How Buildings 'Surprise':
The Renovation of the *Alte Aula* in Vienna

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Can old buildings faithfully transmit social meaning? Conservation studies have taught us for decades that buildings are valuable for their historical substance and symbolic value gradually acquired with time. Drawing on an Actor-Network-Theory-inspired perspective to tackle buildings, this article questions the philosophy of preservation studies and their definitions of building and agency. Following the process of renovation of the 17th century *Alte Aula* in Vienna, I explore its dynamics and unpredictable drifts. Renovating is not about transforming a passive and subservient object; it rather offers an experimental situation in which one can witness the building recalcitrance, i.e., its capacity to manifest itself as disobedient as possible to the protocol of renovation, to resist the attempts of control and to 'surprise' its makers. A building is, I argue here, a complex mediator that skilfully redistributes the agency among human and non-human participants in renovation, provokes contextual mutations and transforms social meanings.

Keywords: renovation, ethnography, building agency, ANT

STS approaches to buildings

Over the last ten years, science and technology studies and urban studies engaged in a stimulating exchange of ideas that led to some fascinating debates cross-fertilizing the two fields (Mukerji, 1997; Aibar and Bijker, 1997; Galison and Thompson, 1999; *Osiris*, volume 18, 2003; Picon and Ponte, 2003; Livingstone, 2003; *Osiris*, volume 19, 2004; Hommels, 2005; Gieryn, 2006). Arguing that it is surprising that buildings have been so rarely theoretised by sociologists, Gieryn (2002) engaged in a series of studies of scientific buildings, tackling the relationship between quality of space and quality of science and scientific identities, between design principles and design process, accounting the different participants in design venture and their negotiating strategies (Gieryn, 1999). These studies strove to enrich *post hoc* readings of finished buildings by reconstructing (through interviews and archives) the design decision process that lead to their physical construction. Drawing predominantly on the conceptual tools developed by the constructivist studies of technology to investigate buildings after-the-fact of their construction, not *in the process* of designing, these works

tackled design and planning as a form of technology, and buildings as socio-technological artefacts. Yet, a particular subject still seems to be left aside: the actual dynamics of architectural design process and its material, cognitive and cultural dimensions. In addition, design-related practices that include building adaptation, conservation, repair, redesign, addition, and refurbishment are often ignored in the studies of original design processes (Brand, 1994; Graham & Trift, 2007).

Recent STS research has tackled the practices of designing engineers in the same way that science studies have followed the practices of scientists (Latour and Woolgar, 1979; Lynch, 1985; Knorr-Cetina, 1999). Emphasising the complex social dynamics of design (Vincenti, 1990, Ferguson, 1992; Bucciarelli, 1994; Henderson, 1999; Vinck, 2003) these studies contributed to a better understanding of the visualisation practices, instruments, communication and design environment, as well as the distributed cognition and the material culture of engineers at work. However, little is still done to account the practices of designing architects from an STS perspective. Science and technology studies remain to a great extent indifferent to architects and urban planners, and their activities in the design studio, in the model shop, at public presentations, and on the construction site. In a series of programmatic articles Michel Callon advocated the importance of an Actor-Network-Theory (ANT) perspective for the understanding of architectural conception focusing on the materiality of design as a world of graphs and strategies of visualisation, grounded in negotiations (Callon, 1996, 1997). However, no detailed studies of architectural practices, as seen through an ANT limelight have followed. Exceptions are the studies of a Dutch and a Japanese practice that drew on an ANT approach to account the successive operations of design and visualisation in the offices of Rem Koolhaas (Yaneva, 2005) and Kengo Kuma (Houdart, 2006). Different criticisms of Callon's programme were addressed from theoreticians of architectural practices (Raynaud, 2001). Nevertheless, no empirical alternatives were suggested even though the interest in the logistics of the architectural projects has grown (Bonnet, 1997; Prost, 1999) and these were always tackled in the traditional lens of sociology of the architectural profession (Champy, 2001). In the English-speaking world, too, a more traditional sociological perspective was applied to understand the social underpinning of design and production activities (Blau, 1984), or the products of architectural design as socially constructed in negotiations among architects and an array of contributors (Cuff, 1991).

Presuming that "the results of anthropology of science and technology are *transportable*" to architectural studies (Callon, 1996: 33), this article draws on the Actor-Network-Theory as a method that was originally developed by STS scholars to tackle science, technology and engineering practices, but has been already taken outside of its privileged domains of action and used as a method to look at other fields as varied as the music amateurs and drug addiction (Gomart and Hennion, 2002). Using an STS perspective would not mean to tackle buildings as technical or scientific artefacts, but rather mobilise the ANT tools and its persistent ambition to account and understand, not to replace, the objects of architecture, its institutions and different cultures (Latour, 2005).

Following the difficulties, unpredictable turns, surprises and drifts in the process of renovating and transforming an old building in Vienna—the *Alte Aula*—the article aims at shedding light at the social and cognitive complexity of 'renovation in the making'. It argues for the important *mediating role* that an old building can play to guide, afford, redirect and facilitate to a grater extent the course of this process instead of being passively submitted to renovation interventions. An ANT-limelight to the process of building renovation allows us to gain a different definition of building and agency.

How to study buildings as non-stabilised entities

In 2000, the Viennese architect Rudolf Prohazka was commissioned to renovate the 17th century building of the Old University of Vienna, known as the *Alte Aula*. This building is a part of the university quarter built in 1623 when the Emperor Ferdinand IV entrusted the theological and philosophical faculty of the University of Vienna to the Jesuit Order. The building at Backerstrasse 20 was used at the time as a college building that also served to host university festivities and theatre performances, and accommodated different programs throughout the centuries.

In the summer of 2004, shortly after I began to work for the Austrian Academy of Sciences which currently manages the *Alte Aula*, I decided to follow its renovation process and its architect on his way to redesign and restore one of the oldest buildings in the centre of Vienna. The building was supposed to accommodate a science museum of new type—The Gallery of Research. The aim was to understand the complexity of renovation by accounting the efforts of a variety of human and non-human actors enrolled in it: the Federal Office for the Protection of Monuments (*Bundesdenkmalamt*), the Ministry of Economy and Labour (*Bundesministerium für Wirtschaft und Arbeit*), the *Bundes Immobilien Gesellschaft, (BIG)*[1], a special department of the Ministry of Economy and Labour responsible for the management of public buildings in Vienna (*Burghauptmannschaft)*[2], the building company *Swietelsky*, the architects, the preservationists, the clients, the building facade, the natural stone used for the floor, the columns' grid, the fresco, and the layers of paints. Two of my collaborators and myself followed these actors at numerous places of planning, discussion and negotiations throughout the whole process until the final completion of the building in 2006 and witnessed how they engaged in the long lasting venture of reshaping the building and redefining it time and again, how they expressed their concerns, modified the criteria, communicated their expectations and engaged in negotiations. Following these actors, I was able to account renovation not as a series of personal 'heroic' battles of an architect with the unchangeable 'historical substance' of an old building, but rather as a collective venture—tentative, difficult, and controversial—to reshape and redefine, rephrase and re-establish the building of the *Alte Aula*.

When I say 'historical substance', I refer to a bulk of definitions of historical buildings in conservation and preservation studies. Striving to define the buildings' meanings and justify their protection, conservation studies argue that old buildings should be preserved because they are valuable

for their architectural quality, 'patina of age' (Ruskin, 1989), building substance (*Bausubstanz*), symbolic significance, 'age-value' (*Alterswert*). They implied that the 'traces of age' and the signs of premature aging (Dehio and Riegl, 1988) are the qualities considered as being the most important features of historical buildings that guarantee 'originality' or 'authenticity'. Structural integrity and spatial stability are considered as distinctive qualities of buildings, as compared to other cultural objects (art works and valuable objects) and are conditions *sine qua non* for buildings to acquire significance and meaning. On the other hand, buildings are regarded as important 'documents', evidences of social history and 'monuments' of collective memory transmitted over the centuries and this gives preservationists another reason for protecting old buildings. Conservators often face the dilemma of 'preserving the building fabric', i.e., its architectural quality that had been initially planned by architects and builders, or 'preserving the readability of history' so as to retain all the conservation interventions and traces of history on the building surface readable and recognisable. Focusing their efforts on identifying the symbolic value, original substance and historical layers of old buildings, conservation studies interpret them only on the basis of what they are and what they mean, eluding to account their potentials to act, to change, and manifest their agency in situations of interventions on their fabric, i.e., in renovation and conservation processes. Thus, buildings were for a long time excluded as actors in conservation and preservation studies.

The reason why they had no chance to play any role in these theories is also due to the very definitions of actors and agencies often chosen. Action is interpreted as what 'intentional', 'meaningful' humans (conservators, renovators, preservationists) do on the passive tissue of a building, and their actions are called 'interventions' (as acts of intervening in a situation and becoming intentionally involved in it, trying to change it). That is why it is hard to see through the lens of these theories how a building, a fresco, an arch or a columns' grid, could act. However, intervention holds also a different meaning, of *interaction* with an existing building, granting a certain degree of agency to the object whose process of transformation architects, conservationists and builders are intervening in, thus conveying an implication of subversion.

The study of the *Alte Aula* challenges the traditional substantialistic understanding of buildings as permanent and timeless entities. Our way to tackle buildings' agency differs from the interpretation of constructivist studies which consider agency as "what returns to people when the building is narrated and reinterpreted – discursively made anew" (Gieryn, 2002), and by so doing constructs identities and structures social relationships. Instead of manifesting itself as an entity that stands and endures with time or as a matrix of identities, the *Alte Aula* appears in our observation as a building-in-becoming: Submitted to numerous transformations in its four centuries long-life, it still triggers changes and provokes disagreements. By challenging the participants in its renovation, the building's capacity to act succeeds in redefining their social connections and their definitions of the world of architecture. The questions that will guide us in deciphering the complexity of its renovation are: Can

old buildings faithfully transmit social meaning and historical value? How do they let themselves being known and transformed? To answer these questions I follow the mutations of a non-stabilised entity—a building-in-renovation, and the practices of architects, preservationists, builders, city authorities and clients rather than their theories and ideologies. I simultaneously account for the agency of the old building (its fresco, façade, and materials) that emerges as a full-blown actor, not simply as a subservient bearer of symbolic meaning or renovation interventions. This allows me to report, in an ANT fashion, on what human and non-human actors *do* in their daily routine, individual moves and collective groupings, in spite of their interests and theories, thus constantly prioritizing the pragmatic content of actions, not of discourses, in the light of the distinction between 'architecture *in the making*' versus 'architecture *made*'.[3]

What follows is an ANT account (McLean and Hassard, 2004) of renovation in the following senses. 1) The account includes all the participants in this process (single and collective, human and non-human, etc.) encountered in the period of my observation, and limits itself to this time-span. These actors were also selected on the basis of the number of traces they left in the renovation process and the ways they found to intensify their presence: they participated in meetings and their names appeared in the minutes and the agenda of many institutions and societies, as well as in the interviews with architects and preservationists; they flooded the building site, the visuals of architects and builders, the archives on the building's history and the programme documents of the client. That is how they have been considered as being the 'relevant' actors that should be tackled to account renovation. 2) The observation embraces a heterogeneous data collected throughout the study by treating symmetrically conservationists and buildings' layers, architects and frescos. This is also achieved by identifying and accounting situations in which non-humans talk back to humans instead of following only the actions of, and the inscriptions from the activities of those usually delegated to talk on their behalf. 3) The account *deploys* the actors as networks, instead of merely describing them ethnographically, or unveiling in a critical fashion, what is behind architectural objects—the social meanings/factors/forces at work. To deploy means to account with meticulousness the performances of the entire collectives of humans and non-humans instead of relating action merely to a particular agent of the renovation (an architect or a funding ministry), or explaining it with enduring historical structures and built environment systems. Using ANT as "a very crude method *to learn from the actors* without imposing on them an a priori definition of their world building capacities" (Latour, 1999a: 20), I attempt to overcome the one-sided interpretation of building renovation as heavily relying on the human subjects being centred, with little room for non-humans. In my particular rendering of ANT here, i.e., following the slow transformations of buildings as non-stabilized entities, buildings-in-becoming, and accounting some situations of 'surprise' as a 'breaching' of the routine of this process, I show that in building renovation, repair, refurbishment, redesign, and adaptation the social and technical factors are brought in the same analytical view and reshuffled together.

As a representative of the client, I had to attend many meetings of importance for the course of the

renovation process—meetings at the Ministry of Economy and Labour, meetings in the building company (the so-called *Bauherrinfomation*, 8 meetings attended), as well as meetings on the construction site and in the building company (23 meetings attended)—and express the concerns and expectations of the Academy of Sciences as prospective user of the renovated building. Sitting in this position of observation (unusual for an anthropologist) but also active participation in these meetings, I was able to grasp and account different facets of the renovation process in a very selective way. I followed the actors as they were discussing architectural plans, budget modifications and clients' briefs, as they drew together in the office and added new lines on the construction drawings, and as they gathered on the building site. The article is based on a variety of other sources as well: interviews with the architect (12 interviews), with the representatives of the building company (5 interviews), the client and representatives of the Federal Office for the Protection of Monuments (3 interviews), content-analysis of archives of the Jesuit University and the Jesuit Theatre[4], of regulation and preservation documents of the Austrian Chamber of Architects and Engineers (*Bundeskammer der Architekten und Ingenieurkonsulenten*), of documentation on the competition and the planning process, as well as on photo documentation.[5]

I will first examine the renovation process dynamics and will then focus on the specific modes of action of the old building undergoing renovation, thus accounting the process in which action is shared and actively distributed between transforming agents and a building that *resists* transformations.

The dynamics of building renovation

Some authors defended the predictable, anticipated and intentional nature of the design process (Boudon, 1992; Conan, et al., 1990) directed by clear objectives and goals (Lebahar, 1983; Rowe, 1987), and the existence of foreseeable constraints (expected and carefully calculated and estimated) as remaining in the core of the architect's professional expertise, despite the increasing success of negotiated activities (Raynaud, 2001). Although the renovation process of the *Alte Aula* began with a specific project of the architect Rudolf Prohazka, who after winning the international competition in 2000 set clear objectives and means for its realisation, the renovation venture witnessed in the period 2004-2006 appeared as an unpredictable and nonlinear process, guided by 'drifts' and 'surprises', and driven by 'ruptures' and 'modifications of details'.

The architect denotes the impossibility to plan the different steps of renovation with exact precision and the need to constantly correct and adjust the outcomes of the activities that were initially planned:

> I had never had any project in my carrier that had no restrictions at all. There are lots of fixed restrictions such as norms, laws that exist anyway. It is simple for instance *to plan* to use blue materials, but it will make the additional expenditures much bigger when they are afterwards *corrected and adjusted*. (Interview with the architect R. Prohazka)

A number of renovation issues provoked disputes and disagreements among the participants in the renovation, and made it impossible for the architect's original

plan to be realized with precision and exact anticipation of the outcomes. These issues are usually debated during the meetings in the building company over which both technical execution and costs are discussed by architects, builders, and representatives of the *Burghauptmannschaft* and the client. Discussions over financial issues are time-consuming and more difficult, as compared to the disagreements over technical issues and execution. The building company *Swietelsky* answers both technical and budget concerns by providing exact calculations and technical solutions. Every deviation from the initial project is to be negotiated and justified. While debating additional costs or technical execution the renovation actors constantly refer to the specifications in the call for bids and the offers.[6]

One of the most debated issues was the question of how to adapt and transform the fresco room into a modern conference hall for approximately 150 people. Accommodating one of the largest hanging frescos in Vienna and being protected by the regulations of the Organisation for Protection of Historical Buildings and Monuments, this space had to be entirely refurbished and adapted to house modern facilities and equipment. The *Burghauptmannschaft* and the Ministry of Economy and Labour intervened many times in the process of negotiations with the architect. In an interview from 2004, the former president of the Academy of Sciences—Werner Welzig, who fought for the building to become part of the Academy premises—narrated the difficulties of struggling with other institutions like for instance the University of Music and the Opera Ballet who also strove to acquire the *Alte Aula* for their needs: "They quickly understood that the theatre-hall of the second floor is difficult to use, especially for acoustic reasons." Welzig had to engage in difficult negotiations with several federal chancellors so as to convince them to dislocate the Central Statistical Office *(Statistische Zentralamt)* from the *Alte Aula* building and managed to obtain 'the oldest science-building in Austria' for the needs of the Academy of Sciences. Commenting on the difficulties to convince them that it will be possible to adapt the spatial grammar and the rhythm of this 17th century space to modern uses and hi-tech equipment, the architect concluded: "It took us almost a year to reach an agreement".

Another issue of disagreement among the participants in renovation, which also pointed to differences with the initial plans of the architect, was the use of appropriate material for the floor of the building. As the budget was very restricted, the architect was reluctant to use natural stone for the floor and suggested instead to use magnesit (a sort of artificial stone) as a 'friendlier and nicer material'. He insisted many times that the floor should be kept as it was initially planned. "This fits better to our possibilities," argued Prohazka repeatedly at planning meetings and in personal communications in his attempts to meet the budget constraints in a better way. Many discussions followed, and the client, the building company and representatives of the Federal Office for the Protection of Monuments and the Ministry of Economy and Labour discussed extensively the properties of these materials, their aesthetic appearances, durability, way of laying and installation. These actors on many occasions compared samples of magnesit and natural stone, and calculated and recalculated the budget on the basis of the two options. Numerous meetings in the building

company (*Bauherreninformation)* were held in the Ministry of Economy and Labour and were dedicated to the same dilemma: magnesit or natural stone. Those who defended the natural stone option were mainly representatives of the funding Ministries, and advocated the importance of achieving durability of the floor of the renovated building that will require less interventions in the long-run, although the latter could be achieved at the price of a really much larger budget. The architect and some representatives of the client defended the magnesit option as being a cheaper solution that would allow the remaining budget to be used for improving the whole infrastructure of the building and make it programmatically more flexible. This second group of actors remained indifferent to the argument of durability: As a gallery building, they presumed, should be ready to accommodate numerous changes and adjustments with time. In the end, natural stone won over magnesit, durability triumphed over flexibility.

Thus, the actors in the renovation process engaged on numerous occasions in negotiations that changed the course of the renovation and reformulated its objectives, modified the nature of the actors mobilised and the compromises reached by architects, planners, clients, preservationists, and ministries. This makes us conclude that renovation did not begin with a well-informed and predictable historical enquiry that served as an inspiration of clever design solutions and was incorporated in design plans, realised according to the expectations of all participants in this venture. Instead, the modified building appeared as being the unexpected and improbable result of a tentative process of disagreements, of daring and sometimes arbitrary design experimentations, of trials that modified the architect's initial choices and subjected them to modifications due to unknown or neglected factors. That is how renovation could attain, sometimes, accidental results.

Recent work on the sociology of conception have shown that conception,

Figure 1. Renovation in the making. (Photos and collage: the author)

design and creation are negotiated, negotiation and compromise being key terms in the sociology of science and technology (Callon and Latour, 1982). Negotiation is considered by this tradition as a social activity that begins with a conflict of interests among two or more actors and tends to reach an acceptable agreement among all of them; the form of agreement is often the compromise. Renovation, too, can be investigated by following the numerous negotiations and compromises made over its course, in a similar way as the collective negotiation in the practices of architectural firms studied by Cuff (1982). When an intermediary solution is being found for instance in the dispute over natural stone or magnesit, the very meaning of floor, material properties, durability of a building, time dimensions of renovation interventions, are being changed as we acquire more knowledge about the properties of these two materials, their prices, aesthetic appearances and importance for the programmatic capacities of the renovated building and the social ties they bound. If in the design controversies over the fresco room specific restrictions were imposed by the Federal Office for the Protection of Monuments over the architectural conception, in the 'magnesit or natural stone' dispute we witnessed the dynamics of design negotiations in which the architect added new information to the initial architectural plan and adjusted it many times as the other actors adjusted their budgets and expectations; magnesit and natural stone also took active part in the discussions at ministries and in the building site, and imposed their specific material requirements over the renovation process.

Modes of action of a building-in-renovation

Renovation progresses with unpredictable turns, also because a building that undergoes renovation is not a fully masterable object: It often resists to interventions and shows itself as a disobedient object. Clients, builders and architects witness their incapacity to anticipate and control *totally* its future modifications.

Rudolf Prohazka's first encounter with the building of the *Alte Aula* was in 2000 when he was invited by the Academy of Sciences to participate in the competition for its renovation. As a Viennese architect he was previously intrigued by 'the strange urban situation of this building', blocking one of the sides of the little street *Riemergasse*, which in Medieval times used to traverse the building and reach the Jesuit quarter. There was only a narrow opening towards the *Wollzeile* (a small commercial street located behind the St. Stephan Cathedral in the city centre) and the building was completely oriented towards the *Seipelplatz* (where the main building of the Austrian Academy of Science is situated) and the adjacent *Bäckerstraße*. Prohazka joined the competition as he was thrilled by the challenge to renovate an old building in the centre of Vienna, which will be transformed for the purposes of a scientific institution and as such was meant to 'acquire a new modern function'—science communication. The difficulty consisted in opening the building towards *Wollzeile* so as to "take in the pressure produced by the pedestrian flow of the 200-metres long *Riemergasse* towards the building" (interview with Prohazka). Renovating this building meant for him first and foremost a strong challenge of urban

intervention, as thorny and challenging as every intervention in the city centre's fabric of one of the oldest European cities might be (Appleyard, 1979; Pickard, 2001).

> My first contact with this building was the invitation by the Academy of Sciences to take part in the competition along with 9 other participants. This was in the summer of 2000, if I remember well. At that moment I was not able to see the entire building. The thematic and spatial qualities of the building could be seen only on the 2nd and the ground floor, as the 1st floor was completely blocked by free installations, which were built in a way against the building structure. The task of transforming and giving an entire new life to this building fascinated me… (Interview with the architect R. Prohazka)

The architect in charge of the Academy of Sciences buildings (architect Schuh) who had also seen the building in the stage preceding all renovation efforts agreed that should the traces of earlier uses and interventions be erased, this will allow the building to show its 'spatial qualities'. To renovate meant for the two architects 'to clean' and 'liberate' the building from all the remaining traces of previous uses, of recent constructions and interventions, so as to re-establish as much as possible the initial building fabric. Instead of engaging in attempts to learn about the intentions of the 'original planner' so as to distinguish the building 'original substance' (*Originalsubstanz*) from other additional layers that were accumulated in time, the architect had to find other ways of detecting the old building and make it reveal itself to architects, planners and builders. Besides using literary sources about the building history like the book of Mühlberger (1993), considered as a main reference in the research stage, the architect argues also that:

> *…the real information source was the building itself*. And there were so many things that were not documented, or unknown, like the parts of frescos, some differences were found out, the techniques… all the time there were *surprises* in a negative sense: Why did they build it so bad? Why did they need these wooden parts? Lots of things should be corrected that would be normal for a new construction. I would not say that it's unusual for a building at this age to have foundations that are not perfectly laid like the foundations of a recent building would be. And if we were to build it today we would find it difficult to think about the stability of the building in 400 years. If you leave it open and unfinished it will simply gain quality. (Interview with the architect R. Prohazka)

The question of learning *about* the building — something that every renovation or design project begins with — becomes rather a question of getting to witness those specific techniques through which a building-in-renovation makes itself knowable and lets itself being known. Old buildings accommodate new activities, but also guide visitors through spaces, 'house different types of programmes', provoke debates and disagreements. At the same time the building's materiality and history neither fully determine the actions of all the 'interventionalists' (architects, builders, conservators, preservationists), nor is the building under renovation a simple backdrop for human action. The renovation process situates us between the full causality of the old building and

its sheer inexistence. To understand *what happens* in a renovation process we are led to describe the multiplicity of modes of action of a building: how it affords, surprises, renders possible, suggests, facilitates, and influences other actors and possible actions.

Being 'surprised' by a 17th-century building has an important temporal and cognitive dimension, and that is what makes us distinguish the surprising from the non-surprising moments in a building renovation process. If an unsurprising event allows participants in renovation to continue their routine course of actions, a 'surprise' disrupts the course of action, and makes them reassess renovation anew and afresh. They pause for a moment and perform a specific retrospective movement questioning the building's fabric: "Why is it built so? Why were these wooden parts used? Why were not the foundations of the building laid in the way architects would lay them now?" (this reflection is done on the basis of archives), and then they come back to the present to *correct, alter and adjust* the building using the available contemporary techniques. At the same time, immersed in the problems and pitfalls of an on-going renovation process, a contemporary architect finds it difficult to project the building future in a distant time-span of four hundred years, and 'to think about the stability of the building' in a prospective fashion, i.e., about the possibility for another architect to revise what has been done on the building and with its active participation, and intervene again in its reshaping. Thus, 'surprise' refers to the impossibility for *humans* to identify with precision past architectural intentions and clarify future plans; here building agency remains still in the hands of active subjects. This is one type of surprises, triggered by discovering unknown features of the old building that because of the poor archives were left out of the attention of architects and builders.

> A good surprise was for instance the following one: on the first floor, between the long large corridor and the staircase n 1, in the big space there was a very small door, a really unnoticeable door so-to-say in the scale of a doubtful opening. But it had thick walls and it was seen as historically valuable. In the process of the renovation work, I have noticed that this apparently thick wall was a clamshell work of the walls and therefore relatively young, and that actually it corresponds to the large arch (*Bogen*), which was also considered as a historical opening. So it was a positive surprise. This really confirmed that the structure of the building was very pure at the time. (Interview with the architect R. Prohazka)

This surprise derives from the discrepancy between the received knowledge on the building (preceding the renovation process) and the knowledge that was gradually acquired *in the process* of renovating it. That is, a process in which the architect is struggling to understand the building as it was planned at the time, its structure, its different aspects and layers, so as to be able to progressively transform it. This transformation can only happen, as it appears, not according to the initial plan but according to the tiny differences that the architect would discover in the course of the renovation venture. The fact that the wall has not the thickness expected from a historically valuable construction means that it is relatively recent and therefore the architect would be given the permission from the Federal Office for the Protection of Monuments

to tear it down and have an entirely open arch.

A second type of surprises in the renovation is offered by the building itself and guides us towards a completely different understanding of the building agency.

> The chief architect explains that the work is progressing according to plan, and that it should be finished in time: "However, 'unforeseen things', like discoveries of all sorts might always happen." (Meeting with arch. Prohazka, arch. Mandler and representatives of the client, May 3rd, 2005.)

I have chosen to account such an 'unforeseen' event triggered by some parts of fresco that let themselves accidentally visible while renovating the sidewalls on the 2nd floor. As an observer and participant in this process, this manifestation of recalcitrance of the old building had also a strong impact on me, and the actor networks enrolled by the 'surprise'. That is the reason why I will change the tone of the analysis here, and will engage in a slower description of how exactly this surprise occurred, reconfigured traditional definitions of building and agency, and reshaped the existing networks. Everything changed for me that morning of May 2005, when after unlocking the old squeaking entrance door of the building, I entered the empty building site, as usual, in search of a new excitement to begin the day with. Having the key from the aged Jesuit building was as exciting and as sinister as it might be to have access to an inhabited site richly loaded with history. And, as usual, my morning walk began with a quick stroll among the columns in the arcaded space on the ground floor, followed by a longer moment of contemplation of the view to *Riemergasse*. Then, I climbed the new staircase near the glass elevator designed by Prohazka, and skipping as usual the 1st floor, my morning visit guided me impatiently to the fresco room on the 2nd floor (Figure 2).

This amazing space concealed a variety of uses. Having studied these spaces and the archives on the University quarter in Vienna, I often imagined the anatomy and the pathology lecture halls,

Figure 2. The fresco room, the old Jesuit theatre. (Photo: the author)

situated on that floor according to an inventory of 1821 for the New University Building (now the Academy of Sciences) [University Archive, CA 1.3.376.]. Another updated inventory from 1865 pointed also that the lecture room for physics and the room for machines, as well as the observatory and the natural history cabinet with its adjoining rooms and a laboratory were all located on that floor. However, what always provoked my fascination and made me spend hours in the empty 800sq m hall (out of the 3600 sq m building), was the ceiling with one of the largest hanging frescos in Vienna, painted by Anton Herzog, and the remaining of the stage of the Jesuit theatre. At the time of the Jesuits this *theatrum*[7] was not only used for performances but also for promotions and university festivities. The *calendarium academicum* of 1693 shows an image of one of these events. Built around 1654 with the financial support of Emperor Ferdinand IV, the *theatrum* on the 2nd floor was used both as an auditorium for festivities and as a place for presenting scientific experiments. The stage was constructed at the time in Regensburg and shipped to Vienna via the Danube. Designed as a *solemne theatrum* with all its mechanical appliances, decorations and scenic changes, the stage and all the baroque scenic techniques were meant to impress the spectator by all means.

> […] that day of May was richer in surprises: I was strolling in the empty fresco room, engaged as usual in a childish 'find the differences' game. Striving to find out the minute changes made on the building the day before, my eyes paused for a moment on the sidewalls of the former Jesuit theatre stage. There, I saw yellowish parts of paints, regularly spread in different layers; no instruments, architectural plans and visuals were left from the day before. This was surprising, I thought, to leave the sidewalls in such a devastating state, only months before the building is finished. These yellowish minuscule strata worried me, and this escalating feeling of worry partly spoiled my morning excitement, that usually used to charge me with energy for the whole day. […] The strange thing was that no architectural traces were left behind…
>
> […] going out of the fresco room, arch Prohazka greeted me quickly with a dry but polite "Gruss Got", and staring at the sidewalls he sighed: "this building *surprises* us every day." (AY: Fieldwork diary.)

In that morning of May 2005 the parts of fresco on the sidewalls had on me an effect of surprise and amazement reminiscent to the one that this stage with all its spectacular machineries and scenic settings used to have at the time of the Jesuit plays. So was its impact on the architect, surprised as I was, to find himself being surprised *again* by the building. Prohazka followed the building closer than myself and knew all its details and corners and had already acknowledged on different occasions its disobedient nature. In spite of this his surprise was bigger than mine and so was his knowledge about the building. That state of 'surprise' lingered for months and provoked debates among all participants in renovation who brought various instruments and equipments in the fresco room to investigate it and make it talk, and by so doing enrolled more non-humans in the process (Figure 3).

A couple of days after that May morning visit, new parts of fresco also

showed up on the ceiling of the 1st floor, a space dedicated to temporary exhibitions. This new 'objection' of the building to renovation engaged new actors in the discussions— representatives of the Academy as a client, curators, artists, and conservators. During a meeting in the building company on June 16th, 2005 we vividly discussed the material that should be used for repainting these various fragments of fresco on the basis of the expertises provided by the conservators. A solution discussed at these meetings was to cover the fragments with 'Reversill', and then repaint them with the same paints as the rooms so as to erase the traces of the building indocility. The client was concerned with the way the exhibition halls will look and wanted homogeneous neutral spaces that would not compete with the pieces on display, and also, a predictable space that will no longer 'disobey' and astonish its users.

If in design actors deal with indeterminate situations, which they transform into determinate ones (Schön, 1988), in renovation-related design their expectations are usually related to dealing with a complex, but relatively stabilised object. In the first case the design object is anticipated, projected, looked for; in the second, it is just there, and the participants in renovation are supposed to act according to it, and as it is a building, *in* its premises. The renovation requirements and preservation documents show that it is anticipated that the old building will remain a black-boxed entity, a rather predictable series of aligned non-humans. The process gives privileged status to the systematic and stable knowledge about the old building, knowledge that is accumulated through centuries and laboriously documented in the archives. When in the course of renovation interventions, this object, expected to be coherent and stabilised, entails the participants in renovation to face new uncertainties and challenges, and to engage in new networks of

Figure 3. The 'surprises' of the fresco. New wall paintings were discovered during renovation works (left of the window), which prevented the redecoration of the wall in the far end of the photograph from being finished. (Photo: the author)

materials-shapes-architects-historical layers-and-conservators, we are dealing with a 'surprise'. 'Surprise' points also to a different epistemology of the practice of building renovation—one that requires all the participants to redefine and mobilise their knowledge, competences and artistry in the moment when the routines of the renovation are 'breached' (Garfinkel, 1985). In the process of 'reflection-in-action,' (Schön, 1988) the participants in renovation learn *from* the building in a reciprocally reflective dialogue with its materials, layers and shapes, enacted in the situation of 'surprise' just like designers learn from their sketches, models and diagrams in the process of designing an object that has not been transformed into a black-box yet.

However, renovation-related design activities make visible the complex agency of the building every time its black box, closed in design long time ago, is being reopened and the building capacitated to act. As compared to the reflective process of communication of an architect and its sketch in the design studio described by Schön, the interaction of a building with architects, clients, and conservators becomes an event that trans-acts the particular situation of 'surprise'. Shaped in conversation with me, the architect and the discovered parts of fresco this situation also shaped our own ways of reacting to, and engaging with the building-in-renovation and was further on prolonged by other actor networks. Both the analysis of the reflective practices of studio designers and the mediated practices of the participants in renovation differ from a more traditional understanding of design as predictable planning methods (Jones, 1970; Broadbent, 1973). Following this tradition, even the studies of the interior situational logic of design in action show it as a step-by-step technique of problem related decision-making process constrained by contexts or social meanings, tackle the procedural aspects of design thinking and the normative positions that guide this process, and look at a building (its materiality, technicality and visual representations) as a problem-structuring device rather than as a 'partner' in a heuristic design enquiry (Rowe, 1987).

The fresco 'surprise' accounted here shows that once reopened, the old building acts as a design agent that enrols further more materials, renovation techniques, clients, preservationists, and spatial settings. Acting as a 'breaching experiment' of the renovation, the fresco 'surprise' implies an empirical inquiry in which normal interaction is interrupted and the constitutive expectancies are infringed radically causing the participants in it to become confused, without dismantling the presuppositions underlying a shared world. Seeking to reestablish balance and attempting to normalise the renovation activities, constrained by deadlines and tight budgets, the participants in renovation engaged in reconstructions of the building history. As the debates around the fresco layers unfolded they were led to go back to the building archives and recall its different uses; from its Jesuit foundation, through to the 19th century when it served modern institutions such as the journal *Wiener Zeitung* (from the 1890's until 1938), the Imperial and Government Printing Office (*Österreichische Staatsdruckerei*), that moved in the building in 1866, and after World War II the Central Statistical Office (*Statistisches Zentralamt*), up to the recent decision to renovate the building and prepare it for contemporary uses of the Austrian Academy of Sciences. In this historical discussion triggered

by the 'rebellious' fresco wall, we were all led to believe that most probably the yellowish strata were leftovers from the scenic paintings that used to frame the experimental theatre during the 17th century. Throughout the 18th century the sidewall paintings and sculptures in the window bays were hidden behind curtains to make sure that the attention of the audience is focused on the theatre plays. Between 1756 and 1773 the theatre on the 2nd floor was used for public demonstrations and experiments, while the adjacent room housed since 1715 a physico-mathematical museum as well as a natural history collection brought together by the Jesuits in their travels (Hamann, Mühlberger, and Skacel, 1986). Recalling this history in more details allowed us to find certain aesthetics in the yellowish and pinkish spherical wall spots.

'Surprise' in the words of Prohazka of that morning in May 2005, referred also to a tentative notion of building agency (rather than to the stable knowledge about the building). A controversy surrounded the source of agency and how it is exercised in the renovation process and provoked disputes and new negotiations among clients, preservationists and sponsors and thus modified the state of affairs in which the building emerged gradually as an actor. To test the building agency we should ask the question: Does the 17th century building, its fresco layers, its paints and its columns' grid make a difference in the course of some other agent's action or not? As our little renovation account shows it, the answer is 'yes'. The fresco manifestations of resilience changed the course of renovation and reshuffled the definitions of all participants of what a good renovation is, of what to exhibit in a 17th-century space means, of what preserving a building loaded with history is. The specific experimental trail that allows all the actors to detect that difference is called renovation. Rather than being a simple design material or a passive surface, the building (with its fresco layers) emerges as an actor in this process, or more precisely, as an active *participant* in the course of building renovation.

In the interviews, too, many participants in the renovation venture defined the *Alte Aula* as a building that reacts to them and responds to their attempts of smoothly transform, alter, and manipulate its fabric and agency. Although the term of 'intervention' remains in the technical professional jargon of conservationists, of the Federal Office for the Protection of Monuments and the Ministry of Economy and Labour, and implies equally present in the relevant documentation and minutes, the actors rather evaluate their actions as 'responses' to the building rhythm and disposition of spaces. That is, one can witness that second meaning of renovation, not as an intentional intrusion into a passive world/object, but as a complex *trans*action based on the interactions of a building that gradually lets itself being known and architects, clients and builders that attempt to learn about it *in the process* of renovation, that is relied and prolonged by multiple actor networks.

Buildings' recalcitrance

Just like a recalcitrant microbe or a chemical element (Stengers and Prygogine, 1988; Rheinberger, 1997) a building cannot be entirely mastered by architects, preservationists and planners, because it is not a mere ostensive object (defined by direct demonstration). The building-in-renovation rather comes to light as a *performative agent* that resists

with stubbornness, hinders or facilitates specific ways of accommodating the programmatic requirements. Like a concert that is being performed in a complex setting (Hennion, 1993) it vanishes from the viewers' eyes when it is no longer performed. In many cases the *Alte Aula* had no scruples in objecting to the architects' and builders' claims and actions by behaving in undisciplined ways, blocking the renovating operations, obstructing the client' plans, suspending the builders' deadlines, disappearing from view, disclosing unknown layers of its history, and showing a selective behaviour to different materials and agents.

Dismissing the traditional definitions of buildings as static backdrops of activities or as entities subservient to the laws of technical causality, the building-in-renovation emerges as a full-blown actor. Yet, to argue that a 17th century building is an actor does not mean to claim that it operates as a strange quasi-theatrical machinery from the Jesuit time or that it literally talked to us in that early morning of May 2005. For a building to act, it is to be a part of a network, in which each element 'relays', 'prolongs' and 'overtakes' the action of the building and the whole collective without either of them ever constituting a source of action in itself. The fresco 'objection' was prolonged by many surprising sets of agencies of all the participants in renovation. As a result its capacity to act is the effect of the association of a heterogeneous network (architect + building + fresco layers + conservators +visitors…) instead of being assigned to a single human actor within a network or to a single technical object that could determine the course of action.

The way architects, builders and clients responded to the 'objections' of the building showed their constant uncertainty over the nature of this entity. If they expected to deal with, and transform a docile built structure whose original fabric appeared easy to apprehend and that would play as a predictable intermediary, what provoked their surprise was the fact that they faced instead a number of mediations, which they continuously strove to transform into faithful intermediaries. Thus, the building-in-renovation behaved as a hardly unpredictable *mediator* (something that usually happens in situations of design when the black-boxes are open and design objects—non-stabilised, see Schön, 1988). Dealing with it led the participants in this process in multiple directions: Whatever the research on its history, it often happened to reveal a hidden layer of it; whatever the knowledge on its materials and construction, they often happened to surprise and disobey. Thus, far from being a passive material in the hands of preservationists and renovators, an uneventful intermediary that would transport meaning without transformation from 17th century to our days, reflect or reify the social, the *Alte Aula* performed mediation (Hennion, 1993), *transforming* action in unexpected ways not merely repeating and relaying it, *distorting and modifying* the social meanings attributed to it instead of faithfully transporting it through the centuries. Both its history and modalities of action were questioned and redefined in the crucial moments of 'surprises'.

Surprises' with such an impact on the actors did not occur very frequently over the renovation process. That is the reason why I decided to account the effects and the consequences of this particular surprise that was triggered by the building. In addition, this 'surprise' describes also the intense mode of being in a situation that we

seek to understand and that can be accounted as transactional, a situation in which the building manifests itself as a temporary un-black-boxed object, as a design agent that talks back to architects, preservationists, and clients, causing them to apprehend unexpected problems and potentials, *making them do more*, engage with, and reassess the building history, materiality, and technicality. Revealing some methods of reality construction, the fresco 'surprise' entailed such an accountability of the renovation actions that redefined the connections among the participants in the renovation and allowed the social to be reshuffled.

Conclusion

Both conservatives and modernists pretend to speak on behalf of old buildings in disputes over building conservation and renovation (Strike, 1994). Yet, in many cases they ignore the agency of buildings, thus failing to consider the variety of other entities that are being propelled on the scenes of renovation and preservation. Accounting the multiplicity of human and non-human actors that partake in renovation, I tackled the dynamics of the renovation process of the *Alte Aula* in Vienna and analysed the repertoire of actions of this building: its docility, obedience, but also counter-actions and recalcitrance. As an experimental situation renovation allows us to witness the objectivity of a 17th century building that does not refer to any specific quality of its building fabric, to any *Originalsubstanz,* as stated by traditional conservation studies. Instead, it relies on the participation of an actor, which has been rendered 'able' to object to what is told about it in the archives of its history, and counter-reacts to what is done on its fabric in a series of interventions. Renovation provides a unique situation in which buildings can flip-flop their modes of existence (intermediary—mediator—intermediary), thus making shambles of architects' and clients' attempts to fully control and modify them according to their scenario until stabilisation is reached.

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Notes

1 It is the largest property owner in the Federal Republic of Austria.

2 This is a sub-enterprise of the Ministry of Economy and Labour, the owner of the building. Its representatives are engineers highly experienced in the administration of building and renovation projects of big scale. This term will be kept in German in the text.

3 I refer here to the well-known distinction between 'science in action' and 'cold science' developed by Latour (1989).

4 For the purposes of the actual study I have consulted the following archives: *Staatsarchiv* (the State Archive) – *Allgemeines Verwaltungsarchiv* (General Administration Archive) and *Haus-, Hof- und Staatarchiv* (Imperial Archive); *Wiener Stadt- und Landesarchiv* (Archive of the City of Vienna); *Universitätsarchiv* (The University Archive).

5 A photographer was commissioned to document the renovation process. As a result we acquired over 400 photos of the different steps of renovation.

6 Traska (2006) shows how little old buildings are represented in the tender of the competition and provides some suggestions as to how to consider conservation expertise and provide a comprehensive representation of this building in the process of preparation of the tender documents.

7 In comparison with the modern understanding of theatre *a theatrum* does not designate the building (or the institution), but simply a stage, which could be assembled and disassembled very quickly. The historical sources tell us that the *theatrum* could be disassembled and rebuilt in a day, because the parts were joined directly and independently from the wall.

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