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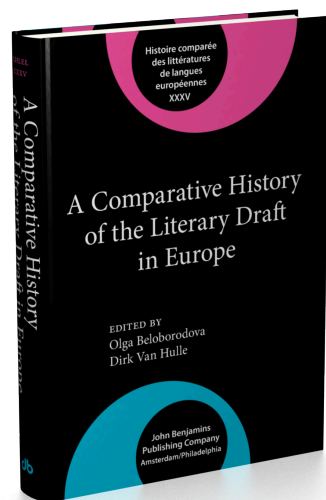
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2.3.3 Architecture

The culture of building

Eireen Schreurs & Lara Schrijver

This chapter addresses architecture as a cultural and visual medium, in which the design process is typically hidden in office archives and the multiple media of design genesis. In modernist architecture, the architect was seen as a visionary genius and a semblance of “purity” was integral to understanding a building’s design. This stands in contrast to how buildings have historically come to be: it neglects the many actors and elements that “construct” the final project, from materials available to local building habits and from contractors to codes and regulations. Revisiting the design process from the perspective of genetic criticism allows a review of the multiple paths that are brought together in a final, working drawing from which the contractor can begin to build. This chapter addresses the pre-construction design phase from initial sketch to final plans in order to reveal how different media intervene in the thought process, and how building cultures express themselves in the result.

Keywords: architecture, design process, material culture, cultural codes, building cultures, visual analysis

Introduction

Since the rise of modernism, the visionary genius has been at the heart of architecture’s discourse, with a tradition of attributing the great works of the (increasingly contested) canon of architecture to singular figures. This approach disregards the presence of a great number of people included in the execution of the built environment, from contractors to patrons and draftspeople to the public. As the ideological principles of modern architecture begin to fade, a rethinking is taking place of both how the discourse is constructed, and how the built environment is positioned in relation to cultural presuppositions.

Genetic criticism is a valuable approach to understand the development of a project and the various stages of the creative process. For individual projects and for oeuvres, this is equally helpful in architecture, even when taking into account the other media used for developing a project, such as drawings, models and calculations. A further dimension can be added by including a variety of documents present in the archive, such as material studies and reference projects.

In this chapter, the broader framework of visual analysis and material studies is used to demonstrate a number of approaches to architecture opened up by genetic criticism. Within a particular historical period, an office archive (or the architect’s sketchbook) can provide insight into specific design problems being addressed, or technological advancements being incorporated in the design field. Within an architect’s oeuvre, the genetic development of an individual

project may show the importance of contingent factors, such as intended use, budget constraints, and contractors. Through a few examples, some of the additional insights derived from this approach will be revealed. In particular, the work of Henri Labrouste (1801–1875) on the reading room of the Bibliothèque nationale de France (1862–68), displays a transformation in design principles through the material conditions of iron. Likewise, the work of Otto Wagner (1841–1918) evidences a particularly modernist approach to architecture through principles of industrial fabrication in the “Postsparkasse” [the postal savings bank] in Vienna (1904–12). Finally, a home and library addition (1956/1989) by Oswald Mathias Ungers (1926–2007) suggests the tension between an idealised architecture and the constraints of everyday use.

Following the principles of genetic criticism as laid out in this volume, architecture presents a somewhat hybrid condition, as its results not only can last far beyond a project’s originally envisioned intentions, but are also often repurposed, cloaking the origins of a building. This stands in contrast to, for example, a re-issue of an original manuscript that might otherwise sit in a library. Simultaneously, we can argue that the built environment provides an index of its time, showing not only what is new and of interest, but also what remains in use. In this sense, the built environment shows what is “beneath the surface” of explicit cultural values. As Siegfried Kracauer argues in the *Weimar Essays*: “The position that an epoch occupies in the historical process can be determined more strikingly from an analysis of its inconspicuous surface-level expressions than from that epoch’s judgments about itself” (Kracauer 1995: 75). Considered in a broad sense, architecture includes not only the creative art of building, but precisely this “inconspicuous” expression of societal habits in the built environment.

While some histories of architecture take into account this broader understanding of the built environment, the more canonical history of modern architecture is focused on the creative process of the architect – exploring sketchbooks and final buildings as autonomous constructions, arisen from the particular genius of architects. This type of history fails to take into account the broader constellation of actors that create the built environment. It is these multiple contributions as well as the importance of reception by an audience that leads architect and thinker Stan Allen to draw parallels between architecture and allographic disciplines such as composing music and filmmaking. For Allen, both the techniques of notation (whether in music or in working drawings) and the projection of (aesthetic) effects, contribute to a language that enables others to share ideas and realise collective projects (Allen 2000: 33–35; 64–68). It is through this broader network of actors and contributors that the subconscious dimension of architecture takes shape – as the various contributions of not only explicit (and disciplinary) values are incorporated, but also the habits and unstated values of a broader, implicit sense of culture.

To understand this, we examine three particular approaches in architecture, in three specific archives. They are however not to be understood as purely individual oeuvres, but rather as examples of approaches and assumptions that flow throughout the field of architecture. For instance, the design for the reading room by Labrouste demonstrates how the field is entangled with technical and material conditions, exploring new opportunities for design through the development and incorporation of iron as a building material.

Engaging with new realities: Labrouste and the Paris reading room

The Bibliothèque nationale de France (1857–1868) by Henri Labrouste, as well as his earlier library design of the Sainte Geneviève, is famous for the innovative handling of iron as an exposed structure (Bergdoll 2000:182). The libraries were built amidst a lively debate on the question of the appropriate form for iron, an issue that collided with a communal search for a style that would fit the industrial era. As yet, iron constructions had not been exposed in representative buildings, which were traditionally constructed of stone; this as a consequence had determined the architectural language for monumental works. For each of the libraries, Labrouste designed an iron structure that was so slim and elegant it seemed to dematerialise, creating a spatial effect that prefigured a modernist sense of space. The first of the libraries, the Sainte Geneviève (1838–1851), was used to test an exposed iron roof structure with a row of free-standing columns in the centre of the room, that was surrounded by a solid circumferent wall structure. For his second library project one would have expected Labrouste to pick up from where the Sainte Geneviève had ended. But a more detailed look at the design genesis for the Bibliothèque nationale demonstrates that many design steps were necessary to take the iron structure a step further. The development can be traced in the series of around twenty-five plan drawings that show a process full of trial and error, and that the innovation in fact came about through a slow process of development rather than it being a single stroke of genius.

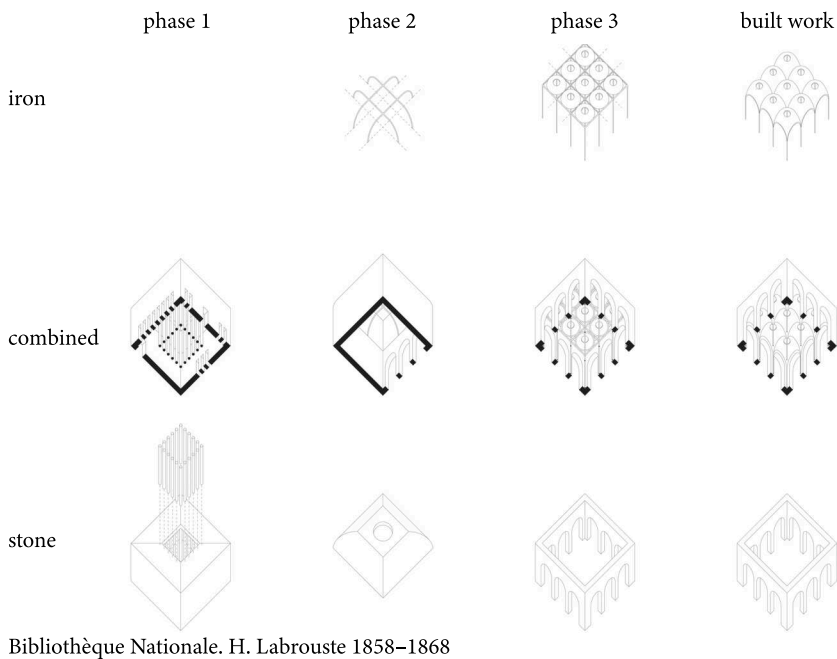


Figure 1. Henri Labrouste, Bibliothèque Nationale, design phases. Drawing: Georgia Xypolia

The plan series held at the BnF Gallica is archived without dates but can be put into sequence when combined with sketches in Labrouste's *carnets de croquis* at the Académie d'Architecture, to reveal the different design steps (Labrouste archives, BnF Gallica and Académie d'Architecture).

When Labrouste started his design for the plot in the heart of Paris, of which the perimeters had been set by existing facades, the first freestanding columns that appeared in the project were actually envisioned in stone. They took centre stage in one of the earliest plan versions, where a centrally located courtyard organised the plan. The courtyard was surrounded by a peristyle with around twenty columns, approximately one meter diameter each. In a second design phase, this space was replaced by the reading room, lit with a single rooflight and a rather conventional iron dome structure, spanning the whole of the hall. Labrouste presented this proposal to the client – a committee that included amongst others his colleague, architect Felix Duban, and the well-known writer and historian Prosper Mérimée. They liked the design but were afraid the single rooflight would cause visitors to cast shadows on their books. Labrouste reacted to their concerns by testing several changes at the same time. In a third phase, he added large arched windows in the wall above the entrance, a geometry that recalled the fenestration in the Sainte Geneviève library. As in the earlier library, the arch form was duplicated in all the stone walls, filling the arches with bookcases. His move however diverged from the initial design: Labrouste flattened the domed roof, thereby exposing the iron structure that consisted of 3×3 iron beams so that it now visually cut the ceiling into nine equal sections, allotting each a separate rooflight. Both the adding of vaulted windows and the nine rooflights increased the level of daylight in the room and optimised the light quality. Each crossing of the roof beams was supported by an iron column. The columns along the perimeter held up a balustrade that allowed direct access to the bookcases. The remaining four ended up in the centre of the room.

In a final design move, Labrouste transformed his initially rather conventional dome with a concealed iron roof structure into a room with exposed iron columns and beam structure, dramatically lit by multiple rooflights, a proposal without precedent. There is a section of this proposal in the archives that has been drawn out in considerable detail, which leads us to suspect that Labrouste considered leaving it at that. We know that the construction had already begun, and the foundation drawings had been prepared, so large changes were no longer possible. But it might be telling that the proposal was drawn in pencil, not in ink, and many sketches in his *carnet de croquis* hint at the fact that he was not satisfied. These sketches reveal a reiteration and reworking of the scheme that revolved around the question of how to combine two different structures: the arched stone wall structure with an orthogonal iron grid. Both constructions functioned independently, but they nevertheless met at different points. The project falls into place when he bends the iron structure, to form nine cupolas, aligning with the arched walls. This is the plan that was ultimately built, and that would be marvelled at by laypersons and professionals alike, as an example of how iron is capable of introducing fundamental innovations to architectural language.

Symbolising a changing profession: Otto Wagner and the Postbank

The example of the Postsparkasse (1902–1906) by the Viennese architect Otto Wagner brings another aspect of the genesis of architecture to the fore, which concerns the building process itself, with all its constraints but also unexpected possibilities. This process is typically very complex with many factors and actors, making it very difficult to disentangle influences. Construction often starts before all the details have been drawn, and building time and building costs can never be but estimations, which have to be readjusted time and again during the process. Contrary to Labrouste's process with the Bibliothèque nationale, Wagner had to deal with a client whose interest was mainly in keeping the project within budget and finishing it within the allotted time, leaving the responsibility for design quality to the architect. For Wagner's project, the monthly project meetings, the so-called "Baukomitee Sitzungen" with the client, are a crucial archival source that allow for a glimpse into the process that appears to have influenced the final result quite significantly, even in terms of its innovative aspects. The Postsparkasse, with a focus on the design of the Sparkasse hall, serves as an example of how innovations can arise through the versatility and opportunism of the architect, who recognises a problem as a generator of new ideas.

The hall formed the central courtyard of the large office building, which traced the perimeter of a complete urban block. Wagner planned this double-height room as a public space. Its glazed roof provided it both with ample daylight and elegant proportions, as well as allowed for it to be properly heated.



Figure 2. Otto Wagner, Postsparkasse, interior in 1910. Bildarchiv Foto Marburg

High above, a second glazed roof also functioned as some form of architrave to crown the Sparkasse, which was in fact quite a bombastic gesture aimed to draw attention to the building from the point of view of the Ringstrasse. The minutes of the client meetings show that the committee objected to the double roof system, officially for reasons of hygiene, arguing that the ventilation of the offices bordering the inner courtyard could not be guaranteed. In reality, the external roof would have competed with the war ministry that was planned on the opposite side of the Ringstrasse. Wagner subsequently “sank” the second roof into the courtyard, resulting in a much more restrained and modern front façade.

A second instance of this versatility entailed the cladding of the iron columns that Wagner had placed in two rows in the Sparkasse hall, which supported the glass roof but also accentuated the spatial differentiation between centre and side bays of the room. The initial plan was to cover the lower part of these columns with custom-made aluminium rings, a metal that had been recently introduced on the building market, with the advantage that it needed no paint, and that it looked decidedly novel. Unfortunately, these properties were also reflected in the price. In the meeting of 22 December 1905, Wagner announced a slight problem: his initial idea to pour the aluminium rings so that they could slide over the columns without visual bolting would be outrageously costly, 520,092 krone, on a total building cost of 3 million krone building credit, swallowing up all reserves (Baukomitee Sitzung, 22 December 1905). Wagner proposed a number of minor budget cuts, amongst others of the timber finishing, but the client would not be fooled, and stated that more drastic measures were needed.

What happened then is what happens with every budget cut: the architect has to rethink their priorities, come up with alternatives, and do it fast. Over the Christmas break Wagner omitted the aluminium from everywhere but the most public part of the building, and for the columns he designed an aluminium cladding system consisting of small plates, screwed to the column with screws that remained exposed. The decision to openly show the assembly process was made based on an argument that Wagner had developed before in his earlier Stadtbahn project, the first metro system in Vienna. From this project he had come to the conclusion that the proper way of expressing iron was to express its distinguishing quality, being that of its quick assembly, which would best be expressed in showing the rivets, which were at the same time ornamental. In the Sparkasse building Wagner had first put this principle into practice by symbolically “bolting” the marble plates on the façade with aluminium bolts (in reality they were iron screws with an aluminium cap). Since the aluminium tender also included these bolts for the façade, priorities were set on exterior and interior at the same time, creating alliances and congruences. Thus, the budget cut led to the introduction of “bolts” for the columns, where they were used both for practical reasons, to fasten the aluminium cladding, but also as ornamental devices that enabled him to continue the façade grid in the Kassesaal, creating a new type of public interior. Only two weeks later, in the meeting of 5 January, which was specially dedicated to the question of the aluminium, the new proposal of 430,406k (still 100,000 over budget) was accepted, and the project was finished half a year later.¹

1. Although it is unclear whether Wagner proved susceptible to the suggestion in the minutes that he retract his final and extra invoice to offset the budget overruns, the very mention of this possibility by

Balancing ideals and reality: O.M. Ungers' Quadratherstrasse

In 1989, O.M. Ungers began work on an addition to the house he had designed for himself and his family in Cologne. The house itself, completed in 1959, was already a constellation of different spaces, with office space for Ungers and two small apartments for rent included in its overall composition. By the 1980s, the family had spent roughly a decade in the United States, where Ungers had been appointed professor at Cornell University in 1969. Upon their return, the apartments were incorporated into the structure of the home, with the office primarily situated on the ground floor. A growing need for more space for the office and the expanding book and art collection resulted in a design for an addition at the side of the house.

This addition has been published widely, a striking object with its austere and closed exterior, a perfect cube situated at the end of a rather unassuming row of single-family homes. In most publications, it is typically referred to as a perfect rendition of the architectural severity with which Ungers approached projects (Lepik 2006: 31–34, 97–100). The idealism of perfect geometric form is found in several of his projects, though the Quadratherstrasse presents it most clearly. The overall volume is cubic, with a nine-square grid organising its floor plan.

What the archive reveals is a dimension not present in the publications: the struggle between intended use of the space and its idealised form. In early sketches, the nine-square grid is present (as far as can be seen, this is present from the beginning), but the use of the spaces varies in the sketches. Even without an accurate timeline in the sketches, a number of iterations show how possibilities of use and circulation are studied, with toilets, stairs and building facilities being forced into the dimensions of the grid.

In one iteration, a kitchen and dining room are set on the top floor of the cube, suggesting that there was a design phase in which the office and the residential spaces were being reconfigured throughout the original house and the addition.

Compared to the later execution of the cube as a library, these sketches show how the preliminary idea of a perfect cube, as a complement to the house, took precedence over other considerations, structuring the internal arrangement of the spaces to the point that relatively few possible infills remained. The more everyday uses of residential space each seemed to remain at odds with the idealism and sacrality of the space as articulated in the gridded drawings of Ungers. In each step, “trivial” uses were pushed out of the cube, until what remained was the pure, intellectual function of a library – shelves along the perimeter of the space, and study desks around the centre.

Interpreting these drawings as heavily centred on geometrical interests is informed by the work of Ungers in general. In his texts, he regularly referred to geometry as one of the core conditions of architecture, and he even published a small book on squares in the world at large, a combination of Bruno Munari's *The Discovery of the Square* and a series of formal explorations of the square in architecture (Ungers 1986). Some of his writings refer to classic geometries as

the client recalls an ancient Greek principle referred to by Vitruvius, that the architect be financially responsible for budget overruns of more than 25% (Vitruvius 1960).

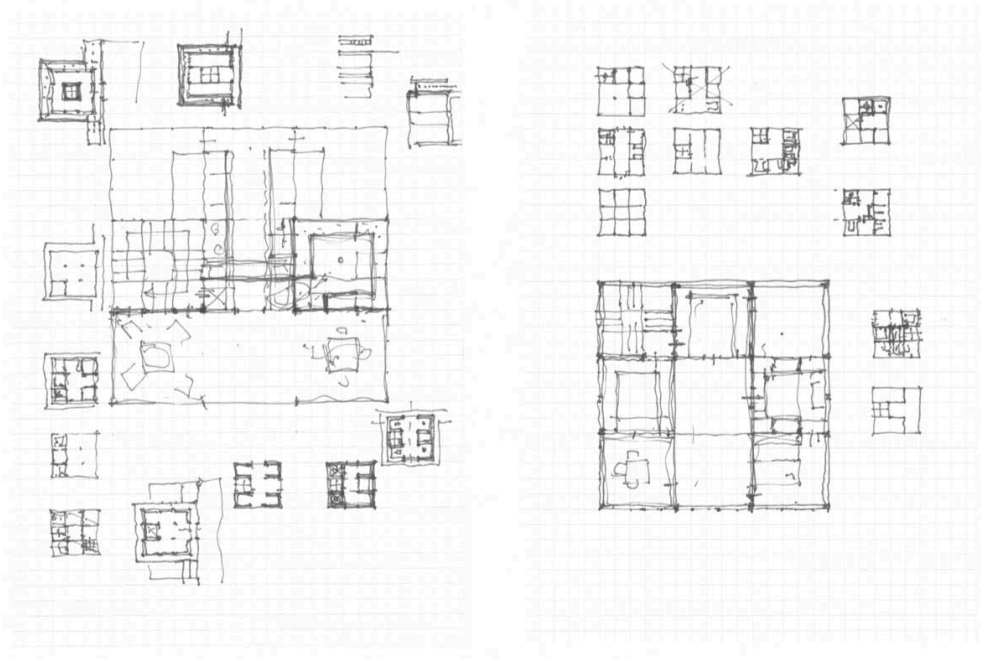


Figure 3. O.M. Ungers, Quadratherstrasse library addition, design studies
 Ungers Archiv für Architekturwissenschaft

articulating a sense of composition, while others focus more on the ability of strong geometries to provide a framework that allows for changes within (Ungers 1980).

Visual and material archives: Tracing developments beyond the verbal

Some discoveries about the design process and the impact of other actors or changing conditions as shown above, are due only to the possibility of tracing a project's development through archival research, including not only the drawings, but also minutes of design meetings. In the case of Labrouste's reading room, the subsequent iterations show how a material is steadily incorporated into the design, transforming an initial idea into a material dialogue that illustrates a particular period in history, when the design process of architecture was increasingly affected by material and technical developments. In the case of Wagner's Postsparkasse, a specific problem of budget and execution led the architect to adapt the design in order to reduce costs and avoid delays in construction. In the case of the Quadratherstrasse library addition by Ungers, even without an accurate chronology of the sketches, the process of "purifying" its functional use is eminently clear in the multiple iterations of possible infills.

The approach of genetic criticism helps to place the contribution of a visionary individual within a broader disciplinary perspective and provides deeper insights on the priorities and habits of design thinking that facilitate the transformation of an idea into concrete reality. As

publications on preferred architecture projects have typically focused on the idealisation of the project-as-built, this aspect of genetic criticism provides a great benefit in understanding the procedural and contingent aspects of the design and execution of buildings. Creative thinking often departs from difficulties and constraints, seeking to articulate an idea precisely in the face of reality.

Additionally, this approach to understanding the genesis of a project encourages the foregrounding of not only constraints in the process, but also the multiple actors that contribute throughout. In essence, genetic criticism helps to (partially) open up the black box of design, in order to reveal the many considerations that go into the realisation of these large-scale practical, structural and artistic ventures.

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