - with the large water protection structures <sup>70</sup> have marked the building of the Dutch nation across centuries. The idea of the feasibility of the landscape, of human control over the forces of nature as a collective task for many successive generations, has left a deep cultural impact. No wonder, then, that this idea of the “feasible landscape” (Steenhuis 2009) has also manifested itself in Dutch architecture.

I systematically studied Dutch architecture towards that aspect ever since I started my research work in Delft in 2008<sup>71</sup>. Out of many case studies of Dutch architecture of the late 20th century I would like to point out two examples of particular interest.

The first project is before 1970 to be ordered in the broader sense of modernity (Fig. 3.1.11.1). Huig Masskant (1907 - 1977) was very active in the “wederopbouw” - the reconstruction of his native city Rotterdam, which was bombed in 1940. His design for the Johnson Wax European headquarters is located in Mijndrecht between Utrecht and Amsterdam. It is actually a two-part commission with an architecturally simple grid-based production hall behind. The expressive administrative and representative building in front of production explicitly deals with the flat landscape of Dutch polders.

In its manipulation of the landscape ground form, the pond of Johnson Wax is particularly striking. Its measures refer to the proportional system of the entire complex, as it was originally laid out in the first halls and their extensions as planned by Maaskant. The building actually has only one upper floor. The flooded space under the columns is demonstratively used only for representation - a determined landscape architectural gesture. The building floats in a dynamic form over the pond, the reflection underlines the lightness achieved only by shaping.

The spatial composition works with a Y-shaped axis system that can also be understood as a reference to the “patte d’oie” from the repertoire of landscape architecture. Diverse, scenographic staged views of the landscape characterise an architectural language with a variation of directional openings.

<sup>70</sup> For example in 20th century the so-called Delta Works as a reaction to the 1953 storm surge flood.

<sup>71</sup> See my List of Publications in the Appendix. The first part of this section is based on an article in *Werk, Bauen & Wohnen in Gerra* as “Gebaute Niederlandschaften” Jauslin 2010



FIG. 3.1.11.3 Johnson Wax: East wing (Photo: author)



FIG. 3.1.11.4 Johnson Wax: board-room (Photo: author)

When entering the upper level from a staircase in the rectangular main building the axis is turned toward the right, directing the view into the centre of the well preserved landscape of polders. In the central lobby the two wings actually frame the wide panoramic view. From outside this dynamic has an effect of waving towards the passing by cars.

In addition to the massing, the composition and layout of the floorplans and of each of the representative office rooms is strongly influenced by the view and the panorama. At each office the wider window points onto the landscape, while the smaller one points back inward to the facade on the other wing of the Y.

Landscape metaphors are also present in materials - blue ceilings with randomly dotted lights like stars in a night sky while a round conglomerate shines like a moon above the main meeting table.

First of all, Johnson Wax had to be measured on Frank Lloyd Wright's Johnson cooperation headquarters in Racine, Wisconsin (1937-1949). "In Mijdercht too, the new building would need to exude the corporate image of the parent company" writes Maaskant specialist Michelle Provoost (2013 p.336). The sign is used programmatically here. Masskant effectively sets the scene for a dynamic exterior. A comparatively small building thus becomes visible from afar from the traffic artery, rendering architecture as billboard and landscape condenser at the same time.

Contemporary critique had difficulties in placing Maaskant's work - and up to today this "American" owned building is regarded as an exception in Dutch postwar architecture, a "unique concrete sculpture" (Provoost 2013 p.337). A contemporary critic wrote "A showpiece is being created here, something therefore highly un-Dutch, something that will cause a sensation" (Wiekant 1964 in Provoost 2013 p.338) <sup>72</sup>. However I believe after studying<sup>73</sup> this architecture from a landscape perspective, it is clearly Dutch design in the way it responds to the polder landscape in a delicate manner and interacts with it in a cultural dialogue.

<sup>72</sup> Karel Wiekant "Ook met prefab bouwKUNST mogelijk. Maaskant bouwt fabriek in Mijdrecht" undated newspaper clipping form 1964 in Roland Maaskant archive quoted by Michelle Provoost (2013 p.338 trans. By the author)

<sup>73</sup> Two of my architecture students describe the building as follows: "For the both of us this was the first analysis in which we came in direct contact with a design of Hugh Maaskant. ... it was a weird object to see in that kind of landscape. In Dutch it is a 'vreemde eend in de bijt', what means 'weird object in it's context'. It seems that the form of the building is most important, it is a statement and billboard for the Johnson Wax factory, and the function of being an office is subordinate to that purpose. ... When entering, you walk into a lobby with views at the landscape. ...The notched shape of the windows in the offices ensures that the focus, from within the offices, is both on the landscape and on the building itself. This triangular shape is in contrast with the smooth shape of the building. ... The design is not as flat as only a simplification of a logo, but it is much deeper than you initially see. It is form in motion, flying through the landscape." (RAVB Students Esther Kats en Jantine Merkens in Jauslin ea. 2012 p.139)

Dutch architect Rem Koolhaas (\*1944) founder of Office for Metropolitan Architecture OMA was influenced by the dike, a landscape element complementary to polders, to design the Kunsthal project in Rotterdam.

Today's Kunsthal was the second design of OMA for this building with an adapted programme 'Kunsthal II' (OMA 1995 p. 429) including café and more connections to public spaces on the park level. Changes came about after critique of the original design by a newly appointed director ad interim. Remarkably the two versions are very different - in particular in regard to how they treat the landscape - or not: Kunsthal I was completely disconnected from the ground - a floating box hovering above the park - that ought not to be touched in its wilderness. It was a fair-like large machine-hall building with its own crane on the level of Westzeedijk but then disconnected from this southern barrier, that protects the city from the river Maas.

Instead the new design for Kunsthal II (starting in 1989) would 'start all over again' (OMA 1995 p.429, Lootsma and de Graaf in de Architect 1-1993 p. 22). Some crucial changes from the client side lead to an interweaving of architectural and landscape space. The new building was moved to the dike. The lower and upper levels are connected by two intersecting tilted planes. One plane connects the upper level Westzeedijk to the park with a public passage, the other is inside and ascends from the street just below the dike to the upper level on the park side and contains an auditorium. The outer plane or ramp intersects the building which becomes a gateway to the park. The entry is at the intersection of the two contrary sloping ramps. It is a small door at the level where two slopes meet in contrary directions<sup>74</sup>. A continuous spatial form knots together the cut in voids with a turning movement. Café, exhibition halls and auditorium are arranged in a sequence along this spiral. The passage through the building forms a spatial journey from the garden level ending on the top pointing skyward with an inclined roof garden.

Each of the four main facades of the building has a different material, responding to varying atmospheres of the park and city. The Museumpark was simultaneously designed with Kunsthal II by landscape architect Yves Brunier (1962-1991) at OMA.

Koolhaas made several remarkable statements about his encounter with Yves Brunier from the mid 1980s to his early death, regarding the disciplinary shift in architecture and urban design towards landscape. The moment of their encounter at the end of the 1980s is according to Koolhaas also a time of a major "shift" between "town planning" and "landscape":

"... the 20th century is drawing down to a close with the death of town planning and with this highly cynical apotheosis of landscape. Yves was a molecule in this field with its bipolar tension between city and landscape. He foreshadowed this shift." (Koolhaas in Interview with Odile Fillon in Jacques 1996 p.89-90).

Brunier had worked at OMA in Rotterdam in 1986 on several Dutch projects. He contributed to the seminal project of Melun-Sénart in 1987. After founding his own practice with Isabelle Auricoste in 1988 in Paris he would cooperate with OMA again on Villa Dall'Ava near Paris, Museumpark Rotterdam, The Très Grande Bibliothèque in Paris and Euralille.

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<sup>74</sup> Here and in the following I describe the original entry unlike in the current situation that changed the routing completely after a renovation.



FIG. 3.1.11.5 Kunsthall on Westzeedijk (Photo: Jeroen Musch)



FIG. 3.1.11.6 Kunsthall in Rotterdam (Photo: Jeroen Musch)

Brunier was a Landscape Architect who came to Rotterdam because he wanted to be an Architect - like Koolhaas. Although he was familiar with OMA's work for the la Villette Park in Paris (1982, chapter 1.4.3.) he refused first to work on OMA's landscape architecture projects.

At this time, Koolhaas had "... discovered the programmatic potential of landscape, and so I (Koolhaas) explained to him (Brunier) that, personally, I didn't find architecture particularly interesting, but that, on the contrary landscape represented an incredible potential" Later, when Brunier got ill and his time was short Koolhaas insisted on him remaining a Landscape Architect."His future was landscape, and it was a matter of time. From then on everything became landscape for him. It was like a kind of love affair..." (Koolhaas in Interview with Odile Fillon in Jacques 1996 p.89-90).

OMA and Brunier would work together as independent disciplinary offices on garden and building designs.

It is important that there are two designs for Kunsthall, because the step from Kunsthall I<sup>75</sup> to Kunsthall II and Museumpark probably marks exactly this shift - with the encounter of Koolhaas and Brunier as a working relationship between landscape and architecture.

In Museumpark, Brunier designed a sequence of different areas. The central romantic part with an unreachable island and the large bridge elevating to only cross land is a very dense and poetic work - it was based on Brunier's collages and imagination and finished - according to his own last wish in regard to the project - by Petra Blaise with OMA.

Kunsthall II and Museumpark were designed in parallel and many elements combine similar compositional principles. An important landscape strategy for both is the division of strong atmospheric spaces in a sequence. Those are arranged on a spiral across two axes in the Kunsthall and zoned as a stacked series along the stretched axis in the Museumpark. The park has a spiral shaped romantic passage in the midsts of the floral beds as a reference in another scale and material to the circulation in the building.

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<sup>75</sup> OMA was attributed the design for this for the Netherlands novel type of temporary exhibition hall in a direct commission. The office of Rem Koolhaas had previously studied the area in a urban planning study (1987) and developed the concept of a museum park as a cultural forum with today 3 new Museums next to Boijmans van Beuningen (Adrianus van der Steur 1928-1935): North the Netherlands Architecture Institute NAI (Jo Coenen 1988-1991), Southwest the Natural History (Mecanoo, later Eric van Egeraat 1994-1996), and South the Kunsthall I. The 4 museums were forming a play of crossings axes that would open up a new breach of public green space through the city of Rotterdam connecting the Spoorsingel diagonally to 'Het Park' at the Maas.



FIG. 3.1.11.7 Kunsthall: rampt to park (Photo: Jeroen Musch)



FIG. 3.1.11.8 Kunsthall, Museumpark (Photo: Jeroen Musch)

Similar to the Kunsthall the Museumpark also uses improvised and experimental collaging of materials, often containing metaphors. At Kunsthall many metaphors of nature in architecture get collaged with a rough application of often surprising materials. Trees are the symbol of nature in architecture since Laugier's primitive hut. Raw trees with their bark on return twice in the Kunsthall - in five vertical tree-trunk columns, directly responding to live trees in the museum park, and a horizontal tree used as balustrade at Westzeedijk. Six different types of columns, developed from primitive to industrial throughout the building, some inclined with sloping surfaces, reference metaphors across the whole history of architecture.

A main landscape metaphor of Kunsthall is the typological development derived also from a dijkhuis (Engl. dike-house) - a characteristic Dutch type for farms along the dikes that divide the polders. No modern Dutch architect dared to approach this landscape related architecture so virtuously, and then create a building with the intensity of a park.<sup>76</sup>

By the time Kunsthall would open, OMA was a world famous practice without having actually built much more. Landscape metaphors later served as a model for several other, further developed architectural OMA projects like Agadir Convention Centre (1990), Yokohama Masterplan (1992) and the two Libraries at Jussieu Paris (1992-1993, see chapter 4) where it would further develop its concepts of landscape in architecture.

Yves Brunier would not survive completion of either the Kunsthall nor Museumpark. The two projects and the encounter of Rem Koolhaas and Yves Brunier are exemplary for a disciplinary interchange between architecture and landscape in the late 1980s with significant consequences for its development, studied further in my thesis.

<sup>76</sup> This observation I owe to Rotterdam landscape architect Adriaan Geuze in a private conversation with the author and Matthew Skjonsberg in 2012.



FIG. 3.1.12.1 Yokohama Ferry Terminal (Photo: author)



FIG. 3.1.12.2 Yokohama Ferry Terminal (Photo: author)

### 3.1.12 FOA and EMBT design Infrastructure as Architecture as Landscape

While landscape related architectural concepts became an important inspiration for many architectural projects in a wide variety of situations I understand the reasons and motives for such change in individual projects that solve particular problems. In the 1990s several projects dissolve disciplinary borders and achieve new methodical grounds for architectural design of buildings<sup>77</sup>. Two projects here show how the disciplinary assumptions that initially limited the task at hand were overcome - and how versatile the strategies of landscape became in architecture by the end of the 20th century. I introduce them here to show how many more projects challenge the disciplinary boundaries and contribute to landscape design methods in architecture. They are exceptional cases: As I will later explain, they fall beyond the scope of my choices for key cases of landscape strategies in architecture.

The Yokohama Ferry Terminal ‘Osanbashi’ in Japan by Foreign Architects Office FOA (1995–2002) is a much-regarded work of architecture. Its two young architects Farshid Moussavi and Alejandro Zaera-Polo had actually worked at Rem Koolhaas’ firm OMA<sup>78</sup> in the early 1990s and at the time of this design hadn’t completed any major building.

The Yokohama project has been cited by many relevant experts as an example of a new trans-disciplinary practice. It has been cited in overviews of architecture as an expansion into the domain of landscape as “Megaform” (Frampton 1999), “Groundscape” (Ruby 2006 p.28), “Groundwork” (Balmori and Sanders 2011), and “Landform Building” (Allen, McQuade 2011 p.26, 368). In “Landscape of Contemporary Infrastructure” (Shannon, Smeets 2010) it is rightfully qualified to be “infrastructure as public space”.

The Yokohama Ferry terminal is unlike most other buildings. It is neither composed of floors nor of walls. Its structural design integrates form, structure and space in a series of three continuous undulating planes, intersecting with each other on many levels with a total of eleven ramps. All of

<sup>77</sup> As introduced in the reference literature study (chapter 1.4.)

<sup>78</sup> At that time other members of OMA developed the Yokohama Masterplan and Jussieu Libraries (1992), and both evidently left certain traces (see Ruby 2002). During the time of the Yokohama competition AA published the Jussieu Libraries of OMA 1992- 1993. (AA Files 1994). It was on the cover page of the same magazine that Moussavi and Zaera-Polo were developing their design for, and was a project of one of the assigned jurors.

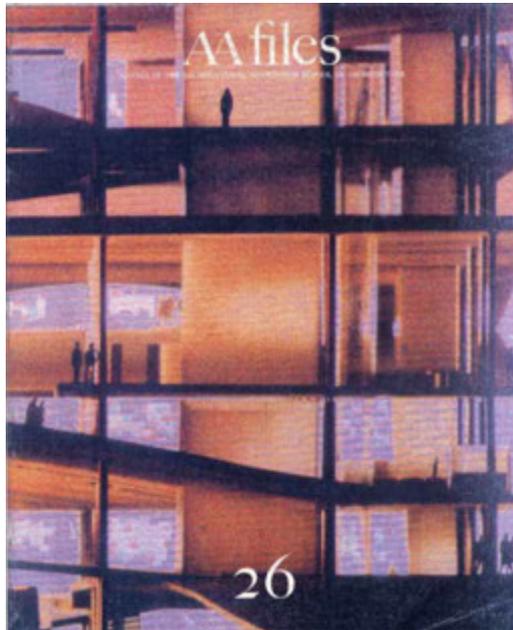


FIG. 3.1.12.3 Jussieu Libraries OMA (AA files 26)

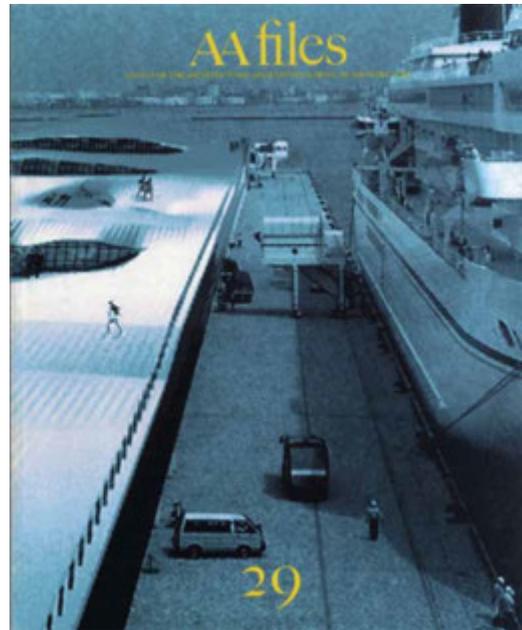


FIG. 3.1.12.4 Yokohama Ferry Terminal FOA (AA files 29)

the passenger connections form one continuous flow through the building - or rather the projected flowchart diagram of the building generated its continuous form. The building is not designed from a preconceived object shape. Rather, plan and section flow into each other with continuity of planes across the levels, and the non-object form results from this flow and the physical condition of the pier and its functionally defined edge.

The initial flowchart - a diagram of the circulation pattern was drawn up to understand the flows of passengers across the building. In the original competition drawings this flow chart is broken down into a set of views - as a non linear, manifold storyboard - identifying a series of viewpoints in between the undulating planes, in addition to framed views of sky and water. This method of using flows for creating a scenic route is practised in landscape architecture as 'Sequencing of Composed Views' (Nijhuis 2011). - to this day Osanbashi still remains a rare example of such a high level of spatial, structural and formal integration of a multi-directionally open space.

The building also uses the form of folding waves for the structural design. The main planes integrate the bearing system - there is no other structure of columns and walls to do the usual shifting and distributing of horizontal to vertical load bearing elements that architects call tectonics.

Even for me as a visitor that knew the building rather well from many publications, in reality it has still had many surprising aspects<sup>79</sup>. Firstly, one's approach to it - from extremely busy Tokyo through dense Yokohama - provides for a sudden relief and surprising calm. The sea view and gently undulating surfaces create a very special atmosphere. Like in an English landscape garden, movements and routes and views are guided through, and framed by, the manipulation of the designers in order to connect a space to the wider landscape of the fields - or in this case, of the sea.

<sup>79</sup> Authors site visit in Japan 7.11.2010.



FIG. 3.1.12.5 Scottish Parliament Edinburgh (Photo: author)



FIG. 3.1.12.6 Scots- sitting on their -land (Photo: author)

The most surprising aspect besides the spatial appearance is the usage of the building. Joggers, parents with baby strollers and couples taking wedding pictures occupy the building. People oftentimes sit on towels or cushions, just as they would for a picnic in a garden or park. Many visitors alongside appear just to enjoy the building for leisure time, talking to friends, outdoor exercise and merely walking. It is obvious that this infrastructural building is also used as a kind of park or public open space. Its indoor and outdoor spaces are inviting for walking and experiencing as a landscape - this curious convergence of uses practically overcomes the separation of architecture and landscape.

The traffic zones for the docking of ships, designed to host large numbers of visitors, are often empty and used for strolling in an informal manner. Large continuous spaces open onto the harbour city panorama and to the sea on three sides. This gives the impression of a passageway, the far-flung feeling one can experience on a ship deck.

The architectural form is not condensed into an object but opened up. The spatial concept crosses limits of the plan or section into a multidimensional environment with exceptional programming of the halls and rooftop as a public space. The park-like composition of the viewing decks forms complex relations to the surrounding horizons extending across the skyline to the slopes of Honshu and the Tokyo Bay. The design strategy at Yokohama overcomes disciplinary borders between landscape and architecture as the result of an extraordinary design experiment.

The Scottish Parliament Edinburgh project employs the idea of landscape in architecture as a conscious and strategic narrative by Enric Miralles and Benedetta Tagliabue (1998-2004) to solve a dilemma of political and historical dimensions.

After a referendum in 1997 and the consequent Scotland Act of 1998 (McCone in Balfour 2004 p. 22, Scottish Parliament 2011) a new parliament would represent Scotland in its diverse opinions and complex, unpredictable, political streams and interests. From the Referendum there was literally no text of constitutional character that could be easily transformed into a diagram of powers. A building could therefore not simply depict the role of the parliament in an abstract form.

The conceptual intuition of the Catalan Architect Enric Miralles (1955-2000) and his Associates (EMBT, RMJM) led to a representative building for Scotland in what Miralles called - a 'social landscape' - an architecture connecting people and environment.

This building's metaphorical and spatial relation to landscape is immediately experienced. From the popular Arthur's seat southwest of Edinburgh the building and park embrace the landscape and interweave it with the urban structure.

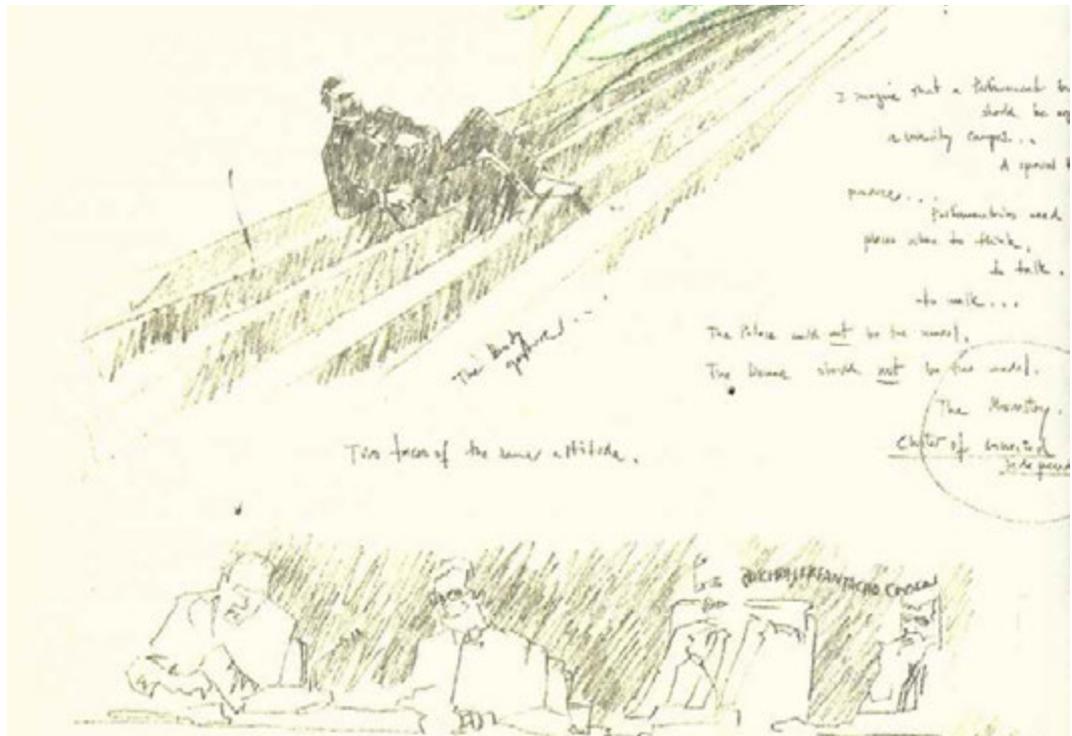


FIG. 3.1.12.7 Presentation sketch of Scottish Parliament with notes by Enric Miralles (Balfour 2004 p.64)

In a collection of eleven hand drawn and annotated sketches of the intellectual form finding process (fully annotated in Balfour 2004 p. 61-81) landscape explicitly propagated this narrative of presenting a design solution with two key concepts: “the parliament is a place in the people’s mind” and “the parliament sits in the land” (Miralles in Balfour 2004 p. 39). People are drawn sitting on the land on lines continued into the chamber where people sit in the rows.

The spatial composition culminates in the main chamber, which as a centre of gravity, seems to attract several lines which are repeated to divide the grades, representing seating in the landscape.

Spaces to the public are provided under the main hall in a foyer composed of a series of curved vaults. They follow the lines from outside the garden and literally carry the assembly floating on top.

Despite severe anti-bombing security these public areas of the building are still very inviting.<sup>80</sup> With directed light like a grotto it connects the formal language of the outside garden to the inner logic. Spaces appear like a land-formed agglomerate of forms that constitute the parliament. At the other entry, behind the sequence of park and grotto opens again to what originally should have been an enclosed garden or giardino segreto for the Members of Parliament MP. The initial Flower Garden here turned into the “Garden Lobby”, a covered informal hall for informal MP gathering, chatting, plotting, experimenting and testing. It has a distinctively floral shape, a salad pot for mingling the emerging ideas of the parliament. A dozen leaf shaped openings reach out into the garden, that again connect to a series of green roofs which, from afar, connect to the bigger landscape gesture.

In the north wing offices each MP has a cell-like room. Cells at the outer wall opposite the hall offer seat shaped niches that stick out of the facade. 129 seats as a facade element represent to the city

<sup>80</sup> Authors site visit in Scotland 18.7.2011.

each seat of an MP, and on the inside give each MP a private space for reflection. This metaphor reminds every MP of his electorate and the connection of his powers and duties with the world outside his office. Each window is shaded with a bunch of curved sticks, again reminiscent of the larger ground-form of the building and the lines from the Scots' land into the building.

This repetition of shapes at each window - like in the main assembly hall - looks like an ancient emblem of knighthood abstracted into a modern shape. Almost archaic signage returns in another strange repeated motif on the remaining facades: a curved and turned L-shape that again appears in a tapestry pattern of alternating panels. The shape is derived according to the designers from a portrait of Reverend Dr. Robert Walker by Sir Henry Raeburn (Tagliabue 2002 p.141).

It is a strange portrait of an apparently stubborn Scott ice skating in an evocative landscape background. As in ice skating, a stream of lines, redrawn and overlaid by continuous adoptions and readjustments flows from the open land at the feet of Athur's Seat, represented even in the site plan as a series of isolated height lines of the hill. They come together in one space to inform a composition in the city, colliding on the strong fortification wall towards Cannongate. It's opening to the land makes the building not another object in the city of Edinburgh but rather a confluence of all the Scot's lands into one place. Architectural strategy is using landscape as the metaphor for what could constitute Scotland in absence of a constitutional text.

The landscape metaphor is opposed to the idea of a house in the city, it falls outside typological conventions. A collection of different volumes at the collision point of the urban fabric of Cannongate and the maintained Quensberry House are held together by the overrule of strong curving lines. Volumetrically the parliament is not one building but rather a series of agglomerated volumes.

The grouping of people, sitting on the land is detailed in the building quite literally. But how the parliament can be a landscape more than an object is also expressed in a less tangible spatial metaphor as the converging point of three elements - "land", "water" and "air" (Handwritten on Sketch Illustration 8 p. 76-77 in Balfour 2014).

The Scottish Parliament scheme is a personal and poetic (or even romantic) interpretation of landscape. The Scottish Parliament is perhaps one of the first political buildings that is not representative architecture. Instead the architectural composition dissolves into the landscape and provides for abstract ideas like the "autonomy" of the people on a "land" - without recurring to architecture's own language of monumentality. Landscape becomes an intellectual spatial strategy to the expression of the political identity of Scotland beyond it's political processes.

These are only two buildings of many that I visited in several years of research (Appendix 3)<sup>81</sup>. Like many good projects they touch upon the margins of the discipline of architecture and could be seen as "outlier-cases", meaning that they are too exceptional to be treated as "key-cases" (Thomas 2011) in my study. I clearly explained why limitation to a few key-cases is needed in the methodology section (1.5.) and out of the critique of my literature review (1.4.9.). I included these "outlier-cases" here to illustrate how much the importance of landscape strategies in architecture had suddenly grown in the 1990ies, which made the deliberate limitation to a few choices that would allow profound study difficult.

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<sup>81</sup> Until 2016 of 116 projects identified as potentially suitable candidates for further study I visited 57 projects for evaluation before the final selection (see chapter 3.3.).

## 3.2 Architectural Design Analysis

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So far I have established the notions of landscape, landscape architecture and strategies of landscape design (Chapter 2) in the Western tradition, and touched upon potential methods for this thesis while exploring the theoretical deposition or gap in a 'natural' architectural theory (Ch. 3.1).

A premise to my further case study is to choose a specific position and apparatus for our investigation on the workings of architectural designs. In the following sections, I will introduce the method for analysing architectural designs, much of it based on analytical methods after other authors in their tradition have done about Vitruvius, Serlio, Alberti, Palladio, Laugier and Semper. Paul Frankl's influence of the specific 'Delft Method' is undisputed. It combines the holistic understanding of architecture as a composition of elements and the human oriented approach within an empirical framework.

### 3.2.1 Design Analysis in Architecture

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Within architectural theory also falls the development of the tradition of design analysis. Instead of describing rules, design analysis looks at built or designed examples as an expression of ideas and is thus less susceptible to theoretical limitations outlined before.

In my view, design analysis in the broadest sense provides a way of understanding a composition of a design by dissolving, dismantling and juxtaposing the components that form a composition. Design analysis is a method to research design intent through the study of (built or unbuilt) projects based on specific research questions (Wilms Floet 2004). My preferred analytical apparatus is (re-) drawing a design with conventional representation techniques and/or the techniques specifically developed for the project in question. It should lead to understanding the essence of a design and conclusions regarding the research question.

According to the TU Delft Faculty of Architecture textbook Projectboek BK1100 Huis en verankering "analysis and design have a direct relation in two manners. Firstly both use the drawing as their most prominent medium. And secondly there is a reverse relation (of analysis) with making a design" (Wilms Floet 2004 p.47-56)<sup>82</sup>. For the design analysis of select precedents, I therefore choose to investigate my research questions about architecture with landscape design strategies through understanding its 'underlying principles and ideas' (op. cit.).

Although design analysis might go back as far as the early renaissance treaties of Serlio, Alberti or Palladio, it distinguishes itself from other fields of architectural theory, style critique or art history. The most important difference is that design analysis uses means of design, most prominently drawings (or etching in the case of older printed books) for research into the architectonic composition of buildings.

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<sup>82</sup> translated from the Dutch textbook by the author

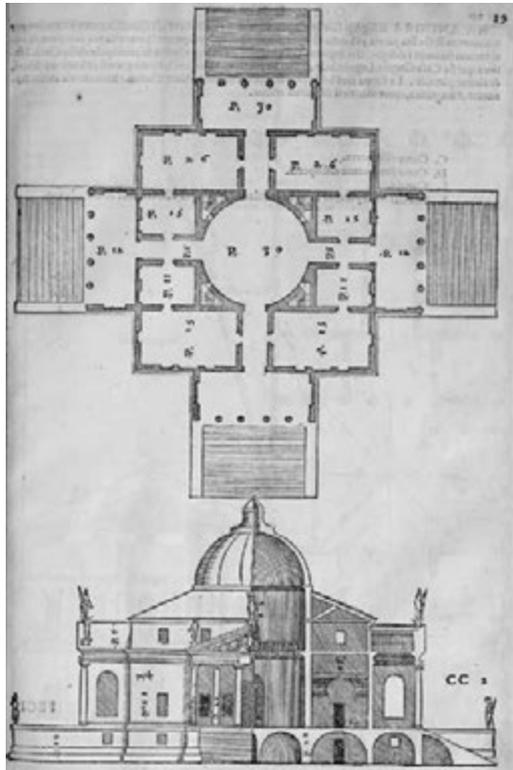


FIG. 3.2.1.1 Villa Rotonda (Palladio 1750 Book 2 p. 19)

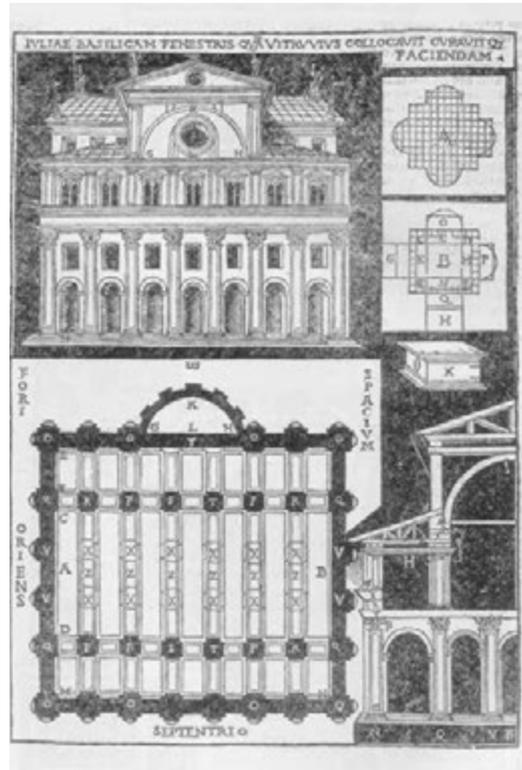


FIG. 3.2.1.2 Basilica of Fano (Cesariano in Vitruvius 1521)

From the very beginning in the Renaissance, many architecture theorists have been also architects. They often used the same means to design and build their ideas as to disseminate them in engraved illustrations in their books. The drawing of the Villa Rotonda (Fig. 3.2.1.1. Palladio 1570 Book 2 p. 19) is a good example of the powerful use of imagery by the architect-author Palladio while Cesare Cesariano illustrates the Basilika of Fano after Vitruvius in the 1521 Italian translation (Fig. 3.2.1.2 Vitruvius 1521). Since the printing press, illustrations accompanied architectural treaties and the culture of drawings emerged. The canonised representation of buildings in plan, section, elevation, and perspective led to a wide spread of representation and practice in the development of architecture as an artistic and scientific discipline.

This form of representation is still present today and has not been dissolved by the rapid change of representation techniques through the digital revolution since the 1980s. We could even argue that analysing architecture in (slow) drawings has become more urgent and useful in times of accelerated design processes with increasing technical and juridical complexity.

As there are many ways of analysing buildings with drawings, I would rather concentrate and argue for the means specific to this thesis. They relate the architectural composition of buildings to the specifics of landscape, landscape architecture, and landscape design. For this thesis I chose to connect to the methods that apply a few generations of design academics in TU Delft, related to the holistic approach that I postulate on theoretical grounds based on Wölfflin and Frankl (section 3.1.6.).

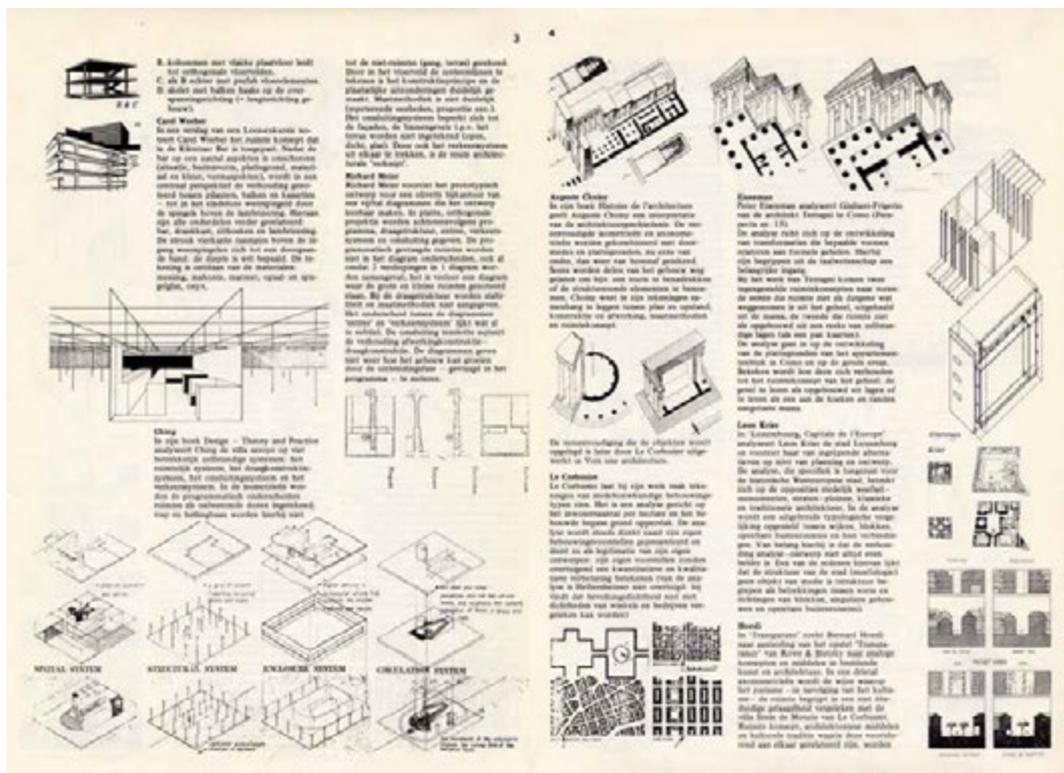


FIG. 3.2.2.1 O: ontwerp: onderzoek: onderwijs (Drijver, Döll, Karthaus e.a. 1981 p. 3-4)

### 3.2.2 Architectural Design Analysis at TU Delft or ETH Zürich

In Delft I found a tradition of design analysis that goes back to a conscious shift away from theory into practical research in the 1970s which is still used in the first year education today (Leupen e.a. 1993 p. 8, Wilms Floet 2004). This plananalyse can be interpreted in English as the analysis of (or with) a plan (or drawing) or in ontwerpanalyse which translates literally to our preferred English expression, design analysis.

An early witness of the emerging Delft way of analysing architectural designs is the journal 'O: ontwerp: onderzoek: onderwijs' (Drijver, Döll, Karthaus e.a. 1981). In his essay 'Plananalyse en planlegitimatie' (design analysis and design legitimation) Miel Karthaus (1981) relates the emergence of Delft plananalyse to a crisis in the faculty and the discipline of architecture in general. We may note the rhetorical emphasis of this text on the importance of such analysis.

"In days that everybody that wanted to gain knowledge in architecture had to follow 'at the feet of a master'; in days that architecture in its 'counter form' needed to propagate the truth of a human togetherness against a hypocritical bureaucratic society; in days that a design could only exist through the power of an utterly personal and independent imagination and could only obtained meaning in the 'experience'; in those days 'plananalyse' began to ask questions about all this neurotic scribbling (sic!) of a discipline that had lost its function. It asked simple questions: What is all of this built of? What is actually standing there? ... Plananalyse made visible that the totality of a piece of art or a design can be dismantled, divided into components whose workings in the

whole can objectively be determined. A determination that makes it possible to continue on with the material - further in an utterly arbitrary choice of direction.” (Karthaus 1981)<sup>83</sup>.

A more or less systematic and continuous method of plananalyse was developed in Delft architectural education from around 1973. An early Delft plananalyse textbook is the “LAS-boek” (Geurtsen, Leupen, Tjallingi 1982) for analysis of Landscape-, Architectural- and Urban-Design (LAS is in Dutch an acronym for Landschap, Architectuur, Stedenbouw). Later Leupen edited the book *Ontwerp en analyse* where many Delft faculty staff contributed texts and studio or research drawings (Leupen 1993). Representatives throughout these three spatial design disciplines of the faculty collaborated here, which could in retrospect be seen as a fertile ground for interdisciplinary collaborations like I study here in architecture or others in the aforementioned “landscape urbanism” in the 1990s (section 1.4.2.). A well known publication with a focus on my subject architecture is Max Risselada ‘Raumplan versus Plan Libre’ (1987 Engl. 1988) comparing the villa projects of Le Corbusier and Adolf Loos. Other Delft authors in our focus and with the tradition of plananalyse are C. Verwoord, J.D. Besch. Rein Geurtsen; Michiel Polak, Clemens Steenbergen with Wouter Reh: and Sibrand Tjallingi (Döll 1981: Wilms Floet 2004,:Leupen 1993).

The objectivity pledged by Karthaus can be easily related to Hoesli’s term ‘transparency’ that he introduced for spatial design in architecture in the ETH Grundkurs, a foundation course inspired by the Bauhaus tradition (Jansen e.a. 1989). Ever since the beginning of his teaching career at ETH in 1959, Bernhard Hoesli (1923–1984) refined the methods that have been developed by the so called Texas Rangers, a group that had brought Bauhaus-inspired education to the rather remote University of Texas School of Architecture in Austin, Texas from 1951 to 1958, including, besides Bernhard Hoesli, Colin Rowe, John Hejduk, Robert Slutzky, Werner Seligman among others (see Caragonne 1995). Hoesli understood and propagated ‘transparency’ as an analytical and design method that he drew from the composition analysis of modern buildings, plans and paintings in the book of the same title by Colin Rowe and Robert Slutzky (1964). “Transparency frees us, because we allow it, to see buildings and structures in connections and independent of the differences between ‘historical’ and ‘modern’.” (Hoesli 1964 p. 82). Another disciple of Colin Rowe (1920–1999), who later taught at Cambridge in England until 1962, was Peter Eisenman. Eisenman’s own thesis (Eisenman 1963) under Rowe would initiate a life long occupation with formal analysis and theory at least equally important as his internationally well known architecture.

Today at Delft plananalyse is still practised in teaching design; I became involved in it as a design teacher from 2008 to 2015. Several of my courses at TU Delft, Rotterdam Academy of Architecture and Wageningen University involved various analytical tests on a variety of the projects (Bibliography List of Publications by the Author to the Subject in Appendix). In design teaching through analysis we understand a project only with an informed critical reflection of its essence - a designer’s understanding needs its own physical experience of (re)drawing a design - confronting it with thoughts and ideas that structure the complexity of what is present (or designed) in space.

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<sup>83</sup> »In de dagen dat een ieder die zich vertrouwd wilde maken met architectuur dit deed <aan de voeten van de meester>: in de dagen dat architectuur in haar <contravorm> de waarheid van een menselijk samenzijn tegenover een leugenachtige verburocratiseerde maatschappij moest hooghouden; in de dagen dat een ontwerp alleen bij machte van een uiterst persoonlijke en onafhankelijke verbeelding tot stand kon komen en slechts betekenis verkreeg in de <beleving>; in die dagen begon <plananalyse> vraagttekens te zetten bij al het neurotisch gekrakeel van een funktieloos geworden discipline; zij stelde de eenvoudige vragen: <Waarmee is dat nu allemaal gebouwd? < <Wat staat er nu eigenlijk? ... Plananalyse deed inzien dat de totaliteit van een kunstwerk of een ontwerp uitneembaar is, ontleed in bestanddelen waarvan objectief vast te stellen is dat zij werkzaam zijn in het geheel. Een vaststelling op grond waarvan het mogelijk is verder te werken met het materiaal. Verder in een uiteindelijk willekeurige richting.” (Karthaus 1981, transl. by the author)

In Delft, Zurich or Texas like everywhere, many practising designers and design educators in (landscape)-architecture have learned and taught analytical methods that inspired their design strategies. In fact a design incorporates analysis and synthesis, all drawn, built in models and even in the actual building. No design can seriously claim to answer the needs of it's users and react to it's context that does not incorporate an analysis. What we thus differentiate here for the sake of logic of my thesis into 'design strategies' (like that of landscape architects, architects, and urbanists in general or OMA, SANAA and Eisenman in particular) and 'analytical methods' (the 4 layer model of Steenbergen and Reh 2003 or the attitudes of Marot 1999) are in daily design practice and education two sides of the one coin. Design and analysis are the of currency in architecture, landscape and urbanism and extend to many other design disciplines. The nuances of that integration though can strongly vary: More or less analytical methods and completely different focus areas can be part of individual design strategies.

For all designers though, drawing is thinking (Treib 2008). This essential fact may not be forgotten in theorising about the development of the discipline of architecture and landscape architecture. Therefore I chose design analysis as a method for this thesis that embraces the practice of drawing at its core as a scientific method.

### 3.2.3 **The 4-Layers Model of Architecture and Landscape**

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In these next two sections I will establish the method chosen to proceed with our design analysis adding to the precedent literature in 1.4. At each selected project, in order to understand ideas and design strategies, we will not simply catalogue landscape inspired projects and divide them into categories. Rather, we will choose specific lenses or filters to understand which landscape ideas are instrumental in architecture and how they work specifically.

There is a trajectory in opposite directions, an entry into landscape architecture from the side of architectural theory, that is connected to the Delft tradition. Steenbergen and Reh (2003) adapted Paul Frankl to the Delft interpretation for their analysis of the great epochs of European garden history. Their book 'Architecture and Landscape' is a compendium of research at TU Delft. Clemens Steenbergen (1990) studied the precedents of the Italian and French Garden of the Renaissance and Baroque (1990) and Wouter Reh (1995), the precedents of the English garden of the Enlightenment (1995) in their respective dissertations at TU Delft. In this work the two authors employed and refined the methods of design analysis executed in the plananalyse tradition of Delft. Their unique contribution to the understanding of garden design lies in the unravelling of its architectural composition, placing it in the realm of design more than in purely historiographic studies, and thus making research instrumental for understanding the spatial workings of designs in the context of design research and education. They recapitulate the essence of Landscape Architecture in a grammar of design instruments by adopting Frankl. (Section 3.1.6)

To try and understand the architecture of landscapes, Steenbergen and Reh have established a set of layers in basic, spatial, metaphorical (or image), and program forms, and explain landscape as a composition of these four overlapping layers (2003). Their adoption of Frankl's model of four polarities (Begriffspare Frankl 1914 p174; Raumform, Körperform, Bildform und Zeckform) onto a four layer model of landscape guides the analytical study of landscape methods in this thesis.

For the purpose of this thesis, I briefly define the four layers of the landscape architectural composition of Steenbergen and Reh (Steenbergen Reh 2003, Steenbergen 2008):

**1. Ground form** is the way in which the natural landscape is reduced, rationalised and activated. In the case of architecture, we must consider here also landscapes that are generated artificially and the tension between grown morphology and built topography.

**2. Spatial form** is about the experience of the landscape space, including circulation paths, framings, and picturesque compositions. The relation and manipulation of the horizon is an essential design aspect to this layer.

**3. Image or metaphorical form** is the use of iconographic and mythological images of nature, always connected to the other layers and mostly represented in one of the others.

**4. Form of the program** is the division of functions and organisation of their relationships influencing the composition. The programmatic form incorporates the tension between business (negotium) and contemplation of nature (otium) in a constant search for balance from the classical landscape up to our times.

For each approach and in each specific design, many types of drawings, often experimental ones, have to be executed to unravel the formal qualities specific to that layer. But besides the decomposition and unravelling into more essential layers is the interrelations of these layers that form a composition.

After filtering and layering separation, the essence in this form of analysis is the composition of the layers. Steenbergen and Reh enrich the plananalyse approach of reduction into different layers by focusing on the interdependence among these layers. Their emphasis on the composition compares to the models of Ian McHarg (1969, quoted in our section 2.3.1.) and his following tradition. The interrelations of layers identified by Steenbergen and Reh as the landscape architectural composition is the essence of the design, not each reductive layer on its own. In this unique and, for purpose of operability, simplified model, the holistic aspects of a landscape composition can be worked out by unravelling and recomposing a specific design. The complexity of the 4-Layer approach is essential to Landscape Architecture. It was used and refined in many subsequent research investigations at the Delft Landscape Architecture chair.

In parallel to this thesis four of my colleagues at the chair have each studied a different subject of landscape architecture with a similar approach. We corresponded regularly about the development of the methods. In order of publication Saskia de Wit adopted the method for the Metropolitan garden (de Wit 2014 p. 137-143 and p. 354), Steffen Nijhuis for the Garden of Stourhead in relation to Geographical Information Systems (Nijhuis 2015 p. 48-56), Inge Bobbink for the Landscape Architecture Dutch Water Systems (Bobbink 2016 p.35-44) and René van der Velde for Brownfield Park-Designs (Van der Velde 2018 p.66-68).

An important aspect Rene van der Velde was missing in the original method for his analysis of urban parks was the social aspect. He concluded that that was a flaw of the method, whereas Saskia de Wit “would say the method is more about structure, framing than about content, and content like the social aspect ... (would) typically fall under the layer of program form.” (correspondence de Wit 2019). In our discussion, Saskia de Wit pointed out not to “consider the aspects that Clemens (Steenbergen cum suis) did not address as shortcomings, but as content that has as yet not been addressed, to ‘fill’ the method with...” (correspondence de Wit 2019).

In the respective chapters about the form of the program (5.5.4, 6.5.4, 7.5.4) I will focus on aspects of social and political sense a public building makes.

In their forward to metropolitan landscape architecture Steenbergen and Reh (2011 p.8-13) summarised the ongoing doctoral program. From the perspective of their 'Delft Method' of Landscape Architecture analysis this thesis must be seen as an extension onto architecture. In all studies the method reveals the importance of form and structure of design compositions. It is also retrospective into the roots of the methods, stemming from the tradition. This thesis particularly explores "what influence the concept of landscape has on contemporary architecture" (Steenbergen and Reh 2011 p.12) as an extension of their work in the context of establishing it at the connection of the then established master track of landscape architecture in the TU Delft Faculty of Architecture. In our PhD group about the "trias architectonica" (Steenbergen and Reh 2011) the other 4 theses focused on the realm of landscape itself (Nijhuis or Bobbink) or on the relation of landscape and the town or metropolis (de Wit or van der Velde). This thesis focuses on the remaining pair of the trias: Landscape Strategies in Architecture. It is the last piece to circle back to "Architecture and Landscape": While Steenbergen and Reh described Landscapes from an Architectural view, I describe Architecture from a Landscape view two decades later.

While this thesis is the only one of the five to address architecture and it's fully man-made creations, the others involve a stronger natural component. Three focus on designed landscapes, each in a different cultural, temporal and geographical context, while Bobbink looks into landscape architectonic water structures of the polder-boezemsystem which are not designed but grow over time.

The studies of de Wit and van der Velde regard projects in the urban landscape, and even in some cases involve architects.<sup>84</sup>; as such they are more similar to course of study. In her study of the role of the garden in the context of the metropolis de Wit (2014) originally missed the sensory aspects of mostly smaller scale enclosed gardens. De Wit included sensory analysis in an original chronographical method because "at that time" de Wit "considered that aspect to be allocated under all four layers, in different levels of importance." (de Wit 2019<sup>85</sup>).

I see a connection of Steenbergen and Reh's method (as in others mentioned in 3.2.2) in the tradition of the post-modern critique of modernist architecture narratives (like that of Mies van der Rohe in 3.1.8.). They have consciously chosen a more objective formal position - which I follow at first instance not without (at each case and in general conclusion) pointing out how to look further. In my thesis I use the four attitudes (Marot 1999, Chapter 2 of this thesis) within each project to give an extension of the 4 layers method that would critique the project in a wider sense, and engage in contextual issues beyond formal analysis. These attitudes contain questions of social responsibility, relation to the present and the future and the design-craftsmanship of architecture.

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<sup>84</sup> Arne Jacobsen (1902 – 1971) designed at St. Catherines college Oxford a "Hidden Landscape" case analysed by Saskia de Wit (2014 p.170-203) and Bernard Tschumi (\*1944) won an international competition for Parc de La Villette in Paris, a contemporary urban "Brownfield Park" analysed by René van der Velde (2018 p.105-168).

<sup>85</sup> Saskia de Wit writes about her thesis of 2014 in discussion with me, towards completion of my own thesis: "I now think otherwise. The only layer of the four that addresses the direct experience of the design and/or landscape is the spatial layer, which is about the experience of moving through space. (parallel to Sebastien Marots description of spatial structure in ... 'The reclaiming of sites') (Marot 1999) ... I now consider the spatial layer to contain all experiential aspects: visual as well as the other senses." (de Wit 2019).

### 3.2.4 The 4-Layers Design Analysis of Landscape in Architecture

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The practice of analytical drawing follows a certain scheme that informs the analysis in order to understand specific design aspects. In education (section 3.2.2), this may pertain to the understanding of basic aspects of designing a house or a garden. In our case of design research it relates to our research question, in particular the methodological subsidiary research question:

**With which research apparatus can we better understand the idea of landscape and its design strategies, specifically for application in architecture? Which analytical tools best reveal landscape design strategies in architecture?** (Question 1.1.7.).

In their model Steenbergen and Reh combine the analytical and abstract approach of plananalyse (for architecture) with a synthetic and holistic layer composition analysis (for landscape architecture).

In the following three study cases (chapter 4, 5, & 6) I will test and elaborate on applications of these distinctions and recombination of layers. Then we can ascertain if the chosen model clarifies if and where the landscape analogy influences the architectural form of selected projects. In the analyses of study cases, I flip Steenbergen and Reh - from architecture to landscape architecture - to define my model of choice and to analyse and understand architecture as landscape.

One important aspect of design analysis for this thesis identifies different approaches to landscape in architecture and makes them comparable. This is reflected in standardised drawings throughout the three case-study chapters in regard to most types of drawings using the same drawing techniques, similar scales, lines, colours, and projections. During the course of the research, I found that each project actually deserves an individual type of drawing - something specific to an underestimated or overlooked landscape quality that parallels particular research gaps that I identified. As a result, in the three chapters I propose for each case an individualised representational method, which is a unique experiment beyond comparative analytical drawing. Both the four comparative layers of analytical drawings and the specific experimental design analysis are in my opinion essential to a wider understanding of these three projects, and are the essential research contribution of this study.

While analysing the projects under a certain aspect, one could easily over-interpret or completely misunderstand the intent. Beyond my own interpretation of architecture projects with landscape methods, I still find it essential to understand the design process, the implications and difficulties of each project from the perspective of its designers. I therefore interviewed each architect at length in parallel to my own analytical work.

The crucial point of analysis, as explained in the previous section, does not only focus on the layers but also their interconnection. Separation is the reductive filter needed to see clearly. But only through overlaying the separated layers and reading the interrelations in between them, one will be able to understand a composition scheme. Only in comparison will I be able to discuss how similar landscape compositional relationships between the layers are used as strategies in designing architecture.

The 4 Layer Model or Delft Method of Landscape Architecture analysis is often criticised for its limitations onto formal and compository aspects of landscape architecture. While this is indeed inherent to the analytical model, and partially also a result of its historical roots, I understand landscape strategies as they work in architecture in a wider field beyond just their formal aspects in the next section.

TABLE 3.2.4 Research Framework Landscape Strategies in Architecture

| Research Framework  |  |   |  |
|---|--|---|--|
| 4-layer design analysis (Steenbergen & Reh 2003)  |  |   |  |
| Ground form   | Spatial form   | Image form  | Program form   |
| is the way in which the natural landscape is reduced, rationalised and activated. In the case of architecture we must consider here also landscapes that are generated artificially and the tension between grown morphology and built topography.  | is about the experience of the landscape space, including circulation paths, framings, and picturesque compositions. The relation and manipulation of the horizon is an essential design aspect to this layer.   | or metaphorical form is the use of iconographic and mythological images of nature, always connected to the other layers and mostly represented in one of the others.  | is the division of functions and organisation of their relationships influencing the composition. The programmatic form incorporates the tension between business (negotium) and contemplation of nature (otium) in a constant search for balance.   |
| Landscape attitudes (Marot 1999)  |  |   |  |
| Anamnesis   | Process  | Sequencing  | Context  |
| Anamnesis integrates the history that led to the present state of landscape. Traces of history are readable in landscapes as a set of strata or as a palimpsest. This is often represented in layer models. Describing also the wider temporal relationship of a project with the past and future of the site. (ch. 2.3.1.) | Landscape process focuses on natural and induced dynamics of landscape transformation. Effects of nature but also design strategies prepare a site to grow in a certain direction. Landscape process describes the actual ecological, anthropogenic, and seasonal changes of a landscape over time. (ch. 2.3.2.) | New dynamic changes our perception of and relationship with landscape. Sequencing is the design of visual sequences. The route through a landscape is a crucial part of any landscape design. Wandering through landscapes can be translated into individual buildings or cities as a whole. (ch. 2.3.3.) | A landscape does not just react to an existing context but landscape design generates a context in and of itself. This design attitude generates dense functional, visual and spatial relations and constellations. Designed landscapes oftentimes define their own limits and field of intervention and determine the context. (ch. 2.3.4.) |

### 3.2.5 Understanding Landscape Design strategies with attitudes

The research framework (Table 3.2.4.) for this thesis is twofold. While the formal analysis (as described above in section 3.2.4.) is important to understand landscape forms<sup>86</sup>, the deeper question of this research is whether landscape strategies also contain a different attitude towards architecture in domains beyond form-making - to promote a certain social vision, an idea of change of their own function in the world and a position towards the discipline of architecture or it's future relevance. To look beyond the formal implications of landscape design strategies, in each case I use the same four attitudes (Marot 1999) that I use to describe the wide and rapidly evolving collection of strategies of landscape design (in section 2.3.). Although these partially overlap<sup>87</sup> they are sufficiently different in a focus on the inner composition of four separate layers (Steenbergen & Reh) as opposed to a focus on various aspects of context (Marot) explored in four different angles as attitudes.

It is not by chance that the two theories combined in this framework arise in a similar period of time than the projects I analyse with them. Numerous links exist between architecture scholars like Steenbergen and Reh who thought for two decades in the architecture faculty of Delft and Marot teaching and publishing in architecture and urban theory in several French speaking faculties. Both theories are developed approximatively in the same two-decade period<sup>88</sup> (1992-2014) I look at in

<sup>86</sup> As Meto Vroom notes in *Leren Kijken* (2014), among Dutch research on Landscape Architecture the "Delft School" founded by Steenbergen & Reh was the first to concentrate on the form.

<sup>87</sup> for example in spatial-form (Steenbergen & Reh) with the notion of spatial sequencing (Marot)

<sup>88</sup> In a recent encounter at EPF Lausanne Sebastien Marot told the author he was currently "teaching permaculture to architects". In fact his lecture series for architecture and urbanism students there develops on the global territorial history of agriculture as a trigger of the development of urban civilisations summarised today also as the Anthropocene.

architecture. The authors exchanged ideas among them.<sup>89</sup> They develop (among numerous other authors) the field of landscape architecture with the scientific context of urbanism and architecture research and education in numerous disciplinary crossings.<sup>90</sup> Landscape architecture theory is rapidly evolving as much as is the need for landscape architecture in our rapidly growing urban settlements. Many find promising new ways to relate the development of the urban or rural domain to landscape theory (recently in phd research of Bélanger 2013 or Skjonsberg 2018, see also 'Landscape Urbanism' in ch. 1.4.2.) and the landscape in the metropolis (afore mentioned de Wit 2014 or van der Velde 2018 see ch. 3.2.3.). My research is projecting a set of theories of landscape architecture not onto urban theory but onto architecture in its more narrow definition as art and science of building design.

The reason for choosing a twofold framework is that the limitation of the 4-layer method of landscape design analysis allow only a 'structural' reading of landscape in architecture. It only shows landscape qualified by its material structure<sup>91</sup>. The building's landscape geometry can be structurally informed as well as their landscape morphology is functionally informed. The qualified approach to form helps me to avoid the danger of superficial interpretations, choices of taste, and phenomenological speculation.

Likewise the relation of architectural design strategies to Marot's attitudes also avoids my own over-interpretation. Assumed or declared landscape attitudes of architectural designers measured on the a baseline of landscape architecture's practise, each differentiated by these same attitudes. It is important that also the non-material instances like concepts, ideas and intentions are compared to each other in a consistent terminology of a common research framework.

The common research framework introduced here is showing the choice of formulation of my vocabulary that I repeat throughout the dissertation in a consistent way<sup>92</sup>. It is introduced with this thesis to architecture to understand its contemporary landscape design strategies. I introduced Marot's attitudes (1999) with the chapter 2 on landscape design strategies and briefly recapitulate them as follows:

**Anamnesis** - integrates the history that led to the present state of landscape. Traces of history are readable in landscapes as a set of strata or as a palimpsest. This is often represented in layer models. Describing also the wider temporal relationship of a project with the past and future of the site. (Marot 1999, ch. 2.3.1.)

**Process** - Landscape process focuses on natural and induced dynamics of landscape transformation. Effects of nature but also design strategies prepare a site to grow in a certain direction. Landscape process describes the actual ecological, anthropogenic, and seasonal changes of a landscape over time. (Marot 1999, ch. 2.3.2.)

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<sup>89</sup> For example a foreword of Marot to the international edition of Steenbergen & Reh 2003

<sup>90</sup> Examples of such crossings are Steenbergen & Reh writing on Peter Eisenman's architecture (2011 p.424) or Marot writing on Elements of Architecture (in Koolhaas 2018).

<sup>91</sup> Comparable to "the charter of elements" introduced in simultaneous phd-research by my colleague Matthew Skjonsberg 2018 p.407, to whom I owe advice on this paragraph with gratitude.

<sup>92</sup> I included this section in the final formulation of my thesis thanks to a valuable request of several of my external peer reviewers. I thank them for insisting with their remarks on the continuity of my terminology and am grateful for the chance of clarification in final editing of this thesis for better accessibility.

**Sequencing** - New dynamic changes our perception of and relationship with landscape. Sequencing is the design of visual sequences. The route through a landscape is a crucial part of any landscape design. Wandering through landscapes can be translated into individual buildings or cities as a whole. (Marot 1999, ch. 2.3.3.)

**Context** - A landscape does not just react to an existing context but landscape design generates a context in and of itself. This design attitude generates dense functional, visual and spatial relations and constellations. Designed landscapes oftentimes define their own limits and field of intervention and determine the context. (Marot 1999, ch. 2.3.4.)

Landscape attitudes lack in western canonical architecture. Throughout the history of architecture in the history examples of chapter 3 as a result to architecture's complicated relationship with nature as I will summarise this in the next section (see 3.3.1). The suspicion of the presence of landscape attitudes made me chose three cases by their concept - and not only their formal appearance. After the introduction of each case in chapters 4 to 6 and their analysis again the attitudes will reveal the design strategy. Through the attitudes the landscape methods of each case are related to the making of architecture. Three different practises (OMA, SANAA and Eisenman) are made comparable with a common set of design theory. I do not pretend that the three use the same strategy but rather show their differences. Such differences occur in the form (to be shown in the 4-layer analysis ch. 4.5, 5.5. and 6.5.) as in the attitudes (to be shown in the critique of each design ch. 4.7, 5.7. and 6.7.).

The interviews included in the appendix verify the attitudes, but only to a limited extend. Designers do not always reveal all their concepts. In the Interviews Cornubert would refer to "alchemy" (A 1.1.1), Nishizawa might deny formal landscape analogies (A 1.2.3) or Eisenman might bluntly state he is "not interested in landscape" (A 1.3.2.). This only affirms that each designer has a different strategy and the comparison in attitudes shows varied positions that lead to different treatments of architecture.

The comparison in chapter 7 will again look at relations of attitudes and forms of the projects with the same framework. My differentiating of form and attitude does not mean that one comes before the other. On the contrary: I believe that form and the idea cannot exist without each other. In my research on architecture I assume that pure form is meaningless without understanding it's idea. Also an idea is not architecture that cannot be built.<sup>93</sup> The explanation of strategies in this thesis should not suggest that design is a linear process: The landscape form of architecture is made with landscape attitudes. But when a designer -or a design team - develops a form this also transforms his attitude. Design strategies are not determined ahead of a design but developed ad hoc during a design process. This back an forth -form design to concept and back to design- is essential to any design strategy. A landscape design strategy is twofold like my research framework. The two folds of the framework influence each other. The aim of the framework is to understand architecture designed as landscape - it therefore is adapting to it's research subject - research and design are complimentary but the two should not be confused. This is a research thesis on design, it remains in a critical distance and will also show what's lacking at each case.

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<sup>93</sup> For my understanding of ideas the unbuilt is equal as long as it was supposed to be built. The intent of the architect to build counts more than the collateral circumstances of political turmoil. Often in the reality of architectural production better ideas have a harder time to be realised than the usual ones.

## 3.3 Selection of Case Studies

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### 3.3.1 Summary of historic examples

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In the summary (Table 3.3.1.) I recapitulate the relation of each architecture (theory) to nature or landscape and underline this with a “key quote” or my commentary on the position of nature or landscape in architecture. It shows that the convergence of landscape forms and attitudes lack in western canonical architecture.

My approximative evaluation shows if each theory or building would lend itself to relate to the an analysis with landscape methods according to the 4-layer model of Steenbergen and Reh (2003, ch. 3.2.4.). In a second brief evaluation <sup>94</sup>I estimate how far historic design strategies where relatable to the landscape attitudes of Marot (1999, ch. 3.2.5.). There are six groups of similar evaluations, each representative of a time period:

First group (from antiquity to 1864): A narrow concept of nature prevails at architecture theorists such as Vitruvius, Alberti, Palladio, Laugier and Semper (sections 3.1.1. to 3.1.4) each from a very different time and position revolves around the distancing of nature and architecture in various shades. Semper himself limit the classical period in his idea that all man’s stiles culminated in the Greek peninsula and archipelago in one short period of time. For the relation of architecture to nature various creation myths valuate nature as an ideal. But activation of landscape form in architecture that could be divided in ground form, spatial form, image form and program form remains outside the domain of classical architecture.<sup>95</sup> Also design strategies that would be related to landscape attitudes of contemporary design are not applicable to classical western architecture.<sup>96</sup> Without disputing the value of this concentrated architectural culture, it is quite obvious that in our cultural context, architecture has evolved in a particularly different direction in regard to landscape.

Second group (from 1850 to 1934): Our image of nature radically changes with the discoveries and inventions of the later 19th century under the influence of naturalists like Alexander von Humboldt (1769 -1859) or Charles Darwin (1809 -1882). This also has impact on architecture, be it the populism of nature exhibition structures like Crystal Palace at my example of Paxton or a new phenomenological approach to architecture at my examples of Wölflin and Frankl.

In architectural theory their phenomenological approach is new. So far architects had defined architecture form an internal set of ideas and opposed it to nature - now the perception of architecture becomes guiding. Architects would start to shift to the perspective of the object and consider it’s environment. Theories (like the ones described in 3.2.) would recognise this aesteticial shift. The naturalist view is culminating in Frank Lloyd Wright’s vision of “natural architecture” as the real modern suitable to the American continent.

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<sup>94</sup> The estimate is either √=yes, (√)=limited, (-)=little, or - = no

<sup>95</sup> Note that these forms do develop however in the domain of garden design in exactly this period since the renaissance. But in a parallel and as a separate profession with a rigid disciplinary divide to architecture.

<sup>96</sup> As opposed to ancient non-western architecture as demonstrated i.e. in the excellent Global History of Architecture of by Ching e.a. 2011

TABLE 3.3.1 Summary of historic examples

| Architect         | Featured Text or Work     | Relation of architecture to nature or landscape    | "Key quote" on nature or landscape in architecture   | Landscape forms v.s. 4-layer model <sup>1</sup> | Landscape design strat. v.s. attitudes <sup>2</sup> |
|-------------------|---------------------------|--|--|---|---|
| Vitruvius 50 BC   | De architectura,          | Architecture conceived ex negativo from Wilderness | "to construct shelters ... from a rude and barbarous life to civilisation and refinement"      | -   | -   |
| Alberti 1452      | De architectura           | Harmony in connicitas as natural order             | "The forms ... of buildings contain something excellent and perfect by nature"                 | -   | -   |
| Palladio 1570     | 4 libri dell'architettura | nature as mirror of divine perfection              | "... architecture imitatrix of nature".  | -   | -   |
| Laugier 1753      | Essai sur l'architecture  | Natural human instinct as measure of natural order |  | -   | -   |
| Semper 1860/68    | Der Stil                  | cultural refinement of nature by man               | "Urkunst" man's instinct of making things (Ching)  | -   | -   |
| Semper 1864       | Stadthaus Winterthur      | Classic order, crowned by Pallas Athene            | Human-centred argument for architecture  | -   | -   |
| Paxton 1851       | Crystal Palace            | Integration of building, landscape and park design | Semper critiques as non-architectural. divide between architecture and nature must persist     | -   | -   |
| Wölflin 1886      | Prolegomena               | The beautiful form is conditioned by organic life  | "architecture not independent ... environment, ... garden under rule of architectonic spirit"  | -   | -   |
| Frankl 1914       | Entwicklungsphasen ...    | emphasises the complex interactive forces          | phenomenological and structural critiques of architecture combined                             | -   | -   |
| Wright 1934       | Fallingwater              | House designed in dialogue with waterfall          | "a natural architecture of nature and for nature."   | (√)   | √   |
| Mies 1945         | Farnsworth                | Glass-box open plan building opens to nature       | "Nature should also live its own life"   | -   | -   |
| Le Corbusier 1925 | Plan Voisin               | Bulldozer Urbanism: Destroy Paris for Nature       | rational principles as a "surgical cure" of geometry to organise "naturally" grown settlements | -   | -   |
| Soleri 1973       | Arcosanti                 | Arcology as synthesis of Architecture & Ecology    | urban settlement in desert, bioclimatic design, anti-urbanism, harmonise man with nature.      | -   | √   |
| Le Roy 1979       | Ecokatherdraal            | architecture with time to grow until year 3000     | "Little bits given free to nature, will grow gradually and finally prevail"                    | -   | √   |
| Maaskant 1965     | Johnson Wax               | polder becomes Architecture                        | interaction with landscape in and cultural dialogue  | √   | (√)   |
| OMA 1989          | Kunsthal                  | Dike becomes architecture                          | "...didn't find architecture interesting, but on the contrary landscape represented potential" | √   | (√)   |
| FOA 1999          | Yokohama                  | Inside topographical waves                         | overcomes disciplinary borders between landscape and architecture as an experiment             | (-)   | √   |
| EMBT 1999         | Scottish Parliament       | The Scot – Land - Building                         | Built Landscape expressing political identity of Scotland beyond its political processes.      | (-)   | √   |

1) Are landscape forms relatable to 4-layer model? (Steenbergen & Reh 2003)

2) Are landscape design strategies relatable to attitudes? (Marot 1999)

Frank Lloyd Wright's Fallingwater however I estimate to be the only of my featured example that goes beyond phenomenological interest and could reveal real landscape attitudes in its design strategies. The formal composition could lend itself with limitations to a 4-layer analysis method, but it is still an architectural language at foremost - the natural attitude to architecture remains a postulate even at Wright.

Third group (from 1922-1968): The successful modernist architects as our examples of Le Corbusier and Mies van der Rohe, enhance the divide of architecture and nature with their models of abstraction. They use landscape as a decor for their own formal rigidity. Or they try to eradicate their hated "academism" of existing cities with indifferent greenery. Analysing this amalgam of 'verdure' as landscape form is not what I have in mind nor would I see such this strategy of instrumentalisation of landscape for the promotion of a universally valid international style as a landscape attitude in architecture.

Fourth group (1973 and 1979): The two outstanding figures of Soleri and Le Roy represent a period of radical experiments that also impact the relation of architecture to nature. While the formal language is fully inspired by processes of climatic design at Soleri or of material deterioration at Le Roy their innovation does alter architecture's form in a tangible way. Each develops a radically different attitude towards architecture. They unveil urbanism as destructive for nature and humanity. They counter-attack with a natural architecture of radical consequence. My problem is that formal analysis of such fundamentally different architecture would not lend itself to any comparability. Therefore I estimate them not relatable to the 4-Layer model. I think however they emblematically demonstrate a consequent landscape attitude in architecture. Each would go so far as to abandon all canonical grounds cherished by two millennia of architecture history before him. Only recently have scholars started to understand the consequence of these early deep-ecologists in architecture. I think research about the utopian models of Soleri and Le Roy has a great future, but I see them as outstanding idealists, that remain admired more than formally analysed.<sup>97</sup>

Fifth group (1965 and 1989): Two of a whole series of examples of architecture relate to the specific situation of the Dutch artificial landscape. I have studied these in several courses of design analysis in Delft and Rotterdam (Jauslin e.a. 2010 and Jauslin, Skjonsberg e.a. 2012). While it is very plausible here to dissect and recompose this architecture with landscape analytical methods of the 4-layer approach of Steenbergen & Reh (2003). I see only rudimentary relations to landscape attitudes in these designs' strategic intentions.

Sixth group (1995 and 1998): These two architectural projects fall into my research period (1992-2014) of landscape strategies. I can easily demonstrate how Yokohama Ferry Terminal and Scottish Parliament represent two of many examples of contemporary architecture design strategies that use landscape attitudes<sup>98</sup> (as in literature of 1.4.3 to 1.4.8). However it would not feel safe to fully dissect them into a 4-layer landscape analysis. I think each composition is too particular and unique. Both do not lend themselves to full comparability within my research framework.

I summarised this historic development again to demonstrate how I limit my choice to the three following case studies. This summary relates the chapter 3 to the main chapters 4 to 7. By generations of architects landscape was touched upon but never completed as a fully grown

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<sup>97</sup> Testings of analysis have been executed by the master students of park design of Prof. Adriaan Geuze and myself. See Bachem e.a. 2017

<sup>98</sup> I also note here that these same architects have also created outdoor public spaces and are frequently exchanging between the disciplines of landscape and architectural design.

comprehensive design strategy. Architecture that can be compared to landscape in its formal structure and in its design strategy remains a rare good. In the next section I will further elaborate the three choices that I can best describe fully developed landscape strategies in architecture.

### 3.3.2 Selection of Three Case Studies

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The literature study and the outline of the theoretical relations between landscape and architecture underline the necessity of examining theory-building cases of three projects that apply landscape design strategies to architecture. After the analytical tools are chosen (**previous section 3.2.4 and question Q. 1.1.7.**) the now framed research and its methodology are applied onto three diverse cases.

The aesthetic implications of landscape as spatial phenomenon are broad, and it is not an easy subject. Particularly in the context of design theory and critique, the physical appearance of landscape is often confused with its significance as a category of thought. Designers are thinkers who associate diverse variables and solve complex problems. A solution does not necessarily follow a logic that can be completely unravelled. Perhaps this is why narratives often play an important role in architecture. My students' analysis of many designs in 'Dutch Architecture with Landscape Methods' (published in 2 e-books) showed how landscape method<sup>99</sup> is also a form of narrative (Jauslin e.a. 2009, Jauslin, Skjonsberg e.a. 2012).

Together with the studied literature (chapter 1.4.) I made the selection of three cases after a series of preliminary studies and drawn analytical tests in the first period of my research from 2008 to 2014. The time-frame of the search began with a project realised in 1990 and ended around the time of final selection in 2014. In this time-frame of 25 years, numerous projects were studied and selections were made from an extensive list. In the case of Dutch architecture the selection was more systematic: I relied on the editorial pre-selection of the official Dutch Yearbook of Architecture, where I focused on 2-4 projects from a list of roughly 20 each year that exhibited an apparent dominance of landscape elements or aspects in the design. International projects were selected in a less systematic manner. They were either featured in other literature (chapter 1.4.) or resulted from frequent study of architectural publications and websites, or discussions of my emerging subject with colleagues in and outside the faculty. I visited as many shortlisted projects as possible until 2016. Of 116 projects identified as potentially suitable candidates for further study, 57 projects were visited for evaluation of the final selection. Besides this thesis as an employed researcher in Delft from 2008 to 2015, I authored articles about roughly 20 of the visited projects, many of the Dutch projects in collaboration with students in my courses of design analysis in Delft and Rotterdam. About 16 were published, while a few remain unpublished in earlier draft versions of this thesis. A summary of these visits in a chronological overview had been drafted, but is not included in the final version of this thesis. However, all projects considered in the selection process, including summary commentaries and bibliographical references to the literature and my own publications can be found in the appendix of the thesis (see table in appendix A3).

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<sup>99</sup> The distinction between landscape design strategies and landscape analytical methods was made in this thesis in a final phase. The former title was "Architecture with Landscape Methods" and emphasised the unity of analysis and design. All this is part of the necessary complexity and contradiction in architecture (Venturi 1966) of even the simplest of buildings. But for the final editing of this text "design strategies" are kept apart from "analytical methods".

The methodological approach of this thesis demands an instrumental decision on those cases which seem most operable for our purpose, while maintaining a variety in geographical and urban contexts and the background of the architects. As opposed to the precedent literature studied (ch. 1.4.) that summarises many projects, in this thesis I concentrate on three key examples that are different from other in terms of time, context and authorship.

In order to evaluate how the landscape approaches change the way we understand and create Architecture through methods and strategies, I offer three exemplary cases. In order to understand the evolution of ideas, we need the holistic inner and outer mechanics of the ideas that will provide clear insight of the actual design, rather than a wish-list of possibilities.

If the natural sciences of the enlightenment serve as a reference as I have previously laid out in this chapter, it would be for how we have to explore alternatives to our historically situated designs. We should not look at why there are so many varieties but how they occur and work individually.

I will approach three projects in total with increasing detail of my own research. Consequently the case study consists of only three key projects. Each of them is a particular case that I could study in depth here, each as a full chapter with a study of all the aspects that we established as my own method in this chapter and previously (or simultaneously) tested as ideas across disciplines (Jauslin e.a. 2014) or hands-on Dutch designs (Jauslin e.a. 2009, 2012).

The limitation to three cases was made to reach a greater depth of analysis for each, compared to other literature studied, which in some cases contain dozens of examples.

The three following case studies focus on experiential qualities of the landscape and architectural space. Theoretical insights are advanced through the study of landscape experience as demonstrated through built examples, and vice versa. It is necessary to sharpen architectural theory by better understanding landscape thinking as a framework for design.

A composition of any kind is a successful integration of many variables into a formal strategy. Common to all three projects is their difference, yet shared “will” to integrate diverse approaches to architecture into a unique combination.

Analysis and design prove to be like following the same path but in different directions. Each movement helps understand the other. In two of my publications with Steffen Nijhuis and Inge Bobbink (2011 & 2012), we described ‘a mirroring process’ of research by design and design by research. As such, research always invites an ‘experimental moment’ and thus becomes a creative process in our experience more than is generally assumed.

One way to enhance understanding of architecture is visiting and experiencing the space and its context. I attempted to enhance my understanding of the case study projects with critical interpretation of each project’s composition as landscape. Of the many projects I visited or studies in literature I have decided on the following three that I studied for years with increasing intensity. All those I left behind contributed to the focus to the three I selected.

