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Book Section:

Vitale, V. (2023) Ceci n'est pas un temple. Visual secondary sources between representation and documentation. In: Palladino, C. and Bodard, G., (eds.) Can't Touch This: Digital Approaches to Materiality in Cultural Heritage. Ubiquity Press, pp. 9-28. ISBN: 9781914481321.

<https://doi.org/10.5334/bcv.b>

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CHAPTER I

Ceci n'est pas un temple. Visual secondary sources between representation and documentation

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Abstract

As 3D models appear more and more often in scholarly and scientific contexts, the need to document the study of the numerous and diverse sources that supports these digital research outputs has become more apparent.

The quest for fragments of information disseminated in various kinds of secondary sources, from travel memoirs to sketches to historical photographs, is of a peculiar nature, though. In many cases these documents become invaluable first-hand accounts of something that may not exist anymore. On the other hand, anyone who has ever worked with secondary sources will be familiar with their inaccuracies, poetic licences and even outright fabrications.

Combining tools from digital humanities, art history and semiotics, and looking at examples from the most represented—and misrepresented—archaeological site in modern history, the buried city of Pompeii, this chapter invites the reader to look at secondary sources describing ancient buildings not simply as resources to be mined to extract nuggets of more or less reliable information, but as representations in their own right that deserve to be investigated beyond their literal value. The challenge then becomes to contextualise these

How to cite this book chapter:

Vitale, V. 2023. *Ceci n'est pas un temple*. Visual secondary sources between representation and documentation. In: Palladino, C. and Bodard, G. (Eds.), *Can't Touch This: Digital Approaches to Materiality in Cultural Heritage*. Pp. 9–28. London: Ubiquity Press. DOI: <https://doi.org/10.5334/bcv.b>. License: CC BY 4.0

historical representations, and to try to retro-engineer the semiotic processes that went into their creation. We claim that researchers applying 3D modelling to the study of ancient buildings find themselves in the privileged position of analysing these earlier representations through the lens of the act of making, thus untapping further layers of meaning.

Finally, we will show how this approach helps to unravel the rich relationship between disappeared artefacts and their past and present representations, ultimately promoting a view of documentation as a dialogue between the artists and scholars of the past and present, as well as those of the future.

Abstract (Italiano)

L'uso sempre più frequente di modelli 3D in contesti accademici e scientifici sta rendendo evidente la necessità di documentare lo studio delle numerose e diverse fonti che supportano questi prodotti della ricerca digitale.

La ricerca di frammenti di informazioni racchiuse in vari tipi di fonti secondarie, dalle memorie di viaggio agli schizzi alle fotografie storiche, è però di natura peculiare. In molti casi questi documenti diventano preziosi resoconti di prima mano che descrivono qualcosa che non esiste più nella sua forma originaria. D'altra parte, chiunque abbia lavorato con fonti secondarie conosce le loro inesattezze, licenze poetiche e persino vere e proprie falsificazioni.

Combinando gli strumenti delle digital humanities, della storia dell'arte e della semiotica, e utilizzando esempi provenienti dal sito archeologico più rappresentato—e travisato—nella storia moderna, la città sepolta di Pompei, questo capitolo invita il lettore a guardare alle fonti secondarie che descrivono edifici antichi non semplicemente come miniere di dettagli storici più o meno attendibili, ma come rappresentazioni a sé stanti che meritano di essere indagate al di là del loro valore letterale. La sfida diventa quindi contestualizzare queste rappresentazioni e provare a ricostruire, a posteriori, i processi semiotici che hanno contribuito alla loro creazione. I ricercatori che applicano la modellazione 3D allo studio di edifici antichi si troverebbero, dunque, nella posizione privilegiata di analizzare queste rappresentazioni precedenti attraverso la lente del making, accedendo così a ulteriori strati di significato.

Infine, il capitolo propone che questo approccio aiuti a svelare la complessa relazione tra i monumenti scomparsi e le loro rappresentazioni passate e presenti, promuovendo in ultima analisi una visione della documentazione come dialogo tra gli artisti e gli studiosi del passato e del presente, così come quelli del futuro.

Introduction

This chapter advocates for a different approach to the documentation of 3D visualisations in academia; an approach that records the research process behind the digital model but also investigates the secondary sources used as references and their fallacies, instead of including them uncritically in the model. We will

show how this process helps to unravel the rich relationship between disappeared buildings and their past and present representations, ultimately promoting a view of documentation as a dialogue between the artists and scholars of the past and present, as well as those of the future. Finally, we will argue that we should not think of the referent of a 3D visualisation as the ancient building per se, but as our collective knowledge of it: an idea of the building that has been shaped by numerous representations in different media, all biased and all imperfect, but nonetheless part of the building's unique history and identity.

1. Models as signs, ancient buildings as referents

The first section of the chapter discusses some of the communicative processes that are set in motion during the production and consumption of three-dimensional (3D) visualisations, and introduces some of the terms that will be used throughout the text. First, when talking about 3D modelling, we will refer to the process of creating a 3D digital object, as opposed to the process of digitising existing 3D artefacts (3D imaging). Although there are several 3D modeling technologies widely used by archaeologists and historians, this text will focus on one particular approach, Computer Aided Design (CAD) software, and one specific application, ancient buildings.

3D models are generally understood as representations that reproduce some of the qualities of an object (in most of our examples, a building). This object, called “referent” in semiotic terms, can be real or imaginary, material or immaterial (Eco 1975). Like the word “model” suggests, 3D representations are not full and identical copies of their referents, but simplifications for the purpose of study or experimentation that focus on selected characteristics (McCarthy 2004). What these characteristics are depends on many variables such as the scope of the visualisation itself, the research questions of its author, and the intended audience for the final outcome.

To frame the argument developed in this chapter, I will also introduce two concepts, one borrowed from art history and one from literary criticism, to highlight the richness and complexity of the relationship between an ancient building (or object) and its digital 3D representation.

1.1 *Optical illusions*

When creating a 3D model of a historical building, it is likely that the three-dimensionality of the built structure is one of the key qualities of the place that the author wants to reproduce. The fact that 3D technologies enable us to perceive a model as a representation of a three-dimensional space sometimes obfuscates the awareness that, in most cases, we are experiencing it through a 2D screen (on a personal computer, a larger monitor in an exhibition). Although perception becomes more complex in the case of immersive 3D environments, it is usually a combination of 2D views that simulates the third dimension. It

is a very reliable illusion, created algorithmically by the software, to the point that we can even accurately measure the space in scale. But this space, although quantifiable, is entirely virtual, or, actually, almost *phantasmatic*: it is a 3D space that only exists as a combination of 2D views generated on the fly by the software. In this perspective, a CAD model might have more in common with a painted *trompe l'oeil* than a three-dimensional scale model.

1.2 Ekphrasis

Looking at 3D models in light of their relationship with two-dimensional visual representations may elicit a comparison with the concept of *ekphrasis*. “Ekphrasis” is a rhetorical figure that identifies vivid literary descriptions of visual artworks. The most famous example is, perhaps, the description of the shield of Achilles in the *Iliad*, but the practice has remained popular through the centuries, and its study has crossed the boundaries of classics and of ancient texts (Webb 2012). Although the term is still mainly associated with an artistic relationship between words and images, in more recent years scholars and authors have started realising that the “evocation” of an artwork through another artistic language is a very powerful, and partly transferable, concept. Notably, Bruhn (2001) has explored the idea of musical ekphrasis to analyse musical compositions that explicitly describe other forms of art. Digital media, with their intrinsic focus on reproducibility, have also become key components in the current reflection around a broadened concept of ekphrasis (Jansson 2018).

Representing objects (referents) in their present state, has never been the most common, nor the most sensible, use of CAD modelling. Several 3D technologies, including photogrammetry, laser scanning or structure from motion, would be better choices in these contexts. The elective aim of CAD modelling is the visualisation, or recreation, of something (a referent) that is not extant anymore, or to represent a previous (or future) state of something that is still visible. The journey from the invisible (or no longer visible) referent to the visible representation is where the research of a 3D author lies.

To produce accurate and reliable visualisations, researchers must sift through a variety of primary sources, but they also have to look for any previous representation of the same referent in other visualisations, in any media. This is where the broadened concept of ekphrasis becomes useful to unpack the semi-otic layers that we can see multiplying. Producing a 3D visualisation of an architectural building would be an ekphrastic representation as we would be recreating the outcome of an art form (architecture) in another (3D software) that relies on a different language. In many cases, though, being 3D modelling devoted to representing the invisible, the destroyed, and the lost, the visualisations are not based on the direct observation of the original referent, but on previous representations that were produced by other authors. Several of these representations—watercolour, sketches, travel notebooks and so on—are also

ekphrasis, as they use, with different degrees of accomplishment and different purposes, another art form (painting, drawing, photography, sometimes written word) to recreate or describe a piece of architecture. We could say that academic 3D models of historical buildings are, in a way, double ekphrasis, relying on existing ekphrasis (secondary sources) to conjure a new visualisation of the original architectural object.

1.3 Documentation of 3D models for cultural heritage and academic research

Re-thinking 3D visualisation as ekphrasis (or even double ones) seems to imply that we ought to consider 3D modelling strictly a form of art. However, in the case of research-driven 3D models, it may be more appropriate to talk about the use of a visual language, or a visual medium more than the act of artistic creativity. The line between scholarly 3D visualisation and works of art lies more in their purposes than in their aesthetic qualities. Another substantial difference is that artists usually don't explain their creative process and do not want their work to be replicated. For researchers applying 3D modelling, on the other hand, reproducibility is key to academic transparency. A 3D model can only be considered compliant to the scientific method if it is accompanied by a discussion of the rationale guiding the different modelling choices, and a description of the sources that have been used as references and comparanda (Vitale 2016).

Documentation is a very broad term that is used with slightly different meanings in different disciplines. In computer science, documentation often means making the code more comprehensible and reproducible (and, therefore, more sustainable) adding inline comments. For archaeologists, documentation is made of maps, reports, photographs and matrixes. For a librarian, a good documentation may lie in the production of accurate and detailed metadata accompanying a digital collection. This variety explains why there is not still an agreement on what documentation of academic 3D modelling actually involves. In this chapter, when talking about documentation of 3D architectural models, we will refer to the concept of "paradata", introduced by the London Charter for 3D visualisation of cultural heritage (Denard 2009, revised 2012) and reinforced in the Sevilla Charter (Lopez-Menchero & Grande 2011; Carrillo Gea et al. 2013). A 3D model's paradata are not merely references to author, date of creation, or version of software used (all relevant information that we could ascribe to "metadata"), but they offer a record of the researcher's thinking, and should have the same methodological rigour of a traditional academic publication (Baker 2016).

Since its introduction to the consumer market in the 1990s, CAD software has immediately shown its potential to archaeologists and experts in historical architecture as a way to explore the (hypothetical) former looks of buildings, supporting restoration and conservation efforts, scholarly investigation, as well

as the creation of communicative outputs targeting the general public (Earle 2013). But already in the early 2000 it became clear that without documentation 3D models remained opaque, and not replicable, making the model indistinguishable from a purely aesthetic product (Hermon 2008). The issue has been discussed at length by experts in the past years, along with other criticisms that include the use of realism (and hyper-realism) (Favro 2012) and the absence of human actors in the visualisations (then addressed by Favro and Johanson 2010). Thorough documentation is instrumental in making a 3D model re-usable, enabling future researchers to build on top of (documented) work, in the same way as all scholars start their research from literature reviews, and corroborate their arguments with citations and cross-references.

Discussing different strategies for documenting scholarly 3D visualisations goes beyond the scope of this chapter. Here we want to bring the attention to one category of documents that features prominently in most documentations of academic 3D models: secondary sources, and, in particular, those of a visual nature, like drawings, paintings, etchings or photographs.

For the scholar researching historical buildings, secondary sources are invaluable. Not only because, it is often only in these documents that information about buildings that have disappeared or being transformed survives, but also for the role they play (or have played) in generating knowledge about the past (Moser 2015). However, the enthusiasm around these sources, and the time-travelling feeling they elicit, can lead to the temptation of translating them uncritically to the 3D visualisations, forgetting that, like all cultural products (including 3D models themselves) these images are biased, and influenced by a number of variables including the artist's training, the available printing technologies, cultural trends, or even political agendas.

Using previous representations of a historical building (or artefact) just as a resource to be mined for, more or less reliable, nuggets of information about measurements and chromatic records is not only potentially misleading but also reductive. The more visual secondary sources get analysed in their own right, the more they appear as means to learn about the referent, its later reception, and, maybe more important for this argument, the processes and codes involved in the representation of a building in another medium. As Moser (2015) suggests, all the gaps, inconsistencies, and even the "artistic licences" that these images show may tell more complex stories than we had assumed, and have more interesting origins than mere human error or incompetence.

2. Sketchbooks from the Vesuvius

In the second part of this chapter, I will discuss three examples of valuable, although unreliable, visual sources, and how their shortcomings proved to be, at a deeper analysis, clues about the cultural context in which they were produced, and about the ways in which the ancient artworks were perceived, represented, and received by the contemporary public. All the examples that I am

about to discuss are related to the archaeological site of Pompeii. The choice has been led by two factors: a) my own experience with the 3D modelling of Pompeian houses, and the related research on secondary visual sources, and b) Pompeii's own popularity. With excavations starting as early as the first half of the 18th century, and a status of sensation and tourist attraction for the cultural elite first and for a larger audience later (Lazer 2009, Blix 2013), the antiquities from Pompeii and Herculaneum have been reproduced countless times, by people with different backgrounds, and during a long span of time, making it an ideal case study per critical visualisation.

2.1 *Unforgettable art*

Anyone who has worked with visual secondary sources from Pompeii and Herculaneum, and has then confronted them with the original referents they were meant to reproduce, has probably noticed how often these drawings and paintings look heavily distorted. Although cultural products can never be considered objective copies, the grade of unreliability found in early depictions of Pompeii and Herculaneum feels somehow above average. This oddity can be explained with the long and complex history of the sites, and their being, for a certain time, a unique phenomenon in Europe. It is especially interesting, though, to notice how some of the same historical and cultural variables generated two almost opposite trends of distortions, each one with its intertwining motivations.

One kind of recurring distortion is what we could call the *prettification* of Pompeian frescoes in the early records of artists visiting the Vesuvian sites and reproducing those wall decorations in their drawings or paintings. Among the several instances of this trend, we could cite the work of 19th century German painter Wilhelm Ternite. Browsing his rendition of Pompeian frescoes (published ca. 1839), it is easy to notice how the human figures, in particular, look almost statuary, and, perhaps, more Neoclassical in both spirit and appearance than actually Roman. Readers familiar with Pompeian frescoes might be surprised by Ternite's choice, as the vast majority of wall decorations in Pompeii and Herculaneum tend to appear unrefined when compared with modern aesthetics (regardless of their historical and archaeological value). The unrealistic pose of the famous fresco of the Venus in a Shell, for example, contrasts quite strikingly with the harmonious and "regularised" female portraits produced by Ternite (Figure 1.1).

If the aim was to "document" a piece of ancient art, why would artists and antiquarians want to embellish the original? This trend was probably fueled by a combination of factors. One of them might be psychological, if not emotional. There was an incredible hype around Pompeii and Herculaneum in the late 18th and beginning of the 19th centuries (see, among others, Roberts 2015 and Andrews 2010). The mystery surrounding the antiquities, that could be seen only by invitation, and the ban on reproducing them, made it even higher. The



Figure 1.1: On the left: Quellorakel. Wandgemälde aus Pompeji und Herculaneum nach den Zeichnungen und Nachbildungen in Farben: von W. Ternite; mit einem erläuternden Text von C. O. Müller. Berlin. Public domain. Source: Arachne. On the right: detail of the wall decorations in the House of the Venus in the Shell in Pompeii. Photo by Matthias Kabel. Source: Wikimedia Commons.

two cities were talked about, and imagined, as proxies of the glory of imperial Rome, relics of a past of order, beauty and wealth (Leppman 1968). The artists surely felt the weight of anticipation and, maybe, some of them did not want to deal with the disappointing sight of just a regular small provincial city. Status may have also played a role. As it was such a privilege to be admitted in Pompeii in those years, it was rewarding for the artists to propagate the idea that everything in Pompeii was stunning, and the artist's experience was well worth other people's envy. There may have, of course, also been more pragmatic thoughts at play, like the desire to please the public and/or the publisher, giving them what they were already expecting to see, as well as the desire to flatter a powerful king who was incredibly proud, and fiercely protective, of this unique trove.

Ternite wasn't an exception, and this approach to antique painted images was actually very common among his contemporaries, to the point that a bitter sense of disappointment and crushed expectations transpires from several accounts of the first visitors. The practice was becoming so apparent and bold, that some experts started being uncomfortable with it, and seeing it as shameful and misleading. As we read from a source cited in Mattush (2011:13):

"The king is now employing a person to take drawings of all the statues and principal paintings [...]. [T]he writer imagines the world will be vastly deceived with regard to the paintings. For the man is a very nice drawer; and has also managed the colouring to advantage; so that he has made exceedingly pretty things, from originals, which are miserable daubing. The company having seen the drawing first, were extremely disappointed, when they afterwards came to view the originals."

These policies around Pompeii and Herculaneum generated, at the same time, an almost opposite trend in the distortion of representations of pictorial scenes. Because of the strict management of the sites by the Bourbon King, not only was it a rare privilege to be admitted to the excavations as well as the exhibited artefacts in the Portici Museum, but, once there, it was forbidden to reproduce the antiquities in any way (Allroggen-Bedel 1993). Coming from entitlement, political strategy (Roberts 2015) or from a surprising understanding of what we would call today marketing strategies, the rules dictated by the King of Naples were incredibly hard on the enthusiastic artists who managed to get admitted to the sites. Unsurprisingly, despite the restrictions and their enforcement, a number of unauthorised copies of frescoes and statues from the two ancient cities started circulating outside Naples, and soon were reproduced and reprinted all over Europe.

It was a dangerous trade, and, as Gordon (2007) discloses, it even generated an underground network of smugglers and spies. But the temptation must have been impossible to resist for the artists in these early years, and the reward potentially very high. The items exhibited in the Portici museum were always guarded, and it was impossible for the eager artists to simply sit in front of the originals and copy them. They had to start sketching as soon as they exited the museum, and could probably only re-enter a handful of times before raising suspicions. Even with the strongest motivations—pure love for art, economic gain or spite for the King of Naples—there is only so much information that anyone, even a trained artist, can retain in their memory and then transfer hastily in a notebook. These quick, smuggled drawings that ended up being reproduced dozens of times more or less legitimately, often appear simplified, and, on several occasions, they ended up leaving out (or even adding) details from (or to) the original scenes.

The most popular example of this practice is probably the publication assembled, illegally, by French artist Jérôme Charles Bellicard. Once he obtained permission to see the museum, he used it to commit to memory as many surviving frescoes as he could and reproduce them in his notebook, which is now preserved at The Metropolitan Museum of Art, in New York. Overall, the drawings appear faithful enough to make Ramage (2013) suspect that Bellicard was able to bribe one or more guardians and actually was given some time in the museum to produce a few of the sketches. Predictably, though, his reproductions are devoid of details and, as Ramage (2013) points out, in some cases they present variations from the originals (like the drawing of the centaur that, in Bellicard's reproduction, has a different orientation and several inconsistent details).

These two trends that develop around Pompeian artefacts and especially frescoes during the years in which access to the site was tightly controlled remind us of the importance of analysing secondary sources, such as those produced by Ternite or Bellicard, in their historical and cultural context. Perhaps even more important, these two trends highlight how reproductions are only partly about their explicit referent, i.e. the depicted ancient wall, and how much more

they tell about the historical, cultural and even idiosyncratic elements that have contributed to the production of each particular document.

2.2 Ghost scenes in the Iseum

The king of Naples' policy about reproducing the antiquities was not mere obscurantism. He wanted people to talk about his astounding antiquities, but he also wanted to control what information about them was circulating and who had access to it. To produce and disseminate the official documentation of Herculaneum and Pompeii, he hired about fifteen of the most talented artists from the Academia in Naples (Risser & Saunders 2013). Professionals such as Giuseppe Chiantarelli, Aniello Cattaneo, Giovanni Elia Morghen, Giovanni Casanova and Carlo Nolli, all contributed to the monumental official publication on the sites: *Le Antichità di Ercolano Esposte* (from now on *Le Antichità*). Although *Le Antichità* was never completed, and its official circulation was limited to a relatively small number of European nobility and celebrities, it became highly influential, and was a crucial document for later reconstructions and restorations.

Despite being commissioned by the King himself in 1755, the reproductions included in *Le Antichità* seem to be less embellished than others that we discussed before. Although influenced by 18th century taste, the cleanliness of the lines, the use of a more realistic style, the addition of scales and, perhaps above all, the aura of "officialness" contributed to make these images perceived as highly reliable. Unlike other unauthorised documents, illustrations in *Le Antichità* did not show only de-contextualised decorative scenes, but had documented entire walls, preserving key information about patterns, and their role in how the building was seen and experienced. This choice makes the illustrations in *Le Antichità* not only an invaluable information for a 3D visualisation, but even an ideal source of informative textures for the CAD model.

Among the several buildings in Pompeii that have been studied and reproduced from the 18th century onward, one stands out as the most thoroughly documented, since the early days of the excavations: the complex of the Iseum, better known simply as the Temple of Isis (De Caro 1992). There are several reasons that explain the popularity of this place and its unbroken appeal to the public and the experts alike. Many publications already delve into the story of the reception of this unique place. In this context, it suffices to say that the amount and quality of visual secondary sources of the Iseum makes it a perfect candidate for a 3D visualisation, both analogue and virtual. The first one has been carried out by the experts at the Naples museum and it is part of their permanent collection, the second has been attempted by a number of researchers, including myself.

In my 3D visualisation of the Iseum, I had planned to use the etchings printed in *Le Antichità* as textures for the architectural model. After discovering

discrepancies in three different blueprints produced by three different architects in the 18th century—Saint-Non, Piranesi and Soane—I had decided to take manual measurements on site, and to compare them with modern-times surveys such as the ones published by De Caro in 1992. Surprisingly, when measuring the surface of the Iseum's walls in the illustrations in *Le Antichità* according to their own scale, the numbers did not quite add up: the reproduced frescoed walls always seem to be smaller than the recent site measurements. The divergence was not dramatic, but it was big enough to be noticeable and not a simple rounding up the numbers. Prompted by the research of Baker and Blazeby around decorative patterns in Campanian villas (unpublished), I tried to understand what had happened to those missing centimetres. In this quest, I came across the work of academics such as D'Alconzo (2002) who reconstructed the practice of detaching frescoes from walls in Pompeii in the 18th century. As her research points out, in those days the excision was performed leaving a certain margin (on both sides and at the bottom) still attached to the original work. This explanation would reasonably account for the consistent gaps between the scaled drawings and the measurement of the full walls, and it would also suggest that the official copies (and measurements) were not carried out on site, but after the excision. To reflect this awareness, in my 3D model the images used as textures did not cover the entire surface of the related walls, acknowledging the existence of missing areas on the borders that were not included in the secondary sources.

In my 3D visualisation of the Pompeian Iseum, the historical black and white illustrations used as textures were to be superimposed with the photographic images of the surviving fresco fragments, now exhibited in the Museo Archeologico Nazionale di Napoli (MANN). When working specifically with an area of the Iseum known as the ekklesiasterion, a large ceremonial room at the back of the temple, this process led to the discovery of further discrepancies. The walls of the ekklesiasterion depict scenes from the story of Io and her journey to Egypt, alternated with sacred landscapes inspired by the cult of Isis. When comparing the larger scenes in the frescoes with their documentation, the reproductions seem faithful enough, with good attention to details. However, when superimposing the photographs of the fragments on the wall pattern printed in *Le Antichità*, it is easy to notice that there is something wrong. Although the individual scenes appear quite well reproduced, their placement on the walls is arbitrary. In particular, the scenes featured on the walls north and south of the ekklesiasterion have been inverted. The issue had already been noticed and described in detail by Elia in the 1930s, and Sanpaolo in 1992. But the most apparent discrepancy in the documentation can perhaps be found in the central (west) wall. The MANN holds a fragment recorded as “from the temple of Isis” that is catalogued as fragment 1.67, and titled *landscape with sacred door and velum*. As both Elia and Sanpaolo state, there is little room for doubt: that fragment does belong to the ekklesiasterion, and, more precisely,

to the right side of the west wall. Not only the records support this knowledge, but the fragment's style, topic, and pattern confirm it. However, this fragment does not appear in Morghen and Casanova's reproduction of the west wall. Even more surprisingly, there is another landscape in its place, that looks so consistent with the original ones that it blends in without drawing any attention. Evidence suggests that this variant sacred landscape is a fabrication at the hands of the Neapolitan artists (Figure 1.2). A fake Roman landscape has probably little room in a 3D visualisation of an ancient building, especially if its goal is to give shape to what we know about its former look. But it is an interesting piece of evidence that sparks a number of research questions. What is the story behind this imaginary landscape? Was part of these documentation efforts also relying on the artists' memory? Are there further cases that have been spotted in the 18th century documentation? Was there an established practice of producing "filler" images as some sort of *passepartout*?

A critical approach to secondary sources enables us to evaluate their contribution to our knowledge of historical buildings, contextualising these documents in the cultural and historical moment in which they were produced. Such an approach also helps us to look at inconsistencies in the secondary sources not simply as limitations or even inconveniences in our research process but, on the contrary, as flags that alert us of some forgotten practice of knowledge that we have the chance to rediscover and investigate.



Figure 1.2: On the left: Detail of fragment 1.67, Landscape with sacred door and velum. Museo Archaeologico Nazionale di Napoli. Photo by the author, with permission. On the right: detail of Chiantarelli, G. (illustrator) & A. Cattaneo (etcher) West wall of the ekklesiasterion in the Temple of Isis in Pompeii. Published in Elia, O. 1941. *Le pitture del Tempio di Iside*. Roma. Low resolution digital copy of the published book.

2.3 Contracting walls

The next example relates to another building in Pompeii, now known as the House of Orpheus, after a large fresco of Orpheus and the animals. The house was a relatively popular destination in the early years, when it was still called House of Vesonius Primus, and it is featured in a number of early, illustrated guides to Pompeii and other publications, due to the richness, in number and variety, of its surviving decorations (see, among others, Neville Rolfe 1888, Mau 1902, Mackenzie 1910).

Before mass tourism came into place, artists and antiquarians who managed to visit Pompeii, Herculaneum, and the Naples museum were quite enthusiastic about communicating to a wider public what they had seen on site, and I believe that, in many cases, these artists and academics approached their work scientifically and methodically. However, even when accompanied by the highest level of dedication, those artists could not rely on an established and clear tradition about systematic documentation of ancient frescoes. Or, if they did, their references may be lost to our modern understanding.

One of the scholars and artists in the 19th century who authored detailed reproductions of Pompeian walls and floors, including those of the House of Orpheus, was German archaeologist Emil Presuhn in his *Die Pompejanischen Wand Dekorationen*. In his book, Presuhn describes some of the most notable houses; the reports are accompanied by a number of full-page plates dedicated to the frescoed walls. At first, I assumed he had chosen the most richly ornate wall for each of the rooms discussed in his work, usually the one in front of the entrance door, as representative of the decorated space. However, when I tried to use one of his illustrations as texture in a 3D visualisation of the House of Orpheus, I found myself, once again, confused by secondary sources I had naively expected to use as “historical wallpaper”.

In the case of the yellow, small room at the back of the house, just overlooking the garden, Presuhn's illustration turned out not to be the depiction of a single wall. Instead, it seemed to reproduce the shorter (north) wall and half of the long one (west), seamlessly together (Figure 1.3).

But the illustration proved much less straightforward than I had anticipated. In the actual room, the north wall is marked by a frescoed lunette above the door, decorated with a dainty bird picking at cherries. However, in Presuhn's illustration, there are no doors beneath the reproduction on the lunette. Instead of the door frame, Presuhn depicts a small putto that, in the real building, can be admired on the decorative pattern on the opposite wall, the south one. The south wall doesn't have a door, and, although it was probably originally decorated by a symmetrical lunette, had now lost it. Only after comparing Presuhn's illustration with the actual space in Pompeii, I understood that the image in *Die Pompejanischen Wand Dekorationen* was never meant to be a realistic documentation of how the walls in the room, or part of them, look like. It was, instead, a sort of synthetic, almost coded, documentation that made the most

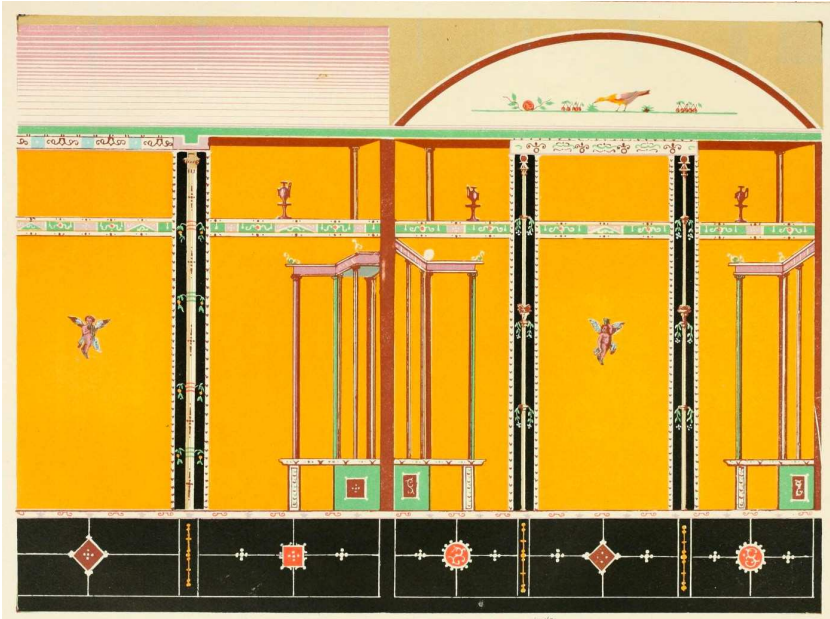


Figure 1.3: Presuhn E., 1878. Pompeji: Die Neuesten Ausgrabungen von 1874 bis 1878. Leipzig: Weigel. (III, Plate VII). Source: archive.org.

efficient use of the available page-space to convey the maximum amount of information about the walls-space: the decoration visible in both short walls (north and south) and only half of the repeating pattern in the long wall (west). After understanding the code, it becomes easy for the 3D modeller to unpack the information and appreciate its clever and functional arrangement that enabled Presuhn to document three walls in a single image.

2.4 Travelling mistakes

When working on a 3D visualisation of an historic building, a key component of the preliminary research is to gather all the relevant sources, primary and secondary, that are still available, and assess how and if they can be included in the new visualisation. It was during this research process around the Iseum in Pompeii that I came across the reproduction of a decorated niche in the temple of Isis. The etcher is Francesco Piranesi, possibly after a drawing of his more famous father, the architect and antiquarian Gian Battista Piranesi. Despite the reliability of the source, I was fairly sure that the niche depicted by the younger Piranesi in that illustration was not originally in the Pompeian Iseum. I subsequently discovered that the niche was actually located in another Pompeian building, the Praedia of Julia Felix, from which it had been moved by excision. The mistake, perhaps surprising coming from Piranesi, is quite

understandable given the Isiac theme of the niche. However, before the information was challenged and corrected, it kept being replicated in other publications. In other words, Piranesi's illustration was plagiarised and republished without any acknowledgements, mistakes included. Of all the publications where Piranesi's original image was re-used and illegally reprinted, one of the most interesting for me was Donaldson's guide to Pompeii (1827). To appeal to the public, the illustrations that accompanied the guide were presented as copies "dal vero", and the author of the "original drawing" is proudly credited with his full military title, lieutenant colonel Cockburn, to add reliability to his "witnessing" of the antiquities. Not only is it very unlikely that Cockburn had made the same accidental misattribution as Francesco Piranesi, but his "original" drawing is just too close to Piranesi's, including the exact same light and shading, to be other than an undeclared copy. The misleading image kept travelling to subsequent publications, becoming more reliable the more it was reprinted, regardless of its actual accuracy. We find it again, more than seventy years later, in Gusman (1924), who, curiously, even attempts a more precise location of it in the Iseum, placing it in the main temple dedicated to the goddess. With scholarly practices changing, though, Gusman finally acknowledges the provenance of the image (that is attributed to Cockburne and not Piranesi), saving himself the embarrassment of pretending to have seen the phantomatic niche with his own eyes (Figure 1.4).

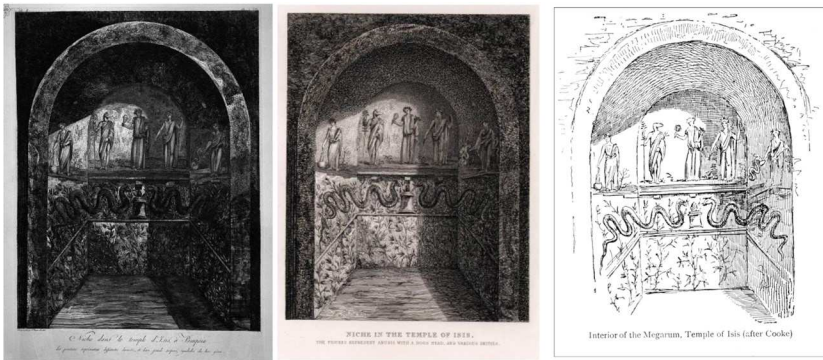


Figure 1.4: From left to right.

- i) Piranesi, F. (illustrator and etcher). Niche dans le temple d'Isis, à Pompeia. In: Piranesi F., *Antiquités de la Grande Grèce aujourd'hui Royaume de Naples ...*, Piranesi frères, 1804–1807, vol. III, Tav. I. Public domain. Source: Wikiart.
- ii) Cockburn (Illustrator) & Cooke, W.B. (Etcher). Niche in the Temple of Isis (1827). In: Cooke, W.B., *Pompeii, illustrated with picturesque views, engraved by W. B. Cooke, from the original drawings of lieut. col. Cockburn ... and with plans and details of the public and domestic edifices, including the recent excavations, and a descriptive letterpress to each plate, by T. L. Donaldson, architect ... in two volumes*. Vol. I. London, 1827. Public domain. Source: Arachne.
- iii) Gusman, P. Interior of the Megarum, Temple of Isis. (1900) In Gusman, P., *Pompei, the city, its life & art*. London 1900. Public domain. Source: archive.org.

A blatant error like the one here discussed can turn into a means to investigate editorial and academic practices of the time, as well as ideas about authorship and attribution, deconstructing the popular narrative of the traveller recounting their “first hand” experience in Pompeii.

3. Conclusions

In this chapter, we discussed the semiotic relationship between 3D visualisations, the secondary sources that are often used as reference, and the original object of representation, but we have also highlighted how the material aspects of the visualisation practices, in 2 or 3D, influence such relationships. I used small, and perhaps anecdotal, case studies to support the following arguments:

3.1 Documentation is necessary

Documentation is an essential component of any research-based visual representation of historical cultural heritage. An accurate and complete documentation enables a 3D visualisation to be replicated and assessed, and to meet the standards of scientific publications. Documentation is also what allows the work of 3D authors today to be still used and understood in the future, detailing not only the technological specifications but also methodological choices and assumptions. In other words, documentation is a communication channel with the scholars of the future, and we should endeavour to keep this channel as open and clear as possible.

3.2 Secondary sources must be contextualised

Secondary sources are invaluable documents about the past, especially, but not only, when they depict buildings or other objects that have disappeared or changed substantially. Researching these sources has always been a key step in scholarly 3D visualisation, and they are often one of the most relevant components of accurate documentation. These documents, however, cannot be taken simply at their “literal” value, and need to be included in their larger historical and cultural context. This process not only enhances the philological accuracy of the 3D visualisation, helping to avoid mistakes and misinterpretations, but should also be considered as a crucial part of the research workflow, as it often leads to new research questions and a better and deeper understanding of the reception of the historical building that is reproduced.

3.3 Making (and re-making) is understanding

Creating a scholarly 3D visualisation of a historical building is a very complex process that blends traditional academic research with practical skills.

This very unusual act of “informed making” generates a deep understanding of the represented object and, even though the reproduction is entirely virtual, it forces the 3D author to think about the materiality of the building, its geometry, its spaces, its ways of being accessed and experienced. Secondary sources become an important component of the re-making of the building, as they are not only used as inspiration but are measured, cut, mirrored, duplicated, superimposed and wrapped around. Under this “making” perspective, it is easier for a 3D scholar to retro-engineer the ways in which these documents were produced in their times, and to re-discover and decode those practices that, maybe common at the time the documents were produced, are mostly lost to us today. Thinking of documentation in these terms makes it a bridge not only with our future collaborators but also with the authors of the past, rediscovering their methodologies and building on top of their work in a more aware and rewarding way.

3.4 What are we representing?

Last, after discussing signs, codes, referents and even ekphrasis, I think it is now reasonable to ask ourselves what is that a scholarly 3D visualisation is *actually* representing? I am convinced that seeing the original building (or object) as the true referent of a 3D visualisation is not only reductive and short sighted but also very likely to be wrong, at least from a semiotic point of view. Especially in the case of ancient and disappeared buildings, it is arguably impossible to represent the original building in all its aspects, as our only knowledge of it is heavily mediated by what others before us have seen, and recorded.

As scholars like Favro (1999 and 2006), Johanson (2009) and more recently Piccoli (2018) have argued, we should think of the referent of a 3D model not as the building itself but *our knowledge of the building*; a palimpsest of layers and layers of interpretations that have accumulated in time and enriched each other and fed the *aura* of the building. What we represent is the history of the building and its reception through time or, as it is called sometimes, its biography.

Our 3D visualisations can be summaries of the previous interpretations and, at the same time, they are just one further layer, one further take on the artistic, historical, and cultural universe to which the building we are representing belongs. Documentation is the best compass to explore such a universe.

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