

Immersion in The Second Style Wall Paintings

The Villa A, Oplontis

MERVE SAHIN

The Edith O'Donnell Institute of Art History
The University of Texas at Dallas

Keywords: Naples, Second Style wall paintings, perspective, immersion, virtual reality

Implementation of complex perspective systems in the room decorations of the Ancient Roman villas, located in Naples and dated around 80 B.C. – A.D. 200, illustrates how art historiography can inform a fundamental framework in new media. 360-degree stereovision-friendly application of spatial perspectives in the ancient rooms mediates a relationship between physical and virtual by appealing to the notion of sensorimotor contingency. The law-like relationship between actions that are in adaption with ever-changing sensory inputs lands into realization by utilizing suspension of disbelief. This biological phenomenon has been at the locus of interdisciplinary inquiry, encompassing both archaeological findings in Italy and the immersive technologies of virtual reality.

Media theorist Oliver Grau showcases a famous example of illusionary spaces in classical antiquity. He examines the triclinium of the Villa of the Mysteries, Pompeii where the viewer is immersed in realistic figures in narration. This paper aims to shift the attention from figuration to pure illusionistic representations of cityscapes in atrium 5, cubiculum 11, triclinium 14, and oecus 23 of the Villa A at Oplontis. Coined by the German archeologist, August Mau, the Second Style wall paintings mark an application of the *trompe-l'œil* effect, which introduces the suspension of disbelief into the physical environment. Convergent and divergent grid systems with various points of recession in the rooms of Villa A, Oplontis approximate a level of immersion; head-mounted display or CAVE systems can now afford in the 21st century.

INTRODUCTION

Roman houses, constructed around 80 B.C. – A.D. 200 in the greater region of Naples, were designed in a way that the particular room ensembles communicate pathfinding, much like modern architecture. Social boundaries encoded in the architectural elements feature a cultural matrix. Various cues embedded in the walls reflected a visual play that immerse the viewer to inform how behave in a specific room and the boundaries between public and private.¹ Social imperatives of acceptable behavior were integrated into the ornamentation of wall paintings and the

artistic techniques of such practices need a closer examination in terms of history and theory within an interdisciplinary study. In the contemporary discussion of cognitive sciences, the ways in which the visual field of alternate space elicits new behaviors has been studied as sensorimotor contingencies. This term accounts for the interaction between the person and environment, which is influenced by the sensory input of what is around in an enclosed space. Technologies of Virtual Reality (VR) with Head-Mounted Display (HMD) or CAVE system with wall installations utilize such new information into the behavioral realm, and this motive was also in the practice of the ancient artists. The Second Style wall decoration in the Roman villas that depicted a form or part of cityscapes paid attention to the peripheral vision in order to immerse the viewer. Ancient artists explored manipulating various perspective systems to increase the level of presence in 360-degree stereoscopic vision.

Creating immersive spaces and transposing the spectator into a closed form is not merely an idea of the computerized age, but an art historical documentation. One of the leading researchers and art critics in the field of media art, Oliver Grau, sets up a progressive theme between the interdisciplinary study of Pompeii wall paintings that investigates early technologies of alternate reality.² The intention of surrounding a viewer with visual stimuli as an extension of the real space informs the Second Style wall paintings of Pompeii. A famous example of illusionary space in classical antiquity studied by Grau was the *triclinium* of the Villa of the Mysteries where the viewer finds herself among highly realistic figures, communicating wall to wall and immersing the audience in its narrative. In the article, "Into the Belly of the Image: Historical Aspects of Virtual Reality," Grau describes the Dionysiac frieze that surrounds four walls, narrating a story of a young woman.³ The antique illusionary space integrated narratology to increase presence in a room where the real environment is manipulated to immerse the viewer in a story. The Second Style decoration of the *triclinium* in the Villa of Mysteries conforms to the technique of *trompe l'oeil* with the fictional dividers of colonnades and four wall installations of frescos to create the immersive effects.

HISTORICAL PROGRESSION AND TERMINOLOGIES

In sixth chapter of his book, *Pompeii: Its Life and Art*, the German archeologist, August Mau, analyses the progress of Roman wall paintings into different stylistic choices and investigates the building materials and construction elements used in countryside villas of Naples.⁴ By looking at the styles of construction and materials, Mau divides the architectural history of Pompeii into six different time periods that later became known as the “Four Styles” of Mau. Additionally, the scholar’s division of styles enriched the academic dialogue around classification and refinement of the stylistic periods over time. John R. Clarke’s field-defining book, *The Houses of Roman Italy, 100 B.C.- A.D. 250: Ritual, Space, and Decoration*, structures itself within the stylistic boundaries of Mau and explores the details in which various villas conform to different styles. In chapter two, “Styles of Decoration, 100 B.C. – A.D. 250,” Clarke argues that interior decoration during the First Style was heavily influenced and limited by construction of materials.⁵ The clay filling that attaches each large blocks of limestones did not have the property of binding as a glue. This caused the walls to be sturdy without any break of continuity, almost monolith-like. The addition of windows was limited to ensure the safety of the wall. The real or imitation precious marbles were used in the decoration of solid surface of interior walls, also known as the faux marble. Each section of the walls were separated by using fictional colonnades as dividers to create a pavilion effect. It was the goal of the First Style wall decorations to imitate a certain level of illusion by using the imitation of precious marbles from Greek islands.

Placement of each colonnade and ashlar marble ornamentation initially constituted the fictional aspect of the First Style that led to the Second Style of wall paintings, which prioritized the level of immersion in rooms through the use of mythologic narrations and cityscapes. The overarching conclusion in understanding the difference of illusionistic approach between the First and Second style decoration become apparent in the content of narration and cityscape. The Second Style mimics structure in wall decorations by painting what is supposed to be a colonade in the First Style. The architectural and visual separation that frame the walls of the First Style is a logical one, while the Second Style “requires a certain suspension of disbelief” according to Clarke.⁶ This suspension of disbelief is a psychological phenomenon that occurs given a stimuli of altered reality, which not only happens during the reception of visual stimuli, but also is observable as the presence of illusion. The famous Rubber Hand Experiment illustrates how the synchronization of body parts can impact the perception of reality and its distortion.⁷ In this experiment, a rubber hand is placed on either left or right arm, while covering the real arm itself. Two real hands, one under the cover and the other is open in the vision field, are first stroked with a feather synchronically. Then, the rubber hand is stroked, and the person feels the soft feather as if like the real hand. The brain is tricked into believing that the rubber hand is the real hand. Sometimes for the sake of entertainment of this experiment, a hammer slams down on the rubber hand to see the reflexive

reaction from the participant. The transgression immediately receives an emotional and bodily reaction. This phenomenon is later conceptualized as the sensorimotor contingency of the human brain.

One of the crucial aspects of immersive environments that appeals to the human cognitive psychology is the sensorimotor contingencies. According to the theory that explains this phenomenon, the basis for sensory experience and awareness in humans is constituted by the law-like relation, casual or not, between actions and contingent changes in the sensory signals of brain.⁸ The sensorimotor contingencies are not solely or unintentionally observed and recorded by the person but are actively and intentionally exercised in behavior. 360-degree stereoscopic view that is enabled by the HMD systems increases the level of immersion by continuously stimulating alternate sensorimotor contingencies in comparison to the two-dimensional media. Imitating the sensorimotor contingencies in a computer graphic interface is still a technological challenge, especially when we are still in the dark about human brain and its perception of reality. In a virtual environment, the designer of any sensory system creates an exclusion of all the physical bodily experience by working on a three-dimensional environment, as such “the body is reduced to a single Cartesian point, the body is checked at the door” as Simon Penny describes.⁹ This phenomenon is sometimes called as presence, telepresence, or telexistence. The cognition of visual perception in altered space is realized by the rendering of various perspective systems into a 360-degree stereoscopic vision that the historical data set in Pompeii taps.

The illusionistic program of wall paintings in Pompeii articulated a refined application of perspective that immersed the viewer into 360-degree vision of altered space. The examples that exemplify cityscapes and view-through temple structure were used in Room 16 of the Villa of Mysteries, *cubiculum* of the Villa of P. Fannius Synistor at Boscoreale, and *atrium* 5, Room 15, *triclinium* 14, and *oecus* 23 of the Villa A at Oplontis. The cityscapes and their representation in the Second Style wall paintings and the formulation of view-through came from a 1959 paper by the archeologist, Heinrich Drerup, in his essay, “Bildraum und Realraum in der römischen Architektur.”¹⁰ Earlier in his paper, he argues that the Second Style wall paintings, especially the ones that create immersive experiences provides an extension of perceived space. He formulates the architectural *Durchblick* of the villas where the configuration of *fauces-atrium-tablinum* axis of the villas inspired the cityscape element of the Second Style wall painting.

THE VILLA A, OPLONTIS

The Villa Poppaea, a seaside Roman villa, located in Torre Annunziata nearby the city Pompeii, exemplifies the periodic exchange between the First and Second styles. First built approximately in 50 B.C., the house enlarged in space with a change of owners. Entering the house from the oldest parts of it, the *fauces*, the courtyard garden welcomes the visitor with



Figure 1. The west wall of atrium 5 of the Villa of Poppea, The Villa A, Oplontis. Image credit The Oplontis Project.

the use of First Style decoration. The stucco extension of the wall resembles the post and lintel structure of an Ancient Greek temple along with the use of Doric style colonnades. The *pluteus peristylum* connects to Room 4 where zebra stripes appear on the lower zone of both east and west wall. The appearance of the Zebra Style surrounds a debate about its meaning.¹¹ The explanation of the motif demonstrated that the choice was rather practical that it marks the points of leaving the slaves further in the waiting room or serving in the house. The passage between Room 21 and Room 4 exhibits further zebra stripes that is sometimes called as “the Fifth Style.”¹² The social boundaries of public and private of welcoming slaves in the house cued as the fictive elements of zebra stripes, while informing the pace of the viewer to decode the message. After passing by the zebra stripes in Room 21, the Second Style wall painting walls surround the *impluvium*.

The reconstruction of *atrium* 5 suggests that the height of the decorative walls is 5.6 meters each where paintings reflect a transformative period between the First and Second Style paintings. (Figure 1) The use of faux marble in the First Style is a reference to the material of Ancient Greek sculptures that is made of precious marbles such as the Parian marble from

the island of Paros. The Second Style paintings in the east and west walls encapsulate and mimic a three-dimensionality within two-dimensions by using the technique of fresco that mimics the precious stones in the interior decoration. Compared to the other Second Style paintings at the Villa A, the level of immersion in *atrium* 5 is not a potent one. The reason may very well be that the *atrium* is a large-scale room, and the surrounding elements cause a break of illusion. The Second Style rooms at the Villa A such as *triclinium* 14, Room 15, or Room 11 employ a view of pavilion or tholos in rather small size rooms. The *atrium* 5, however, is a representation of wall structure with engaged columns, but positioned in a way that the exterior decorations are inverted inside the room. This effect is also achieved with the placement of motifs. Chapter two of the book, *Oplontis: Villa A (“of Poppaea”) at Torre Annunziata, Italy: The Decorations: Painting, Stucco, Pavements, Sculptures Volume 2*, “The Second-Style Paintings at Oplontis,” written by Eric M. Moormann, illustrates the meaning behind these wall-hanging motifs in the *atrium* 5 where the various elements in the frescos that have symbolic associations.¹³ He calls this room, “A Wunderkammer inviting owners and visitors to reflect and discuss,”¹⁴ and suggest that the motifs are about a military success in Macedonia with a gratitude towards gods.

The torch may be interpreted as a symbol of life that refers to a monumental remembrance of dead family members.

In terms of the technical marvels of this wall painting, changing the location of the viewer reveals the illusionistic goal of tilted cuboid. This is achieved by tilting the cuboid bodies of each section of walls that is separated by colonnaded ornamentation. This signals that the painter of this wall has the aim to trick the brain that the form of cuboid is tilted, therefore three-dimensional. *Atrium* 5 contains a three-dimensional depth of representation in a two-dimensional surface yet does not capture the complexity of convergent perspective that was later implemented in the Second Style wall paintings. However, this room reveals the techniques of wall paintings across the house. The narrative elements on this inside-out, *pluteus peristylum*, are placed in an illusionistic employment of geometric elements that the sketch under the east wall fresco of *triclinium* 14 depicted.

IMPLEMENTATION OF PERSPECTIVE SYSTEMS

In the article, “Sketching and Scaling in the Second-Style Frescoes of Oplontis and Boscoreale,” John R. Clarke analyses a patch of fragmented and exposed plaster found in *atrium* 5 of Villa A.¹⁵ The piece contains a sketch of the Second Style wall painting in Villa A’s *triclinium* 14 that was later scaled into the entirety of the wall. The illusionistic goal and structural background of the wall paintings in *triclinium* 14 was represented in the piece. A close look at the sketch reveals that it is part of a representation of side wall, found in *triclinium* 14. A central statue is embedded into a *tholos* where the arches along with colonnades framed the sections of walls. (Figure 2) There is a structural coherence in the room with the use of *tholos* where the viewer notices that she is in a round and open-sky structure by seeing the representation of *tholos* itself. As the four walls cover the viewer, as if like being situated into a round building without the limitations of walls, the room immerses the viewer into three-dimensional space. This effect was the result of the collaborative work between the painters that implemented the advance systems of perspective.

In the article, “Roman Model-Books as a Resource of Digital Architectural Reconstructions,” Josef Souček looks at the painters’ workshops that used model-books of the wall paintings.¹⁶ Souček provides the historical background of the workshops and the roles of each painter. A *pictor parietarius* was responsible to paint the structural background and borders. A *pictor imaginarius* would later come in and add the decorative scenes. The standardization of the methods of collaborative painting enabled multiple artists working towards one structural design, encoded in all dimensions of the room, including four walls, mosaic floor decorations with fictive elements, and ceiling. Clarke proposes that the *pictor imaginarius* used a grid-by-grid transfer from the sketch to the wall itself.¹⁷ The mechanics of scaling a sketch onto a wall surface required distinctly specialized artists who were collaborating to create a system of application. This method follows that strings were soaked in a pigment mix, and they were later placed on the wall surface while strings were carried and

placed in the correct space. The plumb-bob metal was used as an early leveling device. These techniques progressed as painting was employed various perspective systems, embedded within the room decorations in Pompeii. Once the implementation of sketching to scaling required multiple convergent perspective, the process with the use of string method was probably improvised by the artists.

DEBATE ON PERSPECTIVE SYSTEMS

The perspective systems of Pompeii villas intentionally aim to create an immersive experience of cityscapes. Taking the complex perspective systems into account, the immersive wall paintings of cityscapes that are found in the examples of the Villa A, Oplontis are 360-degree stereoscopic reconstruction of the villa view. Careful implementation of convergent perspective systems was initially thought to be faulty, yet their application showcases their success in creating immersion with subsequent rendering of three-dimensional space. Various rooms in the Villa A, Oplontis illustrates the stereoscopic vision created into the two-dimensional canvas of frescos. *Oecus* 23 is another room that deploys inside-out *pluteus peristylum* as such in the *atrium* 5. The rectangle application of *oecus* where the colonnades carry the pediment creates an effect on the closed wall panels on eye-level. The choice of rectangular instead of round colonnades eases the viewer into the two-dimensional wall decoration of the semi-open form. The upper zone of the wall paintings in three walls opens to a sky view of post and lintel structures. The play between the depths of open and close space showcases the application of perspective in the three-dimensional plane by converging and diverging the objects from the viewer.

The perspective systems employed in the Pompeii houses in the cityscape Second Style wall paintings have been in the middle of fierce discussion. H. G. Beyen’s work, *Die Pompejanische Wanddekoration vom Zweiten bis Zum Vierten Stil*,¹⁸ explored the discrepancy in terms of the perspective system analysis of Roman houses. Outside of the art historical debate, another reference to the perspective systems of ancient cultures was studied in the fields of cognition sciences. In 1993, the article, “Convergent Perspective and Divergent Perspective: A Cultural Difference with a Clearly Perceptual Cause,” Jan B. Deręgowski illuminates what would be interpreted as the discrepancy of the perspective styles to provide a cross-cultural comprehension on visual language.¹⁹ His differentiation starts with the three different kinds of perspective that are defined by Lepik-Kopaczyńska’s analysis of Beyen’s arguments. The seminal work tries to make sense of the early postulations on the perspective systems of the wall paintings by sorting three kinds that are the faulty symmetrical, faulty perspective converging towards the observer, and faulty perspective converging away from the observer. The single linear perspective by itself does not differentiate the ways in which the perspective systems of the Pompeii wall painting were employed. In the Roman villas, the convergence occurs on the picture plane as a recession of lines aimed to a single area or multiple points of recession. The incoherent application



Figure 2. The west wall of triclinium 14 of the Villa of Poppea, Villa A, Oplontis. Image credit The Oplontis Project.

of these lines is categorized as divergent perspective where Derégowski argues that this method is planned for creating, in fact, a coherent three-dimensional space since the single point perspective fails to reinforce a stereoscopic 360-degree vision in the room ensemble.

Philip Stinson's article, "Perspective Systems in Roman Second Style Wall Painting," summarizes and illustrates the categories in which different perspective systems are embedded within various houses of Pompeii.²⁰ The author states in the beginning of the paper that the vanishing point, which is also known as linear, scientific one point, mathematical or single point convergence perspective, was not the practice of perspective in Pompeii. It was rather two systems; the former is convergent perspective with either an area of recession or multiple recession points, and the latter is parallel perspective with the use of orthogonal lines. These two perspective systems that Stinson illustrates in the paper are what have been constituted as faulty perspective in Lepik-Kopaczyńska and divergent perspective in Derégowski. Stinson demonstrates the implementation of the various perspective systems and their applications to Room 16 of the Villa of the Mysteries and the Second Style decorated rooms of the Villa A. The antechambers Alcoves A and Alcoves B of Room 16 mimic the inside-out, *pluteus peristylum*, in the Villa of the Mysteries. According to Stinson, the lower socle area of the room does not use convergent but parallel perspective with orthogonal. The upper parts of the wall paintings, however, uses a single point convergence. This single point convergence again should not

be confused with the vanishing point but is rather an area of convergence that comes with the asymmetrical perspective.²¹ The reason to use the parallel perspective rather than an area of convergent perspective is to integrate the paintings with the floor level mosaic, which is two-dimensional realm. In a way, if the area convergence effect is extended into the lower socle area, the immersive effect would be diminished as a result of the break of illusion.

Room 15 in the Villa A, Oplontis is another room that employed the convergence perspective in the west and east walls, pointing to an area of convergence around the middle-lower motif. The upper zones of post and lintel colonnades diverge to the single point by creating an open form temple view-through. The similar effect of parallel perspective on the lower zones of two walls are similar to the ones found in Room 16. The ancient painters aimed to create immersive paintings by using the modalities of various perspective systems, appealing a similar method to create an immersive 360 degree-view point. Considering the study of sketching and scaling by John Clarke at the Villa A Oplontis, any wall paintings required multiple artists to work on together. The use of multiple or area of convergence on the upper and middle zones of the wall and the use of parallel perspective on the lower area to integrate the two dimensionality of mosaic floor design intentionally increased immersion and presence in the Second Style of wall paintings. The collaborative nature of the work points to an advanced degree understanding of the perspective in immersive environments.

CONCLUSION

Contemporary research on immersion and presence illuminates the artistic motivations to create the illusionistic spaces that started with the First and Second Style decorative systems of Pompeii wall paintings. Vitruvius' writings on architectural drawings summarize the artistic approach of creating the immersive effect on the viewer. The advanced perspective systems were of little concern for Vitruvius. The Ancient thinker was preoccupied with the immersive representation of the scaenographia of an Ancient city that is achieved through using the perspectival affordances. Known as telepresence in the literature of Virtual Reality, the immersive rooms provide an existence in an alternative reality while granting that the body was positioned in a three-dimensional realm. The Second Style wall paintings explored the ways in which the illusionistic spaces can bring the scenes into the view while centering a viewer in a total environment. Immersive storytelling at this time emerged as a phenomenon of art history that were picked up again with the techniques to create illusionistic ceiling painting in Renaissance, Baroque and Rococo. This paper did not aim to historicize the concept of immersive reality, but rather study the ways in which artists approached the phenomenon of sensorimotor contingencies that stimulated of new behavior in an altered reality or automated emotions within architecture. While this new language is now studied with the introduction of VR systems such as Oculus and Metaverse, the study of key behavioral elements in 360-degree stereoscopic vision was in the mind of ancient artist.

ENDNOTES

1. Andrew, M. Riggsby, "'Public' and 'Private' in Roman Culture: The Case of the Cubiculum," *Journal of Roman Archaeology* 10 (1997): 36–56.
2. Oliver, Grau, *Virtual Art: From Illusion to Immersion*, Leonardo (Cambridge, Mass. London: MIT Press, 2003).
3. Oliver, Grau, "Into the Belly of the Image: Historical Aspects of Virtual Reality," *Leonardo* 32, no. 5 (1999): 365–71.
4. August, Mau, *Pompeii, Its Life and Art*, trans. Francis Kelsey (London: Macmillan Co., Ltd.: The Macmillan Company, 1902).
5. John R., Clarke, "Styles of Decoration, 100 B.C. – A.D. 250," in *The Houses of Roman Italy, 100 B.C. - A.D. 250: Ritual, Space, and Decoration*. (Berkeley: University of California Press, 2007).
6. Clarke, *The Houses of Roman Italy*, 100 B.C. - A.D. 250.
7. Matthew, Botvinick and Jonathan, Cohen, "Rubber Hands 'Feel' Touch That Eyes See," *Nature* 391, no. 6669 (February 1, 1998): 756–756.
8. Annika. Lübbert et al., "Socializing Sensorimotor Contingencies," *Frontiers in Human Neuroscience* 15 (September 15, 2021).
9. Penny, Simon, *Traces*, networked CAVes (immersive VR spaces), 1998, Archive of Digital Art (ADA).
10. Heinrich, Drerup, *Bildraum und Realraum in der römischen Architektur* (Römische Mitteilungen, 1959).
11. Jacobus Evert, Rauws, "Zebra Stripes: Minimal Art as 'Fifth Style' Wall Painting in Roman Campania," *Rivista Di Studi Pompeiani* 26–27 (2015): 53–60.
12. Rauws, "Zebra Stripes."
13. Eric M., Moormann, "The Second-Style Paintings at Oplontis," in Oplontis: Villa A ("of Poppea") at *Torre Annunziata, Italy, The Decorations: Painting, Stucco, Pavements, Sculptures 2* (New York: American Council of Learned Societies, 2019).
14. Moormann, "The Second-Style Paintings at Oplontis."
15. John R, Clarke. "Sketching and Scaling in the Second-Style Frescoes of Oplontis and Boscoreale." In *La Villa Romaine de Boscoreale et Ses Fresques*, edited by Alix Barbet and Verbanck-Piérard, (Paris: Les éditions Errance, 2013): 199-209.
16. Josef, Souček, "Roman Model-Books as a Resource for Digital Architectural Reconstructions," *Heritage* 4, no. 1 (2021): 20–31.
17. Clarke, "Sketching and Scaling in the Second-Style Frescoes of Oplontis and Boscoreale."
18. Hendrik Gerard, Beyen, *Die Pompejanische Wanddekoration Vom Zweiten Bis Zum Vierten Stil* (Springer Dordrecht, 1938).
19. Jan B. Dereffowski, "Convergent Perspective and Divergent Perspective: A Cultural Difference with a Clearly Perceptual Cause," in *Cognition and Culture*, ed. Jeanette Altarriba, vol. 103, *Advances in Psychology* (North-Holland, 1993), 247–63.
20. Philip Stinson, "Perspective Systems in Roman Second Style Wall Painting," *American Journal of Archaeology* 115, no. 3 (2011): 403–26.
21. Stinson, "Perspective Systems in Roman Second Style Wall Painting."