

Proposed Implementation of Augmented and Mixed Reality in the Crypt of the Basilica of Santa Maria Assunta in Torcello

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Abstract. The first part of the paper narrates the history of the architectural development of the Basilica of Santa Maria Assunta in Torcello, with a special focus on the crypt, as well as the artistic and theological concepts embedded in it. Then, two complex problems associated with the basilica's crypt are presented to propose solutions based on the understanding of medieval art and architecture. The first one is the dismantled pergola, parts of which have been lost or reused to make other objects in the church. The second problem is that of the missing vault decoration. Based on the remaining fragments of painted mortar, it has been deduced that the whole ceiling was decorated with an imitation of a starry sky. The presented solutions are grounded in the understanding of the relationship between practical and digital restoration, the use of digital tools and media, as well as the understanding of the fundamental concepts of medieval art and architecture. The digital tools debated here are augmented reality (AR) and mixed reality (MR). The paper aims to present proposals that take into account, not just the restoration theory, but are multidisciplinary, encompassing the history of art, aesthetics, and theory of media as well.

Keywords: Torcello, crypt, mixed reality, augmented reality, conservation and restoration, cultural heritage

1 Introduction – Architectural History of the Basilica of Santa Maria Assunta – Historic Sources

The Basilica of Santa Maria Assunta has immense importance for the history, art, and culture of the Venetian lagoon, both as a historical monument and as a religious one. According to the epigraph discovered in the crypt in 1895, the church was started in 639 during the exarchate of Isaac, under the rule of emperor Heraclitus, while the *Magister militum* was Maurizio. [1] The information given in the text of the plate, correspond to the insight provided by Constantine VII Porphyrogenites that Torcello was an *Emporion Mega* under the rule of a *Magister Militum*. [2] This is evidence that the Byzantine military elite settled in the various islands of the lagoon. [3] Then it is no wonder that Lazzarini, who discovered the epigraphic text described it as: "A ray of light that reaches us through the mist of centuries, a solitary voice that breaks the distant silence of the early life of first Venetians." [4]

The *Chronicon Venetum* which is hypothetically ascribed to Giovanni Diacono [3] (John the deacon) is the main document that describes all the construction phases of the basilica. [1] According to it, it is Deusdedit I who finished the building and the decoration of the church in 705. In the 9th century, during Deusdedit II (864-867) the church was restored. The biggest transformation occurred in the 11th century when the bishops were Orso (1008-1012) and his brother Vitale III (1012-1047), the sons of doge Pietro II Orseolo. [1] Historians and art historians have tried to pinpoint each of the parts of the church to a corresponding period. There are still ongoing debates and proposals for datings of certain parts. Archaeological excavations have managed to shed light on certain parts and confirm the statements in the chronicle.

1.1 Architectural History of Basilica of Santa Maria Assunta – Newer Research

According to the archaeological findings in the 4th aisle of the church, there is evidence dating to the 6-7th century that confirms the text narrated in the epigraph. Based on the excavation results, the baptistery was dated to the mid-7th century together with the inner wall of today's crypt. Both were made using the same construction techniques. [5]

The 9th century is when the crypt and the synthronon were constructed and the fresco decoration¹ of the main apse was done, according to Zanetto. [1] The crypt had two lateral monophores that permitted the light to enter it. The holy remains of St Heliodorus were brought there by bishop Paolo during his flee from Altino and were kept in a Roman sarcophagus. This dating of the crypt to the 9th century is also supported by Agazzi, who claims that it was created to house the relics. The remains of other saints from Altino – Liberale, Tabra, Tabrata, Teonisto – were also brought from there because it didn't make any sense for them to be kept in Altino. [6] According to him, the construction of the crypt followed the same action done in Grado by bishop Fortunato II in 824. He created an apsidal crypt in Sant' Agata to house the relics. It was positioned on the same axis as the main apse of the church, just like the one in Torcello would be. Both are inspired by the annular crypt of Sant' Apollinare in Ravenna. [6] The relics that were housed in it were later relocated to various altars around the church.

Andreescu, like Agazzi and Zanetti, places the crypt in the 9th century. [7] She also adds that the decoration needn't have necessarily been done during the reign of Deusdedit II. Religious services were no longer held there since the 17th century. [7]

Agazzi also states that with the addition of the crypt, the apses on the lateral chapels were also constructed. All of this is set in the 9th century. [6] Vecchi, too, states that the apses were added in the 9th century, according to the proposal of Bettini. He explains in his hypothesis that the church originally resembled in its plan the basilica of Parenzo with the extradossed polygonal apse visible from the outside, and prothesis and diaconicon on the inside of the lateral chapels in the side naves. These were not visible from the outside. According to Forlati's theory, the original church in Torcello had to resemble the one in Grado or San Giovanni Evangelista in Ravenna. [8]

The excavations done by Forlati in the 1920s in the naves of the church revealed a black and white mosaic in the *sectile* technique. It is located 20cm below the current floor level, and parts of it are still visible today. [1] They were covered in the 11th century with a new layer of mosaic floor decoration.

The great restoration was done during the Orseolo rule. This is understandable since the 11th century is described as a period in which "Europe cloaked itself in the robes of the new basilicas or reconstructed old ones." [9] According to Giovanni Diacono, the whole church has been refurbished: "*Sancte Mariae domum et ecclesiam pene vetustate consumptam recreare studiosissime fecit.*" [1] This reconstruction included the addition of the side apses, arched collonades that divided the nave into three parts, the relocation of the bodily remains of St Heliodorus under the main altar, creating a new set of mosaic floor decoration, and the mosaic decoration of the interior walls. [1] According to Agazzi, during the same period, the capitals of the columns were created reviving the style of the early Christian art of Ravenna from the 5th and 6th centuries. [6] The bell tower was also added in the 11th century. [10]

Fabbri argues that the one built in the Santa Maria Assunta is not a typical Western one, but rather a modified version of the oriental. Modified in that it was built to allow the believers to pass through it and pray in front of the relics preserved inside the altar. As a result, like in the case of St John in Ephesos or St Euphemia in Constantinople, the synthronon had to be raised for the

¹ Other authors, such as Fabbri and Trevisan, disagree with this and place the fresco decoration of the main apse in the 11th century. This dating is now accepted.

passageway to be constructed underneath it. [11] This resulted in the architectural situation that can be seen today.

At the end of the 13th/beginning of the 14th century, the fourth aisle was walled in.⁷¹ The baptistery was demolished in the 18th century, and a portico was constructed connecting the fourth aisle with Santa Fosca. [1]

In the second half of the 17th century, the parts of the temple collapsed together with the portico and the baptistery. “From this moment on, for about two centuries, Santa Maria Assunta in Torcello will suffer perhaps the most serious trauma in its history from the Orseolan period onwards,” according to Vecchi. [8] Between the 17th and 19th centuries, the windows were closed, and new ones opened, external decorations were either removed or redone, the internal chapels changed, the central nave was lowered and then raised, and the apses were retouched. The iconography of mosaics has been altered in the 18th century. [8]

Now, the history of architectural development will be briefly summarized following the latest archaeological information. The first religious structure in the mid-7th century consisted of the baptistery and a small church connected via a portico. During the reign of Deusdedit II in the 9th century, the church was enlarged and reached the baptistery with its narthex. In the 11th century, during the reign of Orseolo bishops, the church was once again refurbished. The pillars were substituted with columns, the apse was adorned with the mosaic, and the naves were covered with an opus sectile decorative floor. [5]

2 The Decoration of the Crypt and the Diaconicon

Today, the basilica in Torcello is considered one of the artistic peaks of medieval art in the lagoon, right after the church of San Marco. Visitors are usually struck by the beauty and complexity of the *sectile* floor, as well as by the monumental golden mosaics covering the entrance wall and the main apse with *diaconicon*.

Regarding the pictorial decoration of the church, nothing much remains. New discoveries are the fresco fragments showing the Virgin Mary and St Martin on the arch between the diaconicon and the roof.² They have been dated to the 9th century. In their style, they belong to the Carolingian art of the provinces. This can be deduced from the fact the first chapel of the Partecipazzi doge in Rivoalto, the one that would later become the Basilica of St Mark, was decorated in that style. In general, the 9th-century art of the northern Adriatic is closer in its style to the Carolingian than to the Byzantine. [12] However, the art of the Carolingian empire is a diverse one, heavily depending on local traditions and styles. [13] Since the fragment is heavily damaged and needs to be cleaned, it is required to conserve it before further artistic assessment.

Based on the position of the fresco fragments, it can be inferred that the mosaic decoration came at a later date. According to Andreescu, there was an “unattested dedication” of the crypt to St Martin, a favorite Benedictine saint. [14] And, according to a documented visit by bishop Giustiniani in 1698, the altar in the crypt “*positum in locum subterraneo sub majori Altar*” was dedicated to St Martin. [14] It is interesting to note that in the mosaic now adorning the side chapel is a depiction of the four doctors of the Church. However, instead of St Jerome (San Girolamo), there is a figure of St Martin. He is positioned on the left wall, where the entrance to the crypt stands. This spatial relation between the figure and the place of the Saint’s worship allowed Andreescu to make a

² An online article that describes the discovery of the murals in the *diaconicon*
<https://www.historywalksvenice.com/2020/07/new-frescoes-in-the-torcellobasilica/#:~:text=The%20new%20frescos%20are%20from,ceiling%20was%20full%20of%20debris.>

prophetic conclusion. “The choice of St Martin instead of St Jerome for the group in the south apse may indicate the persistence of an older, ninth-century cult.” [14] It can also be concluded that the mosaic workers in the 11th century paid attention, probably guided by the suggestions of the bishop or a priest, to the importance of the cult of St Martin. Therefore, they put the mosaic version of him under the frescoed one from the 9th century. Indeed, the presence of St Martin is quite understandable given that in the 12th century there were 4 Benedictine monasteries on the island. [15] Three out of four have origins before the 11th century. [15]

Even though Vecchi got the dating of the mosaic wrong, he was right when he concluded that it was inspired by San Vitale. [8] Agazzi, like Vecchi, claims that the full decoration of the crypt and the apses was done in the 9th century. His evidence for this statement lies in the inspiration from Byzantine culture and the influence from Constantinople. [6] This is understandable when early Christian art had its great revival in this period. This phenomenon of creating neo-paleochristian art goes well beyond northern Italy and can be seen in Rome and many other centers as well throughout the 11th and 12th centuries. [16] Under this assumption, it becomes understandable that the diaconicon mosaic will be inspired by the art of Ravenna from the 5th and 6th centuries. One should also have in mind the political and religious struggle between Aquileia and Grado, the allegiance of the Orseolo bishops to the Grado patriarchate, and the summoning of Byzantine workshops to produce the mosaics. [7]

3 Medieval Heritage – Aesthetics and Functionality

The Basilica of Santa Maria Assunta embodies the concept of “religious memory” that stands as a testament to human beliefs and faith, both of the past and the present. [17] Such a building belongs to the museum type called the “church in the cult.” [18] The main feature of such an object is to present its inventory which often consists of invaluable works of art tied to specific beliefs and rituals. They are often repositories of artifacts accumulated over time that present the historical narrative of the building, but also the taste and style of the periods in which they were produced, and spiritual doctrines that are embedded in them. The Torcello Basilica is a perfect example with its many renovations, additional structures, interior refurbishments, and intense restoration history. Therefore, I would like to present the main artistic and religious ideas that shaped the current architecture and the mosaics/frescoes that adorn its inner space. The concepts presented in this chapter will be used as arguments for restoration proposals, both practical and virtual, following the multidisciplinary approach that is much appreciated in today’s practice of conservation and restoration of cultural heritage.

The Istanbul Declaration from 2002 states the following:

“[A] set of living and constantly recreated practices, knowledge, and representations enabling individuals and communities, at all levels, to express their world conception through systems of values and ethical standards. Intangible cultural heritage creates among [religious] communities a sense of belonging and continuity and is therefore considered as one of the mainsprings of creativity and cultural creation. From this point of view, an all-encompassing approach to [religious] cultural heritage should prevail, taking into account the dynamic link between the tangible and intangible heritage and their close interaction.” [17]

Following this, in 2003, UNESCO organized a Convention on the Safeguarding of the Intangible Cultural Heritage that treated religious “practices, representations, expressions, knowledge, skills — as well as the instruments, objects, artifacts and cultural spaces associated therewith” [17] as part of religious heritage and should not be separated from its material counterpart. In the case of religious art, the material objects are the bearers of intangible concepts that they represent. As such,

bearing in mind the abovementioned declaration and convention, the two – material and immaterial – in the case of religious cultural heritage cannot be separated. A deeper explanation of this concept lies in the very nature of medieval art. Hence, I will try to reconstruct and explain the tight, inseparable bond that exists between the material and immaterial aspects of medieval art, starting with architecture and functionality.

The very act of constructing a church mimics the act of God constructing the world. God is considered a primordial architect who builds without using and shaping materials and designs this world and its hierarchy. [19] As a consequence, building a church implies an act of imitation that results in a particular space dominated by the sacred. This concept stems from the idea that a church with all its architectural elements (towers, pilasters, arcades, blind arches, etc.) and its decorations (portal sculpture, consols, pillars, columns, mosaics, pavements, frescoes, etc.) is a reference to the City of God or Heavenly Jerusalem. The identification is derived from St Augustine's *De Civitate Dei*. [20] The appearance of a Romanesque Basilica in a certain way resembles that of a fortress. [9] To make the connection more obvious, churches are meant to be tall and point towards the sky to unite the otherworldly and man-made structures. [21]

As a divine structure on Earth, the sacred must be clearly separated from the profane. According to Dionysius the Areopagite, whose work was among the most influential in the medieval period, the divine needs to be protected from the profane touch and its contaminating effect. [9] Therefore, special attention in texts and scriptures of religious fathers was devoted to the interior. According to a 6th-century historian Procopius of Caesarea, a religious building is, first and foremost built to be beautiful. [21] Saint Basil of Caesarea, one of the 4th-century Cappadocian fathers, stated that God realized that his creation i.e., the world, is beautiful. "This does not mean that His creation was pleasing for His eye...but that beautiful is what is built in accordance with the principles of art and serves its purpose well." [21] The fact that something has a purpose to serve directly implies that it has a utilitarian character. The notion of utility and functionality is crucial for understanding and defining medieval art.

The best unity between the concept of beauty and functionality is realized in the interior decoration of the church. A somewhat lengthy description of interior decoration and its purpose is given by Gregory of Nyssa in his text *De Sancto Theodoro*. I am quoting it here at almost full length for the reason of understanding the beauty realized through purpose, and its impact on the observers who came to venerate the relics of the saint. This excerpt encompasses all the main aspects described in the previous paragraphs and is crucial for further explanations as well as restoration ideas. The text goes:

But somebody coming to a place like this one, where we are gathered today, where the memory of the just is kept alive and his holy remains preserved, is in the first place attracted by the magnificence of what they see. They see a house that, like a temple of God, is splendidly adorned by the size of the building and the beauty of the ornamentation. The carpenter shaped the wood until it had the form of animals, and the mason polished the stones until they had the smoothness of silver. The painter colored the blooms of his art, having depicted on an image the martyr's brave deeds, his opposition, his continuous pain, the beastly appearance of the tyrants, the insults, the blazing furnace that was the athlete's most blessed end, the representation of the human form of Christ, who was the president of the games – having fashioned all these things for us by his use of colors, he portrayed, as if in a book that uttered speech, in great detail the martyr's contest and at the same time he also adorned the church as a beautiful meadow. For even though it remains silent, painting can speak on the wall and be of the greatest profit. And the mosaicist, for his part, made a floor to tread on that was worthy of the martyr's story. Taking delight in the seeing of such works that

can be observed, one longs for the rest, in particular, to approach the tomb, trusting that touching it results in sanctification and blessing. [22]

We can imagine that a similar description could have been applied to the Basilica in Torcello with its *opus sectile* floor, its marble columns and capitals, golden shimmering mosaics, and many altars with relics of saints from Altino.

The architecture is “inextricably linked to the concept of functionality” [17] and reaches its peak during the service. The purpose of the liturgy was to make the connection between the viewer and the divine. This was achieved through a particular atmosphere to which mosaic decorations, chanting³, and incense contributed the most. Mosaic tesserae had a crucial role in reflecting light and enhancing the feeling of the presence of the divine. The role of art was an anagogical one, forcing the viewer to experience the divine through mental endeavor. [9] “The observer would gradually identify with the light and lose the feeling of real presence. He absorbs the light and feels as if he himself is glowing.” [21] Thus, medieval art had an existential role that forced the viewer (during the service or prayer) to actively participate in the artwork. [9]

4 Restoration Problems and Proposals

Before addressing the main issues, it is important to stress that Santa Maria Assunta is the church in the cult [18], that exhibits its objects and works of art in a museum-like context to preserve its sanctity. Therefore, all the interventions made need to take into account the importance of the objects themselves, their place within the church, the importance of the church for the island and its local community, and finally, the role of the island of Torcello in the lagoon of Venice. The logic of this approach is based on the micro-macro principle. This follows the value-based approach in which “conservation professionals” are “supervising the stakeholder groups.” [23] Hence, the conservation team and the stakeholders need to be identified. The most typical stakeholders are government agencies, archaeologists and other professionals, local communities, tourists and touristic agencies, and religious tourists/pilgrims. [24] I will not be going further into this as it belongs to the management of the site. However, it should be noted that a lot of museums are paying more and more attention to the experience of the visitors, giving space for their opinions. [25] “In the case of entire ‘sites’, i.e. complex works of man and nature that combine both tangible and intangible assets, insofar as these areas are still associated with a ‘living’ religious tradition and, thus, are still functioning as ‘sacral’ places, their legal approach, and therefore their management, involves delicate issues of cultural, spiritual and natural maintenance. Hence, when approaching such sites, one must keep a balance between heritage preservation, cultural management, tourism development, and ‘active’ practices of faith.” [17]

Another very important point related to the church as a museum space is the preservation of sacral character. B. Deloche, when quoting Malraux says that any museum has the function of preserving the sacred. [25] In the case of Torcello, and its potential virtual tools, it plays the main role of narrating the “time, people, context of life, and knowledge.” [18] The beginning of this kind of preservation begins with the conservation of the material, especially of that which by Brandi is termed “aspect,” as it is the bearer of the artistic meaning. [26] This is achieved when the tangible is viewed in the wider context, the intangible one. [17]

As for the virtual counterpart, it was already stressed that through the use of reproductions, the “cultural capital is spread.” [27] It should be noted that the use of technology, however appealing

³ I suggest reading: Đorđević, Z and Dragišić, M. “Digitization of Acoustic Heritage in a Service of Protection, Research and Promotion of European Cultural Heritage” in: *Digital Cultural Heritage*, ed. H. Kremers, Cham, 2020. pp. 433-447.

it may be, should not lead to fetishizing it. [28] On the other hand, the cybernetic approach and the digital heritage have become an almost inseparable part of the museum and exhibition practice. Digitalization and virtualization allow for new ways of presenting and understanding the past. This is made possible because virtualization transports the given problem into other possible solutions. [25] These solutions are visualizations in the form of a movie, VR, augmented reality (AR) or mixed reality (MR), 3D models, or 2D reproductions. Whichever of these is chosen as an adequate tool for the solution to the problem, two important questions must be answered: 1. "Is the use of this tool in a digital form adding value to the project that is balanced by the ethics of its use?" [29] 2. For whom is the model made i.e. who is the group that the model is meant for? [30] Only when both of these questions are provided with satisfactory answers, one can proceed to make digital models.

Therefore, in my proposals, the practical side will be examined first, since virtual restoration needs to form a continuum with it, depending on its results. After this, the pros, and cons of each of the digital solutions to the problems will be presented, provided that the answers to the two questions presented above are clearly defined.

4.1 The Restoration of the Crypt

The 9th-century crypt with its dismantled marble pergola and its missing starry sky poses a conservation problem that requires collaboration between practical and digital. It was already mentioned that it represents a confessional modification of the typical oriental crypt that was done to accommodate the needs of Western devotion. [11] Another important aspect of it has also been mentioned, the reconstruction of the pergola done by Andreescu. [14] In this paper, her hypothetical reconstruction is fully accepted, as it is the most plausible one so far. What is known about the crypt is that it was probably dedicated to St Martin, and its use was abandoned by the end of the 17th century. [14]

The starting concept for the conservation of the crypt follows the idea of B. Deloche that an object is used to express an experience. [25] In this case, the "object" is the whole structure of the crypt and the ritual process of going down and up. This also goes hand in hand with the understanding of religious heritage as expressed by T. Tsiolas, who argued that its use should be restimulated. [17] To be able to restimulate it, we need to understand its purpose. In Catholicism, the purpose of the crypt was to house the relics of a saint and allow for the flow of the faithful to pass through it and pray. It was constructed in such a way that this activity could be carried out without interrupting the service in the main nave. [11] If a parallel could be drawn with the description provided by Gregory of Nyssa [22], it would be concluded that such an interior had a particular decoration that stimulated the believers to adore the relics. In the case of the Basilica in Torcello, the main parts of the crypt's interior were the pergola that housed the relics of St Martin, and the vault painted with a starry sky. Since the marble reliquary has been dismantled and the paint on the vault survived in two minuscule fragments, two conservation problems have been opened.

4.2 Reconstructing the Pergola

As was mentioned earlier, the relics are the reason a crypt is constructed in the first place. Hence, depriving this structure of the material object that was used to house them would be denying it of its purpose. This is directly opposed to the theory of medieval art, according to which the utility of the object is what gives it its beauty. Therefore, it is of utmost importance that the pergola be reconstructed if the revitalization of the crypt is to be carried out.

Originally, it was made in parts that were assembled *in situ*. At a certain point, it was dismantled, and most of its structure currently forms a part of the "so-called *lavabo* in the northeast annex that also used to serve as a modern Sacristy." [14] The main question regarding conservation that arises now is: should it be reassembled again and placed in its original place in the crypt? I

would say yes. The argument is based on Cesare Brandi's theory of restoration and the concept of unity of an artwork. According to him, the form of an artwork is inseparable, and in the case of its dismembering, a potential unity should be re-established. [26] However, adding the missing parts must not be based on analogy. On the other hand, it is strongly advised to follow the suggestions embedded in the surviving fragments, without violating the aesthetical-historical polarity and creating a forgery. [26] The reconstruction that Andreescu made is precisely this. Based on a close examination of the style, the material, the technique, and the dimensions, she identified parts that potentially constituted the pergola.

Of course, re-creating it would mean that the *lavabo* in the sacristy would have to be dismantled. Given the fact that it is inaccessible and that it has no artistic and religious value or at least a drastically less significant one than that of the pergola, there should be no problem in dismantling it. If, however, the official staff of the church or the restorers do not wish to do so, each of the parts can be copied and put in the original place. However, with such an action, there is a risk of fooling the viewer and creating a historical fake, which is ethically unacceptable.

If neither of the two options suffice, there is a virtual alternative. The same methodology as was used in the exhibition "Keys2Rome" in 2014 and 2015 could be used. Of the two virtual restoration techniques, AR and "revealing flashlight", the second one is more suitable for the crypt. "The application allowed users to discover original colors and drawings of fragmented marble slabs... The application worked as follows: the user pointed to an area of the marble fragments with his/her finger; an infrared sensor, connected to a PC and a projector, tracked, and interpreted the movements of the hand; finally, a beam of light was projected only in the area indicated by the user, reproducing the original colors onto the artifact." [30] In the case of the pergola, the missing parts and their floral motifs would be projected onto the current flat marble screen. This way, no physical intervention would be needed because the whole process would be carried out by virtual restoration. The viewer would instantly see the parts that are no longer visible because the light would temporarily restore the fragmented form of the original.

4.3 All the Stars in the Sky

The second, and certainly more complicated issue is that of the missing vault decoration. Based on the few minute fragments that still remain on the walls of the crypt, it has been inferred that the vault was fully painted with a blue color imitating the sky. This simulation of the celestial sphere was adorned with stars. Following the concept of the church as a reference to God, the divine architect [19], and its role to unite the otherworldly and man-made structures [21], it is quite logical that the ceiling needs to imitate the heavens. In the Platonic or rather Neoplatonic tradition, the heavens are the least material of all the material things since they are closer to the Creator. According to the 7th-century monk from Mount Sinai, John Climacus, the "stars are the beauty of the heavenly vault." [21] Hence, it is of great importance that this type of decoration should again be brought back into the crypt of Santa Maria Assunta. The question is how can this be done and what would be the best tools for it?

The first option, aside from leaving the crypt as it is, is to repaint it. This action would be a renovation and not a restoration. "The term renovation (Lat. *renovare* > to renew) is often incorrectly used interchangeably with restoration. Rather, it is a way to renew something old, and it does not necessarily have to bear ethical aspects of the preservation or conservation of old parts." [31] Renovation, understood in that sense, can, thus, be equated with Brandi's definition of reconstruction. According to Brandi, a reconstruction aims to annihilate the time span, and it does so in two possible ways: 1. By imitating the period in which the previous intervention was done; 2. By absorbing in itself the previous intervention. [26] With the term "previous intervention", Brandi is referring to, in the case of the crypt, the original decoration. So, in the first case, the renovation/reconstruction would tend to create a new vault painting that would, in its style, imitate

the original 9th or 11th-century art. This would be a forgery. To be more specific, it would fall under the category of “counterfeit without a template.” [18] As such, it is ethically unacceptable. On the other hand, Brandi approves of the second logic that would create a whole new object, although this is not regarded as a restoration practice. [26] This is deemed important as it would contribute to a better interpretation of the spatiality [26] as was argued in the previous paragraphs.

In the annexed chapter titled “Principles for Monument Restoration,” Brandi asks a very important question: Given that a natural or a monumental ambient is not deeply transformed in its spatial characteristics, except for the vanishing of one or more elements, would their reestablishing be acceptable through the use of copies, that in themselves are forgeries, based on the spatial renewal of the ambient, when the revitalization of the monument is impossible? The answer that he provides is that it is possible to add the missing elements back as long as they initially were not a work of art. [26] However, the problem that arises is the following: how are we going to view the original decoration? In today’s notion, it would be a work of art, and consequentially, its renewed edition would be unacceptable. On the contrary, a whole chapter that explains the understanding of medieval art as inseparable from its function was presented earlier. In this case, it is even more complex because the painting was an integral part of the architecture. That decoration was viewed as a functional symbolic element that drew its value from its representation and its location. On top of that, its location functioned as a symbolic element for the architecture that it adorned. If importance is given to its functionality, adding the missing decoration becomes justified. “The numinous/aesthetic synthesis, which is defined as the inner unity of the products of religious culture, becomes quite obvious in the case of religious (movable or immovable) elements, that still maintain a liturgical function.” [17] Even Brandi, himself, approves of adding new parts according to the previous structure that dictates their size, shape, and style. An example is the campanile of St Mark in Venice, for which he says that an accurate reproduction (a copy) was not required, only the presence of a vertical element that fulfills the urbanistic function. [26] It can be concluded that adding a new object to a historic interior is justified as long as it is not a copy, but an entirely new object. In the case of the crypt, a copy is impossible to make because almost nothing remains of the previous decoration.

If, however, all these theoretical debates about the authenticity and forgery of historical documents seem too complicated, a simpler solution can be found in the virtual domain. Similar logic to that of the pergola can be proposed. Instead of a light that would follow the movement of the finger, the installation of a lighting system for the whole vault would be more efficient. In this way, stars could be seen without making a historic forgery because no material intervention whatsoever would be done on the vault. Another advantage of this type of technology is its effect on the group of visitors. “Augmented (AR) and Mixed Reality (MR), with their closer link to the physical environment and their less obtrusive character, are supposed to offer the advantages of VR without disrupting social interaction.” [32] Another reason why VR in the case of the crypt was not proposed, is that sometimes the virtual cannot comprehend the lack of materiality. “The experience of an object in the social and ritual space of the museum apart from the everyday also differentiates its psychological effect from its digital surrogate.” [27] And the whole purpose of the crypt is to experience its ritual function. Even for non-religious visitors, it would be interesting to go underground and discover what is inside the crypt.

5 Conclusion

In conclusion, the pergola can be partially recreated by using the available fragments. If this option is denied, a system of “revealing flashlights” can be used as a very successful tool that encompasses all the postulates of virtual restoration. As for the vault with Starry Heaven, I would propose either the option of repainting it or using a system like AR for an ethically safer solution.

The main derivative of this paper is the multidisciplinary approach that should be applied more and more in conservation practice. It is never just a matter of preventing further degradation of an object, but rather, preservation of the physical for the sake of preservation of the immaterial concepts that the objects themselves bear.

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