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Preposterous Preservation. Postmodern Paradoxes

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Introduction

1 The 1970s were a turning point, not only for the economy of industrialized countries, but also for architecture. According to Rem Koolhaas, there have been no significant contributions to architecture theory since 1972, when Robert Venturi and Denise Scott Brown published *Learning from Las Vegas*. Architecture production has been in an "ideological void" ever since, which Koolhaas sees as especially severe for countries that have experienced an architectural boom, like China.[1] At the same time, there are an increasing number of buildings being listed as historical monuments, while the age at which this occurs is decreasing to just two decades.[2] Koolhaas, however, paints with a rather broad brush, as rules and regulations differ from country to country. For example, in Denmark, the heritage agency usually lists buildings of 50 years or older, while in Scotland and England, this timespan reduces to 30 years, and in Germany to 20 years. In all of these countries, the outstanding significance and/or the imminent danger of destruction may be reason enough to include even younger buildings, which in some cases were completed just five years ago.[3] Thus, Koolhaas' ironic statement "preservation is overtaking us"[4] provides a strong image, and the possibility of an instant monument seems within reach. Paradoxically, this new trend in heritage protection confronts an architecture that has gradually increased the use of materials that are not intended to last. Thus, preservation has faced, and is currently facing, a contradictory challenge: to preserve something that was not meant to be preserved, built of materials that are often even impossible to preserve. Are traditional preservation methods still applicable to postmodern architecture? Or do monuments, which were not built to last, rather offer spaces for experiments and new theoretical and practical refurbishment approaches? A good example is Berlin's circulation tank,

Umlauftank 2 (1967–1974), an iconic building oscillating between postmodernism,[5] brutalism, and pop art, designed by German architect Ludwig Leo. It allows us to analyze the experimental application of traditional preservation methods when faced with the cheap and colorful materials of younger monuments.

Water Tunnel

2 A blue box atop a pink pipe, that is how *Umlauftank 2* (UT2) is known to visitors and inhabitants that travel the city by suburban rail or long distance train and pass by the *Tiergarten* and *Zoologischer Garten* stations. On this high traffic rail, passenger trains run every two or three minutes, even after midnight, providing the best view of UT2 (fig. 1). Although the intense blue has faded to grey and rusty streaks have eaten into the bright pink, the UT2 still has not lost its enigmatic qualities. While the elevated form of the building makes it stand out, only rarely do passersby know its purpose.

Figure 1. Ludwig Leo's Umlauftank 2, in Berlin, seen from the regional train

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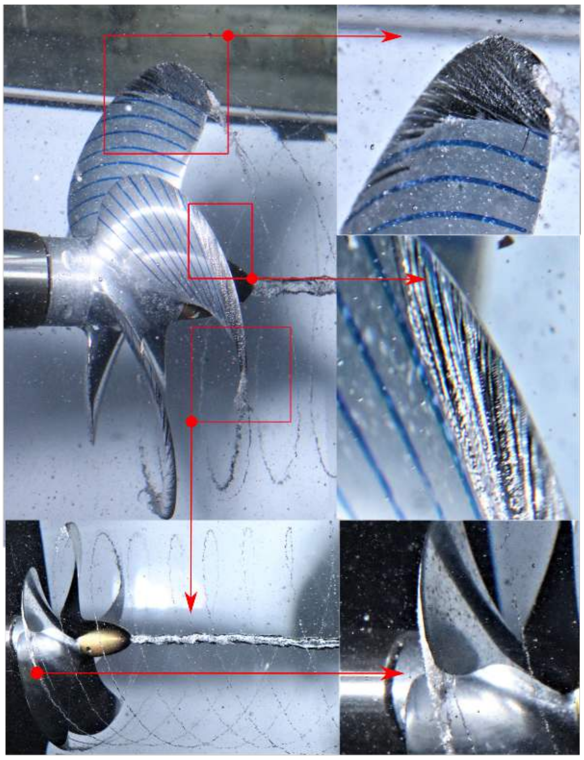
3 The ring-shaped pipe serves as a water tunnel, intended to examine the performance of specific objects. Just as wind tunnels test aerodynamic qualities, water tunnels focus on hydrodynamics. Models of ship hulls and other objects are thus tested inside the UT2, under a steady current of water. A three-and-a-half-meter diameter ship propeller located at the narrowest point of the pipe and driven by two marine diesel engines (with a total horsepower of 5,500), speeds up the 3,500 cubic meters of water to a maximum velocity of ten meters per second. The pipe can be opened in the blue block of the laboratory building, which serves as the testing area, and can be sealed when closed, allowing the air inside to be evacuated. This enables cavitation experiments, a

rare feature for circulation tanks of this size. Cavitation occurs when small air bubbles, caused by the fast movement of a propeller, for example, implode close to its surface, generating a short jet or shock wave that can harm a ship's propeller over time, as well as its turbines and pumps (fig. 2).

Figure 2. Cavitation can harm fast moving objects in water like ships' propellers



4 The maritime engineer Christian Boës (*1931) developed the UT2 in the mid-1960s, as an employee of the *Versuchsanstalt für Wasserbau und Schiffbau* (VWS), or the Laboratory for Hydraulics and Ship-Building in Berlin. Soon after, he founded his own engineering office, but was still responsible for planning the new facility. The VWS had a history at the same location in Berlin, dating back to the German empire before World War I, where it tested ship models mainly using towing channels in which they were pulled through a pool of still water. The long island in Landwehr canal in Charlottenburg (back then not yet part of Berlin) was a good location, also due to the proximity to the Prussian war office. The major disadvantage of the system of towing channels was that tests lasted only a few seconds, giving scientists limited observation time, even in very long channels. Circulation tanks made long-term observation possible. A smaller circulation tank (*Umlauftank 1*) was already operated by the VWS. The models to be tested in these smaller tanks had to be of a smaller scale and cavitation tests were not possible. After World War II, the VWS managed to secure enough funding for a circulation tank that was, once completed, the largest of its type in the world. The research was purely for civil purposes, a directive that was only partially respected.[6]

Ludwig Leo and the UT2

5 The plans for UT2 attracted political attention. The head of West Berlin's building authority at the time, Hans-Christian Müller, was not convinced of the aesthetic qualities of Boës design. This was most probably because of the exposed location of the new laboratory. Directly next to Charlottenburg Gate and *Straße des 17. Juni* (17th of June Street), the engineers were not entirely free in their planning. On top of that, the ongoing Cold War was also fought out by means of architectural competition between the respective halves of Berlin.[7] Müller was friends with West Berlin architect Ludwig Leo (1924–2012), with whom he studied architecture at the Berlin University of the Arts (at the time *Hochschule für die bildenden Künste*). A pro forma competition put Leo on the project,[8] who oversaw the design of UT2 from 1967 until its completion in 1974. Up to his death in 2012, Leo remained a maverick architect who was not part of the political networks and shenanigans of his own discipline in Berlin. He carefully chose his building assignments and would rather not build at all than build with compromises.

Figure 3. Side view and section. The integration of vegetation and the Neo-Baroque Charlottenburg Gate in his plan shows how much attention Leo put on the urban context

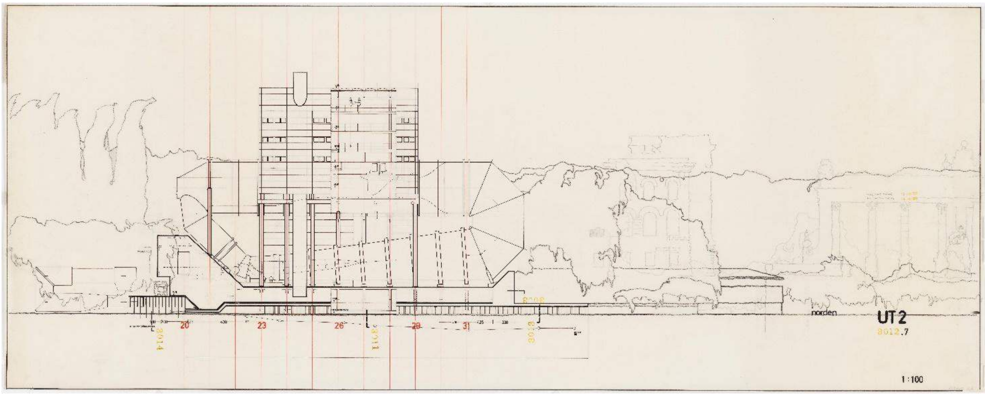


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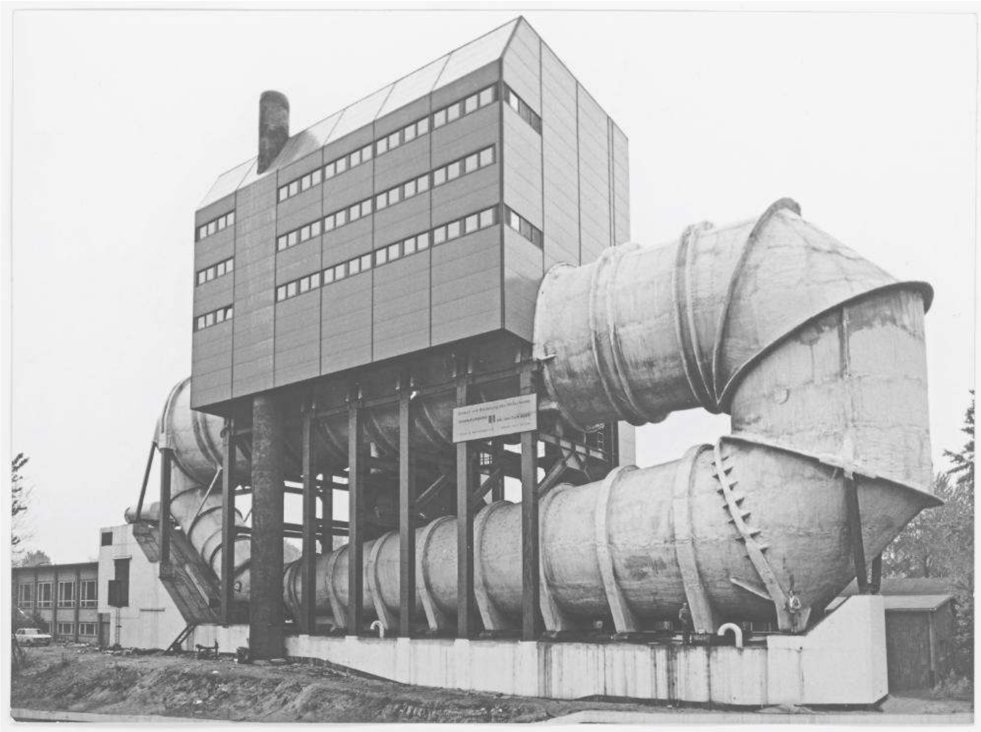
Figure 4. UT2 shortly after completion in 1974. The ship-shaped concrete foundation is clearly visible



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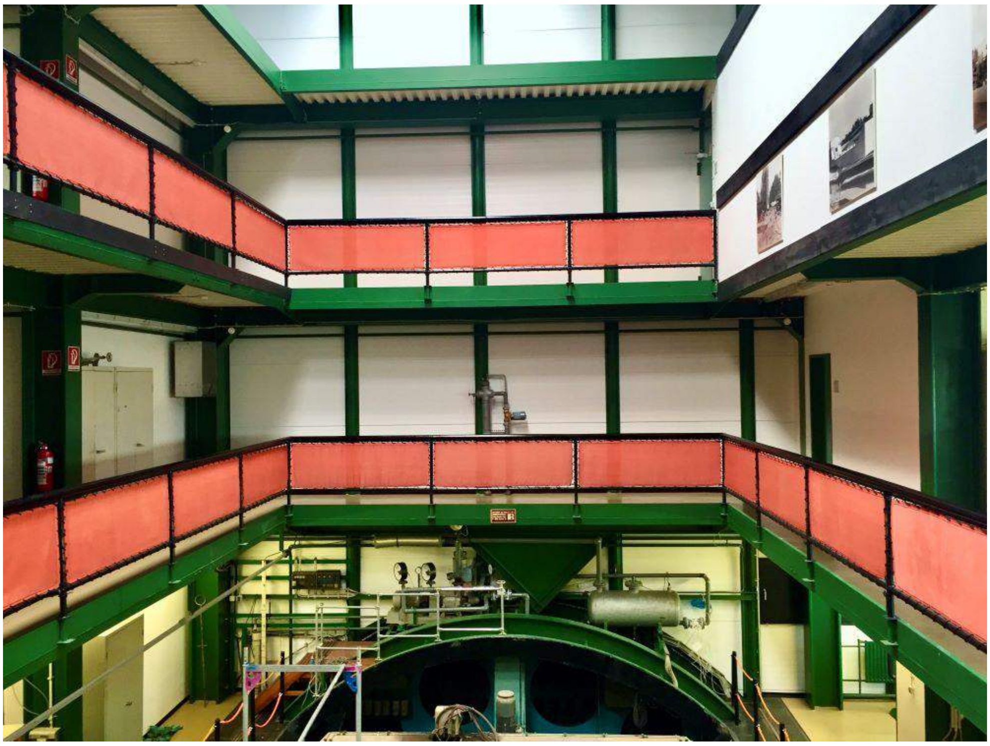
6 When Leo joined the project, the general outline of the UT2 was predetermined from a structural and engineering point of view. However, he changed major aspects through dialogue with Boës and in consideration of the needs of the researchers that would operate the UT2. One of these included elevating the building and making it more visible from the busy intersections of the street, railway and canal, a remarkable move for a non-public machine-like building (fig. 3). At the same time, this along with the location of the laboratory building high above the pipe made cavitation experiments and other tests much more comfortable for the scientists. Other design elements Leo introduced were both functional and expressive. He integrated the reservoir to store the water of the pipe in the building's foundation, designing it to resemble the abstract shape of a bow in front and a stern with a sterncastle (to house the engine) in the back (fig. 4). While this was more of an ironic gesture aimed at the building's purpose, Leo made many functions of the building visible from the outside, presenting them in a playful manner rather than making them immediately decipherable. For example, the main element of the circulation tank, the circular pipe, is highly visible in his design. Leo insulated the pipe's steel elements directly and solely with polyurethane (PU) foam. Since PU foam expands on its own, this resulted in a rather random, puffy surface structure, which simultaneously softened the industrial character of the pipe while highlighting it. Painting this surface pink underlines the jest, almost hiding its primary function behind its alarming visibility. The same can be said about the blue laboratory building on top of the pipe: its location clearly indicates its role as an observation facility for the pipe on which it sits. Its blue monolithic appearance, with only very small windows, imparts an enigmatic character (fig. 5). Thus, the clearly visible functions are only comprehensible for those in the know. The spiral staircase is a lean

pillar reaching from the foundation to the top of the lab's roof, clad again with polyurethane foam, but this time painted green. It serves as a vertical connection between all of UT2's areas, which becomes visible once the spectator knows that it is a staircase. At the same time, its foamy green appearance makes it a reference to the surrounding trees.

Figure 5. The UT2 on the lock island next to one of the towing channels: functional and yet enigmatic

7 he testing area in which ship models, propellers, and other objects are put into the stream of water is located in the center of the blue laboratory building. Above this center, an air space opens up to the ceiling of the lab building, in which skylights generously illuminate the scientific experiments in the testing area. Around this air space, three floors are arranged like decks on a ship, either secured with a railing containing tarpaulin in between, or with ropes instead. This reference to the maritime domain can also be interpreted as circles of a theater auditorium, the testing area serving as the stage (fig. 6). With this design, Leo emphasizes the performative elements of empiricism: observing an experimental setup, repeating it, reproducing it, and perhaps even having spectators of the observation as a way to get closer to objective results.[9] This approach is typical to Leo's thinking: always searching for experimental and new interconnections between architecture and its use. The term functionalism is too restrictive for this approach, however, as it does not encompass the utopian, everyday life-altering aspects of Leo's architecture.[10]

Figure 6. Floors like decks on a ship with a railing with tarpaulin in between, below the testing area with the open pipe



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Functional Iconicity

8 In sum, Leo was more interested in bringing the complex functions and scientific implications of the UT2 into an interdependency rather than complying with a specific style. Inspirations and recollections from high-tech architecture, Russian Constructivism, Postmodernism, and also Brutalism all come together in Leo's UT2. Even the finest connoisseurs of Ludwig Leo's work apply fairly open stylistic classifications like "gigantic, strange, apocryphal postmodern Pop Art machine."[11] Describing the UT2 leads both passersby and architecture critics to a heavy use of metaphor, a sure sign of iconic architecture.[12] With this, the UT2 is a Notre-Dame-du-Haut or a Guggenheim Bilbao, rather than an archetype of postmodernism like Neue Staatsgalerie in Stuttgart or the M2 building in Tokyo. It is precisely the in-between, the neither-nor and rather-than in which Ludwig Leo's architecture unfolds. Falling within the domain of equivocality and ambiguity ultimately makes the UT2 a postmodern project.[13] The site-specific and functional character of the other few projects that he created, predominantly in West Berlin, never prevented him from designing highly recognizable images. Another characteristic of his architecture is movement, whether inside his buildings—like the ship engine-driven current of water in the UT2—or the building itself (fig. 7)—as in the case of the external boat lifts of his Headquarters of German Life Saving Association (DLRG). Leo's functional thinking led him to test the possibilities of usage already in his plans, as he drew human figures into his designs that not only illustrated scale but highlighted habitual patterns of movement inside. At times, these drawings resembled entire choreographies of, for

example, a scientist working at a desk, looking outside the window, standing up, and thinking. At others, these series of movements read like manuals on how to use the tiny rooms in his student dormitories (Eichkamp, Berlin) as party spaces, how to transform a recreation room into a lecture hall in a few simple steps (DLRG building) or how to lean on the stands of his sports hall in Berlin Charlottenburg.

Figure 7. Headquarter for German Life Saving Association DLRG by Ludwig Leo with boat lifts along the hypotenuse of the right triangular shaped building

9 What makes the UT2 stand out even among Leo's opus is his excessive use of cheap and industrial building materials, especially the cladding of the lab building's façade with blue prefabricated sheet-metal panels, and the insulation of the pipe with ordinary polyurethane foam that is clearly visible. The sheet-metal panels have a PU-core for insulation and can be found in generic industrial buildings, like warehouses, sheds, and similar inconspicuous structures. While this choice of material might have resulted from budget constraints, the celebration of PU foam on both the pipe and the outer staircase certainly is not. PU foam is usually a material hidden from sight, used as a filler for gaps and as insulation between other materials. To see PU foam on the façade of a building is a rare feature. There is a high probability that there is no other listed building in the world with PU foam on its exterior in such large quantities, let alone in a colorfully highlighted version of this anarchic, self-expanding material.

Monumental Decay

10 In 1995, precisely within the 20-year timespan Koolhaas mentioned, the UT2 was listed as a monument. The Berlin State Monuments Authority (Landesdenkmalamt) based its

decision not only on the historic development of the area since the first ship testing edifices were built there in the beginning of the 20^{th} century, but also explicitly justified UT2's worthiness of protection by Leo's unconventional design approach: his choice of colors and the building's urban function as a landmark. Being the largest upright circulation tank in the world also played a role, meaning its purpose is integral to its status as a monument.[14]

11 At the time of its listing, it was operated by the Technical University of Berlin, after the privately owned VWS could no longer run it profitably. Since the university also had to cut costs, the facility fell increasingly into disrepair. Many research instruments became obsolete, and the building itself continued to decay. Despite the support of architects such as Norman Foster and Peter Cook, the university decided to close down the facility without having plans regarding the maintenance of this listed building.[15] Around 2010, experiments ceased to be conducted. The diesel engines, which were allowed to operate due to their status as part of the monument despite causing massive pollution, needed a major overhaul. The main bearing of the propeller shaft also had to be replaced. In short, the UT2 was no longer viable. However, the support of architects to maintain this peculiar monument continued. This caused the German foundation Wüstenrot Stiftung to take an interest in the UT2,[16] deciding to fund and execute the refurbishment of the building. A feasibility study in 2012 marked the start of the project, which was completed in 2017. During this time, the architects, craftsmen and preservationists had to tackle many new challenges, as there was hardly any experience in refurbishing and repairing the building materials in question.

Refurbishing Authenticity

12 The following focuses on the two most challenging materials: the pre-fabricated sheet-metal cladding of the blue laboratory box and the pink PU foam of the pipe. In addition to their poor quality and their unambiguous message that the UT2 was not built to last forever, another peculiarity arose: both materials are still at hand in an (almost) identical way. PU foam is still widely produced and applied in today's building industry. The pre-fabricated sheet-metal panels were also still being produced while the refurbishment was underway. Due to improvements in the product, they now had a slightly different structure on the backside and no bolts on the front, but featured the same ultramarine color. These two materials were integral to the overall appearance of the listed building.

Figure 8. The intense blue of the façade was completely withered away, showing rust in many places

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13 In the beginning of the project, the architects responsible for the execution of the refurbishment applied the same standards for the UT2 as for any other, more ancient monument: "With its almost contemporary-looking components and materials it demands to be treated just as carefully as, say, a fine chapel built in centuries past."[17] This initial approach led to a careful inventory of the status quo. The blue powder coating of the sheet-metal cladding had, in most parts, completely faded away, revealing the naked galvanized steel. In many places, the galvanization also succumbed to the ravages of time, and the metal of the panels was rusty, partly crumbling away (fig. 8). In some areas, the metal cladding was amateurishly patched. The monolithic appearance of the blue box gave way to a hotchpotch of different façade colors and structures. The color of the PU foam cladding of the pipe had faded as well. As birds mistake the structure and resonance of the old PU foam for dead wood, it is filled with holes that birds have pecked into it, exposing the natural brownish-yellow color of the foam. The holes, in turn, have filled with water and collected all kinds of seeds dispersed by the wind. In more than one place, birch saplings were growing out of the pipe. Here also, some maintenance work (using mortar instead of PU foam) resulted in an even more heterogeneous appearance, as not only different materials but also different colors were used to paint over repaired spots.

14 After the scaffolding was built – the single most expensive measure of the whole project – a closer inspection of the two materials became possible. As with other monuments, and notwithstanding the availability of the (almost) same exact materials, the initial aim was to maintain as much of the "original" as possible, including their repair history. Regarding the sheet-metal cladding, this meant knowing exactly which panels had rusted and which could be saved. The panels consist of a sandwich structure with sheet-metal on both sides, filled with PU foam in the middle. An examination of some of these sandwich panels showed that the sheet-metal rusted on the inner side as well, causing the metal to detach from the foam filling (fig. 9). This was also the case in

areas where rust from the outside was not visible. To detect which panels were rusty, a visual examination alone was insufficient. The entire approximately thousand-square-meter façade of the lab building was examined using a sensor no larger than a coin that tested the electrical conductivity of the metal, to draw conclusions about how rusty the inside of each panel might be. However, this mapping of the entire façade was to no avail, as areas that did not show up in the sensor testing were, in fact, rusty and vice versa.[18]

Figure 9. The rust of the façade panels was also in the inside layer, making the sheet metal detach from the PU foam core

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Figure 10. The almost identical panels fresh from the same factory are mounted

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15 Eventually, this led to stripping down the façade completely, disposing of the sandwich panels, and purchasing (the almost identical) new ones fresh from the factory (fig. 10). The new panels were retrofitted with bolts that were absent in the new product, as they no longer served a functional purpose. These bolts were added solely to achieve the “authentic” look of Ludwig Leo’s “original” design. Only parts of the façade that were very well protected from sunlight and rain featured panels from the time of construction, which were in good enough shape to be retained, receiving only a new coat of paint.

Figure 11. Dutchmen’s repair for PU foam

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Figure 12. Filling of the square cut outs with “new” PU foam

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Figure 13. Test cut out to see how much "old" and "new" PU foam are reacting with each other and the underlying steel of the pipe

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Figure 14. A piece of the PU foam from time of construction as an *objet trouvé*

© Pablo von Frankenberg

16 The inspection of the PU foam surprisingly prompted a different procedure. After almost entirely replacing the blue façade with parts that were nearly identical, the PU foam could have also been replaced in the same way. Especially since the PU foam produced today is, in fact, identical to the one used during construction. Instead, every square centimeter of the PU foam cladding was thoroughly inspected. The four-centimeter-thick PU foam on top of the steel pipe, along with the withered coat of paint on top of the foam, were the pipe's only protection. Nevertheless, the steel of the pipe was hardly corroded. This led to the decision to repair the PU foam only where needed, i.e. in cases of holes, mortar patches and other jeopardizing damages. The repair was executed like in classic preservation of ancient stone masonry: by Dutchman repair (remplacement de pierre/Vierung).[19] Squares of damaged PU foam were cut down to the steel of the pipe (fig. 11) and filled again with new PU foam (fig. 12). The self-expanding quality of the PU foam resulted in its expansion into areas where the original foam had peeled off from the steel pipe, thus reconnecting the old and the new (fig. 13). The architect responsible for the execution of this repair sees PU foam as not much different from, say, the cement of the Romans:

> Although it is very industrial, polyurethane foam can be seen as a material crafted by hand. Although the material is usually applied with a high-pressure spray nozzle, human agency always leaves its marks – traces that give clues about how the material was applied, about working processes and interruptions, about the personal style of each operator, about well and badly executed sections.[20]

17 The refurbishment project of the UT2 clearly considered the preservation of ancient monuments and took into account timescales of archaeology, even though Ludwig Leo had planned this building to last not more than one generation. History would prove him right, with computer simulations having improved, resulting in less of a need for the range of experimental capacity of a facility like the UT2. The Department of Fluid System Dynamics at the Technical University of Berlin planned to use the refurbished UT2 for projects not primarily in the area of applied research, but for more free and creative scientific endeavors.[21] Seven years after the completion of the refurbishment, the diesel engines are still not overhauled, and the main bearing still needs replacement. However, a lack of funding makes the UT2 inoperable. Simultaneously, the pink color of the pipe is once again fading away, and woodpeckers are attacking the PU foam as before. Buildings that fall into disuse usually lack maintenance. The forecast of new birch saplings growing from the pink pipe is therefore no prophecy. The next refurbishment, however, can rely on the exemplary documentation of the one conducted from 2012 to 2017.

Mass-Produced Originals

18 When working with off-the-rack materials – that is, mass-produced materials that come with a preset size, form, color, and structure like the pre-fabricated sheet-metal panels for the façade of UT2 –what is "authentic" and what is deemed "original" need to be redefined for the preservation of listed buildings. The choice to work with such materials is itself authentic, with authenticity understood as standing in a direct relationship with the author of a work or an action.[22] Using the term authenticity for the material itself, given its ubiquitous, mass-produced character, becomes ironic, if not absurd. Nevertheless, the notion of authenticity was crucial for the refurbishment

of UT2, as the term has played a major role in heritage protection since the second half of the 20th century, introduced by the Venice Charter (1964), adopted by the UNESCO World Heritage Guidelines (1977) and elaborated by the Nara Document on Authenticity (1994).[23] However, none of these official documents define authenticity, making the term applicable to different (architectural/cultural) contexts.[24] The rise of the term can be seen in close connection with the evolution of postmodernism, in which the correlation between authenticity and (historic) materiality was loosened in favor of a more conceptual idea of the authentic.[25] One could also say that postmodern buildings, with their often inextricable references to different styles, ideas, and epochs, neglect the possibility of authenticity or, at the very least, foster an ironic habitus towards it. As will be shown in the conclusion, this could be a key to dealing with postmodern listed buildings when it comes to refurbishing them in accordance to preservation regulations.

19 “Originality” in the sense of being genuine, from the source, can also be a misleading term in this context, and should rather be replaced with “used for the construction of the building.” The few sheet-metal panels that were preserved are from the time of construction. If the preservationists were solely looking for “original” panels, they might have found “originals” from the exact same time and (industrial) source in other buildings around the world, given their mass fabrication and distribution. If they had taken some “original” panels from other buildings that might have remained in better condition, the German interwar years’ idea of “*schöpferischer Denkmalpflege*” (creative preservation of monuments) would get a truly postmodern revival. What the preservationists did, however, was to take new panels from the same source. Neither authenticity nor originality were the arguments that influenced this decision. Rather, it was the condition of the panels that mattered. This was therefore a pragmatic choice that did not strictly follow specific conservation theories or manifestos.

20 Regarding the PU foam, the problem is comparable. The choice of material is authentic to the architecture and its author, but the material itself cannot be. If the preservationists were looking for “original” PU foam, they could have cladded the pipe entirely with new PU foam, as there is a high probability that PU foam with the exact same components from 1973/74 is still available today, or could be manufactured again. Adhering to the preservation dictum of saving as much existing substance as possible, they replaced only the damaged pieces. Another argument for the decision to keep as much PU foam as possible was the manual labor with which it was applied. The variations of different craftsmen applying it can be seen as a historic source. The problem with PU foam is that its durability is very limited, and before long, the necessary maintenance and preservation will entirely replace all the PU foam used for the construction of the building. The often quoted “Ship of Theseus” paradox[26] would therefore seem to come true, ironically for a facility built to test ships (fig. 14).

21 Trying to comply with the standard methods of preserving a historic monument, refurbishment of postmodern buildings can become a re-enactment of preservation – a post-preservation so to speak.[27] At the same time, the UT2 proves that it is possible to apply standard preservation methods to listed buildings like this, if pragmatic adjustments to using identical, though neither authentic nor original, materials are an option. What the refurbishment of the UT2 also shows is that the line between reconstruction and conservation blurs when taking care of listed postmodern buildings. Preservation theories, up until today, still rely heavily on 19th century

disputes.[28] They are of little help in understanding why we apply preservation methods that aim for eternal maintenance to buildings that are ephemeral rather than everlasting, and do not provide practical guidance to preservation projects.

Context

22 The architectural value of a building is as decisive for designating it as listed as it is crucial for the way it is conserved. Defining the architectural value in all its implications for "young" monuments – that is, listed buildings that have not been canonized except for being listed – is more challenging. Preservation experts cannot rely on extensive research and literature that analyze the impacts the building has had and continues to have on all areas of life. The approach to young monuments needs to substitute for this lack of canonization. It must be more open and critical when assessing the building's stylistic context, its contribution to architectural history, its technical features and materials, as well as the reasons why it was built, its functions, and its history of use. In the case of the UT2, alongside Ludwig Leo's ingenious contribution to West Berlin's architecture of the time, the political context of the Cold War in an enclosed city also played a role. The science of hydrodynamics back then had a major influence on the evolution of the building and its appearance. The development of physics today, however, makes the UT2 obsolete. Preserving its functions nonetheless means preserving a part of the history of science, but it also indicates that it might not be used anymore, which paradoxically threatens its preservation.

23 The motives for designating a young monument as heritage and for actively preserving it should also be reflected in the conservation process. When politics play a major role in the history of heritage protection,[29] so does the funding of a conservation project and the possibilities to generate income through the status of being listed. What can be called the economy of heritagization consists of branding cities and regions by referring to their historic values, confirmed by institutions like UNESCO or even just the state heritage authorities. Taking care of listed monuments can also become part of the branding efforts of private companies and foundations. With both the listing and the conservation of a historic structure comes visibility, along with the potential to attract tourists or the attention of a specific target audience.[30] Social developments and civil society initiatives that shape opinions of buildings as worthy also form a part of the intricate motives for taking care of the built environment. Especially in the case of young monuments (to be), civil society initiatives can emerge to "save" buildings that are threatened with demolition.[31]

24 In short, the conservation of a young monument can become much more complex, beyond the materials used that evade categories of authenticity and originality. To tackle this complexity, preservation theory needs to be updated in a way that allows conservation projects to take "new avenues that are more creative, meticulous, political, interdisciplinary, and engaged."[32] Opening up preservation theory and practice to disciplines outside of architecture and art history would be helpful. Philosophy might assist in defining terms and reflecting on them with regard to historic and cultural differences.[33] Sociology and economics are good sparring partners when it comes to understanding the motives behind why a building was built and refurbished, how its perception has changed, and how much ideas of preservation and heritage are contingent.[34] A preservation theory that integrates the social, cultural,

economic and other contexts of a building, along with its architecture and its use will help to overcome the confinements of 19th-century approaches.[35]

Conclusion: Post-Preservation

25 The refurbishment of UT2 can be seen as an experiment and an example of how to handle younger listed buildings. It represents an attempt to solve the paradox of preserving non-durable building materials using the standards of historical monument protection. The refurbishment project had to perform all kinds of contortions to prove that classic methods can be applied to preserve postmodern building materials – at least to a certain extent, until pragmatism must take over. The analysis of the refurbishment process showed that it is not only definitions of authenticity and originality that need to be refined when dealing with younger listed buildings. Refurbishment methods also have to be questioned, to avoid merely re-enacting traditional heritage protection and to integrate the intentions of the architect as author. Intentions of an architect who consciously chose ephemeral materials are too easily pushed to the background in similar projects, or, as the German author Felicitas Hoppe states when commenting on UT2's refurbishment: "The architect's fear of death by disappearance through landmark status."[36] On the other hand, taking care of PU foam as if it were part of the temples of Abu Simbel could be read as an ironic, postmodernist turn in heritage protection. Additionally, the testing of the conductivity of the entire façade with a sensor no larger than a coin, only to replace it almost entirely with façade panels still available on the market, has a postmodernist, playful aspect to it. By performing the scripts of classic heritage protection, as newer and desperately needed theoretical approaches are missing, the refurbishment of the UT2 has unintentional layers of jest, ultimately connecting with the building itself. The choice of color and forms (the ship-shaped foundation, the tree-like staircase, the enigmatic blue box), as well as the decision not to hide the largest visible piece of PU foam on any building, can only be interpreted as gestures of jest and playfulness. Perhaps the refurbishment project (unintentionally) reflected the playful aspects of Ludwig Leo's authentic design, as one might interpret a sense of humor in Leo's approach to this building. In this case, a potential solution to the challenge of refurbishing other postmodern listed buildings could be to develop a post-preservation rapprochement, adopting in the practice of preservation itself the paradoxes of ease and severity, contemporaneity and history, innovation and nostalgia, irony and sincerity, fun and boredom that postmodernism engages with.

26 Luc Boltanski/Arnaud Esquerre, *Enrichissement. Une critique de la marchandise*, Paris, Gallimard, 2017.

27 Christian Brensing/Elisabeth Plessen, „Von Desinteresse bedroht", *db deutsche bauzeitung* 02/2007, online https://www.db-bauzeitung.de/architektur/industriebau/von-desinteresse-bedroht/, 04.01.2024

28 Ugo Carughi/Massimo Visone, *Time Frames: Conservation Policies for Twentieth-Century Architectural Heritage*, Abingdon/New York, Routledge, 2017.

29 Mary Douglas, *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*, London/New York, Routledge, 2003

30 Pablo v. Frankenberg/HG Merz, „The ship in the city. The history and significance of a young landmark. Ludwig Leo's circulation tank in Berlin", Wüstenrot Stiftung (ed.): *Ludwig Leo: Umlauftank 2*, Leipzig 2020, Spector Books, 110–151.

31 Nancy Fraser, „Enrichment: The New Form of Capitalism? A Reply to Boltanski and Esquerre", *Teoria politica*, 6/2016, 307-314.

32 Gregor Harbusch, *Ludwig Leo. Architekt im West Berlin der langen 1960er Jahre*, Swiss Federal Institute of Technology (ETH Zürich) Dissertation, 2016.

33 Gregor Harbusch, „»There's nothing wrong with only creating a shell.« Ludwig Leo and the Umlauftank 2", Wüstenrot Stiftung (ed.), *Ludwig Leo: Umlauftank 2*, Leipzig 2020, Spector Books, 28–91.

34 Thomas Hobbes, „On Identity and Difference", *Elements of philosophy: the first section, concerning body,* London, R. & W. Leybourn, 1656, 100–101.

35 Felicitas Hoppe, „Ludwig Leo Builds a Ship. 10 Commandments", Wüstenrot Stiftung (ed.), *Ludwig Leo: Umlauftank 2*, Leipzig 2020, Spector Books, 196.

36 Charles Jencks, *The Iconic Building. The Power of Enigma*, London, Frances Lincoln Publishers, 2005.

37 Pamela Jerome, „An Introduction to Authenticity in Preservation", *APT Bulletin: The Journal of Preservation Technology*, Vol. 39, No. 2/3, 2008, pp. 3-7

38 Jukka Jokilehto, *A History of Architectural Conservation*, York, 1986 (online via https://www.iccrom.org/publication/history-architectural-conservation)

39 Jukka Jokilehto, „Preservation Theory Unfolding", *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 3/1, 2006, pp. 1–9.

40 Rem Koolhaas, „Preservation Is Overtaking Us", Jordan Carver (ed.), *GSAPP Transcripts*, New York 2014.

41 Jean-François Lyotard, *Das postmoderne Wissen. Ein Bericht*, Wien, Passagen, 1999 [1979].

42 Tino Mager, *Schillernde Unschärfe. Der Begriff der Authentizität im architektonischen Erbe*, Berlin/Boston, De Gruyter, 2016.

43 Fidel Meraz, *Cesare Brandi (1906 to 1988): his concept of restoration and the dilemma of architecture*, Conversaciones, Vol. 7, 2019, pp. 160–174.

44 HG Merz/Philip Kurz/Pablo v. Frankenberg, „Between original and authentic", Wüstenrot Stiftung (ed.), *Ludwig Leo: Umlauftank 2*, Leipzig 2020, Spector Books, 206–240

45 Steffen Obermann, „With a bread knife and eddy currents – the historic preservation of the Umlauftank 2", Wüstenrot Stiftung (ed.), *Ludwig Leo: Umlauftank 2*, Leipzig 2020, Spector Books, 178–204.

46 John Pendlebury, „United Kingdom", Robert Pickard (ed.), *Policy and Law in Heritage Conservation*, London/New York, Routledge, 2001, 289–314.

47 Emily Pugh, *Architecture, Politics, and Identity in Divided Berlin*, Pittsburgh, University of Pittsburgh Press, 2014.

48 Herb Stovel, „Origins and Influence of the Nara Document on Authenticity", *APT Bulletin: The Journal of Preservation Technology*, Vol. 39, No. 2/3 (2008), pp. 9–17

49 John Stubbs, „Applied and Reapplied Preservation", *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 17/2, 2020, 45–60.

50 Ditlev Tamm/Anne Østrup, „Denmark“, Toshiyuki Kono (ed.): *The Impact of Uniform Laws on the Protection of Cultural Heritage and the Preservation of Cultural Heritage in the 21st Century*, Leiden/Boston, Martinus Nijhoff Publishers, 2010, 301–324.

51 Paul-Uwe Thamsen et al., „The UT2 – a unique research facility“, Wüstenrot Stiftung (ed.), *Ludwig Leo: Umlauftank 2*, Leipzig 2020, Spector Books, 242–252

52 Michael Thompson, *Rubbish Theory. The Creation and Destruction of Value*, London, Pluto Press, 2017.

53 Florian Urban, „From Periodical Obsolescence to Eternal Preservation“, *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 3/1, 2006, pp. 24-35.

54 Robert Venturi/Denise Scott Brown/Steven Izenour, *Learning from Las Vegas: The Forgotten Symbolism of Architectural Form*, Cambridge et al., MIT Press, 1977.

55 Angela Weyer (ed.), *EwaGlos (European Illustrated Glossary of Conservation Terms for Wall Paintings and Architectural Surfaces)*, Petersberg, Michael Imhof Verlag, 2015.

56 Jörg Widmaier, „Forever young? Zur Geschichte der Erfassung von jungen Kulturdenkmalen“, *Denkmalpflege in Baden-Württemberg* 1/2019, 18–24.

57 Jessica Williams, „Theories Toward a Critical Practice“, *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 2/2, 2005, pp. vii-ix.

58 Michael Wilkens, *Architektur als Komposition. Zehn Lektionen zum Entwerfen*, Basel et al., Birkhäuser, 2010.

59 Stamatis Zografos, *Architecture and Fire. A Psychoanalytic Approach to Conservation*, London, UCL Press, 2019.

NOTES

1. Rem Koolhaas, “Preservation Is Overtaking Us”, Jordan Carver (ed.), *GSAPP Transcripts*, New York 2014.

2. In Koolhaas’ view, at the beginning of the 19th century, primarily buildings over 2,000 years old were listed. This timespan dropped at the beginning of the 20th century to 200 years, whereas at the end of the 20th century, buildings that were erected only 20 years earlier were considered monuments.

3. See Ditlev Tamm/Anne Østrup, “Denmark”, Toshiyuki Kono (ed.): *The Impact of Uniform Laws on the Protection of Cultural Heritage and the Preservation of Cultural Heritage in the 21st Century*, Leiden/Boston 2010, Martinus Nijhoff Publishers, 301–324, 305; John Pendlebury, “United Kingdom”, Robert Pickard (ed.), *Policy and Law in Heritage Conservation*, London/New York, Routledge, 2001, 289–314, 292; Ugo Carughi/Massimo Visone, *Time Frames: Conservation Policies for Twentieth-Century Architectural Heritage*, Abingdon/New York, Routledge, 2017; Jörg Widmaier, “Forever young? Zur Geschichte der Erfassung von jungen Kulturdenkmalen“, *Denkmalpflege in Baden-Württemberg* 1/2019, 18–24.

4. See note 1.

5. Following the definition by Robert Venturi, Denise Scott Brown, and Steven Izenour, architecture that is hybrid, ambiguous, and equivocal is considered postmodern (*Learning from*

Las Vegas: The Forgotten Symbolism of Architectural Form, Cambridge et al., MIT Press, 1977). In addition to architecture, philosophy and epistemology define a postmodern mindset as skepticism towards grand narratives or metadiscourses, which ultimately serves as the prerequisite for Venturi's characterization of postmodernism (Jean-François Lyotard, *Das postmoderne Wissen. Ein Bericht*, Wien, Passagen, 1999 [1979], 14). The mixture of ambiguity, equivocality, and skepticism opens up in-between spaces that allow a certain playfulness both in architecture and in philosophical thinking, which is added here to the definitions of Venturi/ Scott Brown/Izenour and Lyotard.

6. Regarding the fluid boundaries of civil research and military projects, see Gregor Harbusch, "There's nothing wrong with only creating a shell. Ludwig Leo and the Umlauftank 2", Wüstenrot Stiftung (ed.), *Ludwig Leo: Umlauftank 2*, Leipzig 2020, 28–91, here 72.

7. See e.g. Emily Pugh, *Architecture, Politics, and Identity in Divided Berlin*, Pittsburgh, University of Pittsburgh Press, 2014.

8. Harbusch, *op. cit.*, 74.

9. See Pablo v. Frankenberg/HG Merz, "The ship in the city. The history and significance of a young landmark. Ludwig Leo's circulation tank in Berlin," Wüstenrot Stiftung (ed.): *op. cit.*, 110–151, here 144.

10. Michael Wilkens, *Architektur als Komposition. Zehn Lektionen zum Entwerfen*, Basel et al., Birkhäuser, 2010, 104–105.

11. *Ibid*. 91.

12. See Charles Jencks, *The Iconic Building. The Power of Enigma*, London, Frances Lincoln Publishers, 2005. With regards to Ludwig Leo's UT2 see also Gregor Harbusch, *Ludwig Leo. Architekt im West Berlin der langen 1960er Jahre*, Swiss Federal Institute of Technology (ETH Zürich) Dissertation, 2016, 220.

13. See note 5.

14. See https://denkmaldatenbank.berlin.de/daobj.php?obj_dok_nr=09050433, 07.08.2024.

15. See Christian Brensing/Elisabeth Plessen, "Von Desinteresse bedroht", *db deutsche bauzeitung* 02/2007, online https://www.db-bauzeitung.de/architektur/industriebau/von-desinteresse-bedroht/, 04.01.2024.

16. See HG Merz/Philip Kurz/Pablo v. Frankenberg, "Between original and authentic", Wüstenrot Stiftung (ed.), *op. cit.*, 206–240, 230.

17. Steffen Obermann, "With a bread knife and eddy currents – the historic preservation of the Umlauftank 2", Wüstenrot Stiftung (ed.), *op. cit.*, 178–204, 180.

18. *Ibid*. 190.

19. Angela Weyer (ed.), *EwaGlos (European Illustrated Glossary of Conservation Terms for Wall Paintings and Architectural Surfaces)*, Petersberg, Michael Imhof Verlag, 2015, 324.

20. Steffen Obermann, *op. cit.*, 185.

21. Paul-Uwe Thamsen et al., "The UT2 – a unique research facility", Wüstenrot Stiftung (ed.), *op. cit.*, 242–252, 252.

22. A signature, for that matter, can be authentic even on a photocopy of the original document. Etymologically, authentic comes from the Greek adjective authentikós (αὐθεντικός) and means "related to the author (of an act)" (see Wolfgang Pfeifer, *Etymologisches Wörterbuch des Deutschen*, Berlin 2018).

23. Regarding the problem of the use of authenticity in the Nara document, see Jukka Jokilehto, "Preservation Theory Unfolding", *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 3/1, 2006, p. 1-9, 2.

24. See also Pamela Jerome, "An Introduction to Authenticity in Preservation", *APT Bulletin: The Journal of Preservation Technology*, Vol. 39, No. 2/3, 2008, pp. 3-7, 6; regarding the problems of defining authenticity even after the Nara document, see especially Herb Stovel, "Origins and

Influence of the Nara Document on Authenticity", *APT Bulletin: The Journal of Preservation Technology*, Vol. 39, No. 2/3 (2008), pp. 9-17, 15.
25. Tino Mager, *Schillernde Unschärfe. Der Begriff der Authentizität im architektonischen Erbe*, Berlin/Boston, De Gruyter, 2016, 226–227. The Nara document sees authenticity as an antithesis to "globalization" and "homogenization" rather than defining it in its effects on conservation practice (https://whc.unesco.org/uploads/events/documents/event-833-3.pdf, 07.08.2024). It also reflects authenticity of intangible or non permanent heritage (see Stamatis Zografos, *Architecture and Fire. A Psychoanalytic Approach to Conservation*, London, UCL Press, 2019, 60).
26. The ship of Theseus is often quoted in preservation literature, which shows how much philosophy should play a bigger role in heritage protection. "[...] if (for example) that Ship of Theseus (concerning the Difference whereof, made by continual reparation, in taking out the old Planks, and putting in new [...]) were, after all the Planks were changed, the same Numerical Ship it was at the beginning; and if some Man had kept the Old Planks as they were taken out, and by putting them afterwards together in the same order, had again made a Ship of them, this without doubt had also been the same Numerical Ship with that which was at the beginnings and so there would have been two Ships Numerically the same, which is absurd." The solution, Thomas Hobbes gives, is "that a Ship, which signifies Matter so figured, will be the same, as long as the Matter remains the same; but if no part of the Matter be the same, then it is Numerically, another Ship; and if part of the Matter remain, and part be changed, then the Ship will be partly the same, and partly not the same" (Thomas Hobbes, "On Identity and Difference", *Elements of philosophy: the first section, concerning body,* London, R. & W. Leybourn, 1656, 100–101; capitals in original).
27. The performative aspects of young monument's preservation can also be understood with Mary Douglas' concept of "purity" and Michael Thompson's "rubbish theory", in which he stresses the importance of the "as if", when it comes to designate an object of neither being "transient" (aka. in use) nor "rubbish", but as "durable". To make objects stay in the durable category, one has to treat them "as if they were going to last for ever" (Michael Thompson, *Rubbish Theory. The Creation and Destruction of Value,* London, Pluto Press, 2017, 113; see also Mary Douglas, *Purity and Danger: An Analysis of Concepts of Pollution and Taboo,* London/New York, Routledge, 2003 [1966])
28. In between the two poles Viollet-le-Duc and Ruskin offer there are many shades. However, they do not seem to leave space for a third, or fifth, or infinite other poles, see Jessica Williams, "Theories Toward a Critical Practice", *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 2/2, 2005, pp. vii-ix, vii; see also Zografos, *op. cit.,* 70.
29. Napoleon, for example, saw himself as an Emperor in the tradition of Ancient Rome, hence his interest in restoring and refurbishing buildings of that time. Simultaneously, his disinterest in the church led to the demolition of historic church buildings (see Jukka Jokilehto, *A History of Architectural Conservation*, York, 1986, pp. 130–133, online via https://www.iccrom.org/publication/history-architectural-conservation).
30. This complex is described as "enrichment" by Luc Boltanski and Arnaud Esquerre, even though they do not take architectural conservation as an explicit example. Enrichment, in their definition, means an economic system that lives not only on exploitation of labour but also exploits history to generate added value: « L'économie de l'enrichissement prend appui non pas principalement sur la production d'objets neufs mais surtout sur la mise en valeur d'objets déjà là, extraits de gisements de choses passées, souvent oubliées et réduites à l'état de déchets, ainsi que sur la fabrication de choses dont la valeur est indexée au passé. » (Luc Boltanski/Arnaud Esquerre, Enrichissement. Une critique de la marchandise, Paris, Gallimard 2017, 107)
31. In this context, Jokilehto pleads for "the society as a whole" to reach a new theory of conservation, see Jokilehto 2006, *op. cit.*, 8.
32. Williams, *op. cit.,* vii.

33. The work of Cesare Brandi shows both how fruitful a deeper connection between preservation and philosophy is, and, simultaneously, how challenging it is to transfer this connection to conservation practice, see Fidel Meraz, *Cesare Brandi (1906 to 1988): his concept of restoration and the dilemma of architecture*, Conversaciones, Vol. 7, 2019, pp. 160–174.
34. In the German Democratic Republic, for example, heritage protection was measured by a cost-benefit-ratio. Preserving historic buildings meant to prolongate their life-span and to be resourceful rather than thinking of historic values and eternity. To see residential housing as something that becomes obsolete after a generation or two was not socialistic, but closely connected to the rapid development of what today is dubbed building services engineering ever since the beginning of industrialization up until the second half of the 20th century. See Florian Urban, "From Periodical Obsolescence to Eternal Preservation", *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 3/1, 2006, pp. 24-35, here 28–29 and 26.
35. John Stubbs sees conservation practice already in a state of "cross-disciplinary cooperation". He also describes the 20th century development of preservation as a story of teleological progress ("Applied and Reapplied Preservation", *Future Anterior: Journal of Historic Preservation, History, Theory, and Criticism*, Vol. 17/2, 2020, 45–60, 45, 48). As much as there are newer technologies and different ways of documenting conservation works today, it helps to keep an eye on the historical contingencies of both architecture and conservation practices and theories, since avoiding to lose a critical approach is the foundation of any theory formation.
36. Felicitas Hoppe, "Ludwig Leo Builds a Ship. 10 Commandments", Wüstenrot Stiftung (ed.), *op. cit.*, 196.

ABSTRACTS

The preservation of postmodern listed buildings presents a paradox: how can we maintain structures designed for a transient existence using the rigorous standards of historical monument protection? This challenge is exemplified by Berlin's circulation tank, the UT2, which serves as a case study in navigating the complexities of conserving non-durable materials. The refurbishment of the UT2 highlights the need to redefine concepts of authenticity and originality in the context of "young" monuments. While the application of traditional preservation methods may seem appropriate, it often overlooks the architect's intentions and the unique characteristics of postmodern design. The UT2 invites us to reconsider our approaches to heritage conservation, suggesting that embracing the tensions between new and old in both building materials and conservation approaches may offer new pathways for preserving architectural heritage.

La préservation des bâtiments postmodernes protégés présente un paradoxe: comment pouvons-nous maintenir des structures conçues pour une existence transitoire en utilisant les normes rigoureuses de la protection des monuments historiques ? Ce défi est illustré par le réservoir de circulation de Berlin, l'UT2, qui sert de cas d'étude pour naviguer dans les complexités de la conservation des matériaux non durables. La rénovation de l'UT2 met en évidence la nécessité de redéfinir les concepts d'authenticité et d'originalité dans le contexte des monuments «jeunes». Bien que l'application de méthodes de préservation traditionnelles puisse sembler appropriée, elle néglige souvent les intentions de l'architecte et les caractéristiques uniques du design postmoderne. L'UT2 nous invite à reconsidérer nos approches de la conservation du patrimoine, suggérant que l'acceptation des tensions entre le nouveau et l'ancien dans les matériaux de construction et les approches de conservation pourrait offrir de nouvelles voies pour préserver le patrimoine architectural.

INDEX

Mots-clés: Authenticité, Originalité, Matériaux éphémères, Conservation pragmatique, Défis du patrimoine
Keywords: Authenticity, Originality, Ephemeral Materials, Pragmatic Conservation, Heritage Challenges

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