Embodied Objects: A Digital Exploration of Women, Space, and Power in the Monza Holy Land Ampullae

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Annabel Wharton

Thesis submitted in partial fulfillment of the requirements for the degree Master of Arts in the Department of Digital Art History and Computational Media in the Graduate School of Duke University

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ABSTRACT

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Abstract

During the Late Antique and Early Byzantine periods, women were fundamental to the expansion and development of the Christian religion. While many sources detailing the lives of these individuals have been lost, the objects owned by elite women may provide answers where text cannot. A collection of lead flasks belonging to Theodelinda (c. 570-627), a seventh century Lombard queen, present an opportunity to study how women exercised power through patronage.

The Monza collection has been analyzed extensively as the remaining material culture of early Christian pilgrimage. Although the material, creation, and decoration allude to the Holy Land, the flasks have been housed in northern Italy since their acquisition by the Queen Theodelinda. Art historical and archaeological works have mostly sought to tie the visual traits of individual objects to their role in pilgrimage. Other aspects, such as the collection’s relation to space and role in patronage, are less apparent and therefore have been under investigated. Until we understand these facets, knowledge of the flasks and their owner, Theodelinda, will remain limited.

This thesis aims to reconsider the spatial significance of the ampullae through Theodelinda’s perspective. Building from previous literature, the project combines analog and digital approaches to form new perspectives on the collection. Maps created with ESRI’s ArcGIS contextualize the ampullae within the larger spheres of seventh century Holy Land pilgrimage and medieval queenship. A model constructed from images of ampullae of the Aedicule in the Holy Sepulchre using SketchUp and Unity visualizes one way that the symbolic iconography may have been viewed by Theodelinda. Through this multi-dimensional, visual approach to space, a better understanding of the affordances of digital and analog methods may be achieved, as well as
a greater comprehension of the power of the Monza Ampullae and, in turn, their owner, Theodelinda.
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1. Introduction: The Problem, Argument, and Methodological Approach to the Ampullae

In 326, Helena Augusta, the mother of Constantine the Great, set out on a pilgrimage to the Holy Land. While there, she located a number of lost Christian holy sites and oversaw a series of building projects.¹ Posthumous legends have credited her with discovering the True Cross inside the Tomb of Christ.² As pilgrim and patron, Helena linked the Roman imperial throne to Christ and the True Cross, a connection that was vital in its establishment as a Christian empire. The empress harnessed the power to move and be moved through objects.

Helena’s dynamic control through the True Cross offers insight into how she navigated space and established sites as significant places for Christian veneration and representation. She was a mobile woman whose journey through the Holy Land increased the scope of Christian pilgrimage. The location of her discovery embodied the Empire’s memorialization and patronage. The True Cross legend speaks to the centrality of site-specific narratives in public perceptions of her individual piety. With her prominent persona, Helena increased the connection of her son’s empire to the religious authority of Christianity.

² The legend of Helena and the True Cross developed over a generation after her death. Drijvers finds seven versions of the Helena legend from Rufinus, Socrates, Sozomen, Theodoret, Ambrose, Paulinus of Nola, and Sulpicius Severus. Drijvers, Helena Augusta. Kenneth Holum argues that these legends testify to Helena’s piety. Holum, “Hadrian and St. Helena,” 76.
The stories of women such as Helena have been studied throughout the centuries, as scholarship has consistently challenged historical paradigms. This investigation harnesses the new generation of digital technology to critically examine the past. Digital methods provide never before accessed avenues for analyses by combining intimate depictions of objects with broader visual inquiries in the form of mapping or modeling technologies to fill gaps in missing or nonexistent sources. These investigations expose individuals and systems previously absent from narratives and illuminate the significance that people place on spaces and objects. Digital tools can be exploratory routes to expand on and reevaluate histories of gender, religion, power, and spaces that no longer exist.

The famous Monza Holy Land Ampullae (Fig. 1) exist at the intersection of pilgrimage objects and the power of women. Conclusive information on them, however, remains relatively speculative. The collection is composed of sixteen flasks that range in size from four to seven centimeters in diameter. They are made of thin layers of pewter lead molded into bulbous shapes. In the beginning of the seventh century, a collection of pilgrim ampullae came to Lombard Italy, where they became the possession of the Queen Theodelinda (c. 570-627), who, like Helena, sought to convert her kingdom from Arian Christianity. Research into this group of objects has primarily focused on individual flasks in the material culture of pilgrimage and largely ignored.

3 The most pivotal text in reevaluating the history of women has been Linda Nochlin’s “Why have there been no great women artists?” She calls for systemic change to how women have been discussed and conceptualized throughout time. Linda Nochlin, “Why have there been no great women artists?,” *The feminism and visual culture reader* (1971): 229-233. Stemming from this, scholars who challenge previous notions of early Christian women include Leslie Brubaker, “Memories of Helena,” 52-75; Liz James, *Empresses and Power in Early Byzantium* (Women, Power & Politics) (Leicester University Press, 2001); Diliana Angelova, *Sacred founders: women, men, and gods in the discourse of imperial founding, Rome through early Byzantium* (University of California Press, 2015).

the significance of the collection to Theodelinda.\textsuperscript{5} When the ampullae are discussed in relation to the Lombard Kingdom, the arguments focus on acquisition. Some believe that the flasks were gifted by Pope Gregory the Great (c. 540-604) to promote a shift away from Lombard Arianism, while others suggest that Theodelinda sent for them herself.\textsuperscript{6} The lack of information about these ampullae poses a scholarly problem. How do we study the cultural meaning and historical context of objects whose provenance is obscure? Learning to work with and against what little is known is an important part of the current work.

![Monza Ampullae collection, c. 600, photograph, Monza, Museo del Duomo di Monza.](image)

Lack of information poses a particular challenge when studying the ampullae. A way to resolve this issue is by combining digital methods with analog modes of research. With digital tools, data points can become visualizations that may shift depending on the context. These visualizations may highlight missing information from the dataset. Although digital models are

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\textsuperscript{5} The objects are commonly studied in pilgrimage because their iconography has been praised as part of the origins of early Christian art. As a result, they are rarely considered outside of the field.

\textsuperscript{6} Alžběta Filipová argues by process of elimination that the collection was sent by Theodelinda herself. Filipová, “On the origins of the Monza collection of Holy Land ampullae,” 5-16.
problematic, they can be used in critical ways. Addressing challenges in the technologies affords opportunities to consider how the digital tool and the physical object construct knowledge. This thesis utilizes digital methods to explore the Monza Ampullae’s complex and varied relationship to space.

Since their late eighteenth century rediscovery, the collection of small lead flasks has been studied extensively to expand knowledge of early Christian pilgrimage. Scholars have historically examined each object independent of one another and argued that their value, particularly in pilgrimage, lies in the iconographic and material associations with holy sites. Few, however, have explored the potential of the whole collection to create nuanced spatial arguments beyond pilgrim interpretations. Until we understand the collection’s movement, relation to space, and existence in space, knowledge of the flasks and their owner, Theodelinda, will remain limited. Digital methods offer new ways to closely examine and depict the spatial properties of objects by considering the spaces that people and their things occupied from qualitative and quantitative standpoints. This project investigates the collection as an interface to connect spaces and places in order to make sense of a past, not to recreate or simulate one.

Thinking about the collection as an interface affords opportunities to study the objects from different viewpoints. Instead of using the flasks to recall pilgrimage, Theodelinda may have

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7 Willard McCarty emphasizes that for scholarship, the process of modeling is more helpful instead of the resulting model itself which is a flawed representative form. He finds that modeling is a way to examine what the scholar sees and does during the act. Willard McCarty, “Modeling the actual, simulating the possible,” in The Shape of Data in the Digital Humanities: Modeling Texts and Text-Based Resources, Digital Research in the Arts and Humanities (London and New York: Routledge, Taylor & Francis Group, 2019), 264-84.

used them virtually to tour the Holy Land. As objects materially and iconographically tied to the Holy Sepulchre, the collection may have given the Lombard Queen the ability to emulate Helena, the site’s originating patron. By incorporating digital tools into the approach, we are able to visualize the symbolic spatial properties of the ampullae and investigate how Theodelinda may have perceived the Holy Land.

To accomplish this, I turn to two methods: three-dimensional (3D) modeling of the fourth century Aedicule in the Holy Sepulchre and mapping the ampullae with Geographic Information Systems (GIS). Modeling the Aedicule, which encloses the Tomb of Christ, is crucial since so many of the ampullae refer to its symbolic architectural space and, by extension, its location at the center of the Holy Land pilgrimage.

Artifacts can be used to critically examine digital tools at the same time that digital technologies provide a lens for looking at the physical objects. Engaging in the process of building a model forces close reading of objects which, in turn, promotes a reconsideration of the ampullae themselves. By depicting the spatial relations of objects, the ‘digital turn’ affords fruitful lines of inquiry that would be difficult to achieve with traditional scholarship.

Due to the breadth of scholarship on the ampullae and the inability to visit the collection in a pandemic, the scope of the thesis focuses on the Monza Ampullae from their inception in the early seventh century Holy Land up to their final destination in the early to mid-seventh century Lombard Kingdom. Following this introduction, the second chapter reviews historical approaches to the ampullae, followed by a defense of digital methods. The third chapter

9 3D modeling refers to the process of using specialized software to create a mathematical representation of an object’s surface in three dimensions.
10 McCarty, “Modeling the actual, simulating the possible.” 264-68.
11 The research of this thesis took place from fall 2019 to fall 2020, during that time the Covid-19 pandemic hit, and the author was unable to access the ampullae and potential primary sources in Monza and Bobbio Italy.
contextualizes the collection in Theodelinda’s view of seventh century pilgrimage and patronage. Both of those chapters aim to highlight how the ampullae provide a path to examine multiple complex spaces. The fourth chapter provides an overview of the methodology and decision-making during the creation of the digital visualizations. A final chapter summarizes the project by evaluating the research process and the impact of multiple digital visualizations of space on collection and the future of early Christian material culture.
2. Attitudes Towards Objects

2.1 Interpretations of Material Culture of Late Antique Pilgrimage and Queenship

The Monza collection has long been acknowledged as part of an important moment in the iconographic origins of Christian art. Early scholars were concerned with documenting the imagery and formal qualities of the ampullae, which underscored an argument for the importance of their connections to the Holy Land for pilgrims. Recent work, however, has shifted the focus of the collection to its complex relationship with its original owner, Theodelinda. This research, along with broader studies of Late Antique imperial women, explores how women created their own space through patronage.

In the last 250 years, the Monza Holy Land Ampullae have enjoyed a rebirth of interest and appreciation.¹ They have been analyzed under the larger umbrella of early Christian art history, where the field, up until the later-twentieth century, was primarily concerned with recording the iconography of early Christian art.² By the 1980s, iconographic readings of art were

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² 1940s scholarship by Harold Willoughby and André Grabar took an interest in iconography. These researchers focused on symbols in early pilgrimage art, theorizing that they referenced particular features at sites rather than descriptions of gospel text. Harold R. Willoughby, “The Distinctive Sources of Palestinian Pilgrimage Iconography,”
increasingly paired with critical theories, as art historians began to explore the field of early Christian art in more robust and nuanced historical ways that drew on a different range of evidence. For example, the authors in the 1990 The Blessings of Pilgrimage anthology employed a variety of methods, including material cultural studies, semiotics, and social history. Collectively, these scholars steer discussions of early Christian art away from intensive symbolic analysis into socioeconomic histories surrounding artifacts.³

The geographic link between pilgrim and site through art has been iconographically and materially explored in essays in this volume by Gary Vikan, Cynthia Hahn, and Robert Ousterhout. In a semiotic approach to the ampullae, Gary Vikan emphasizes that ancient pilgrims mimicked their actions of pilgrimage by touching their flask, so as to be connected to the holy space.⁴ Cynthia Hahn expands the discussion from a material cultural standpoint by arguing that pilgrimage, which occurred in real time, could be revisited virtually and replicated with the

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flasks. According to Hahn, and reinforced by Robert Ousterhout, the ampullae existed as portable copies of *loca sancta* to connect the pilgrims to the pilgrimage.

Work following 1990 continues this line of analysis by contending that divinity was exported and brought back to Europe through the physical objects. These ampullae provided individuals with the ability to possess holiness and control its allocation by creating centers of power in architectural replicas. Current scholarship also incorporates sensorial analyses to suggest that the divine presence in the flasks could take a material form and be experienced sensorially in the ampullae. For archaeologist Heather Hunter-Crawley, the flasks made pilgrimage relivable to those who had experienced it in-person and indirectly to those who remained in Europe. The ampullae invoked holiness through the sensory experience of place.

The Monza Ampullae have often been studied as artifacts of pilgrimage, but there is little evidence to prove that they were used by pilgrims. What is established, however, is that a Lombard Queen acquired the collection in the early seventh century and they have since remained in Italy. Work by Alžběta Filipová has expanded the biography of the Monza ampullae beyond pilgrimage to suggest that the flasks were obtained by Theodelinda herself, which contradicts the

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6 Robert Ousterhout analyzes architectural “copies” of Holy Land buildings to determine that they symbolically replicated sites through topographical transfer of the divine. Robert Ousterhout, “The Architectural Response to Pilgrimage,” *The Blessings of Pilgrimage*, edited by Robert Ousterhout (Urbana, IL: University of Illinois Press, 1990), 108-124. For Krautheimer’s original argument see Richard Krautheimer, “Introduction to an ‘iconography of mediaeval architecture,’” *Journal of the Warburg and Courtauld Institutes* (1942): 1-33. For scholars following Krautheimer, and later Ousterhout, architectural replicas were more influential than individual objects because the buildings acted as places of worship, icons, and seats of power. Colin Morris, for example, uses memory studies to argue that the Holy Sepulchre was visited by pilgrims who captured and carried its holiness via relics. Because of this, the Sepulchre became an active agent in pilgrimage. Colin Morris, *The Sepulchre of Christ and the medieval West: From the beginning to 1600* (Oxford University Press, 2005).
9 Hunter-Crawley studies the interactions between the pilgrim, the ‘souvenir,’ and the cultural network of pilgrimage. Hunter-Crawley, “Pilgrimage Made Portable,” 135-156.
previous belief that they were sent by the Pope. Filipová stresses that, under Theodelinda, the flasks shifted from being objects of memory of the Holy Land into a collection of sacred objects that symbolized the Holy Land. In this regard, the extended narrative of the ampullae prompt further questions about the role of objects in royal women’s lives.

The narrative surrounding material culture of early Christian queenship and patronage has become more popular in scholarship within the past few decades. Leslie Brubaker looks to early imperial women to argue that they worked to recreate Helena’s symbolic function by patronizing buildings that reference sites associated with the empress. Judith Herrin traces larger patterns of aristocratic Byzantine women to demonstrate how empresses funded building programs to withdraw to when their active political roles ceased. Merovingian queens were also patrons, although the degree of their access to material resources depended upon their marital status, according to Yitzhak Hen. Covering a wide temporal and spatial range, these scholars prove that women exercised their power through patronage.

14 When women were married, they required the cooperation of their husbands to patronize and build churches. But when they were nuns or widows, women were independent patrons of artisans or authors and often turned to gift giving as a form of patronage. Yitzhak Hen, “Gender and the patronage of culture in Merovingian Gaul,” in Gender in the Early Medieval World: East and West, 300-900, edited by Leslie Brubaker and Julia Smith (Cambridge University Press: Cambridge, 2004), 217-233.
More recently, objects have also informed how royal women operated in political and religious spheres. For example, the authors in the *Moving Women Moving Objects (400–1500)* anthology assess how material culture played a role in the lives of noblewomen as they moved through time and space. Scholars such as Tracy Chapman Hamilton and Mariah Proctor-Tiffany argue that medieval and early modern women moved geographically and exchanged gifts to create ties between cultures and political networks.\(^{15}\) In an individual light, women used their mobility and gifting to control their own narratives. These connections further reveal how medieval women utilized gendered spatial networks to represent themselves and, by extension, their families.\(^{16}\)

Little work, however, has investigated the significance of the collection’s complex spatial relationship from Theodelinda’s perspective. I argue that space is crucial to understanding medieval notions of power.\(^{17}\) The objects that women owned made space materializable and provided them ways to exercise power.\(^{18}\) Medieval women used their things to create place out of space. Studying the existing material culture through their eyes offers multiple ways to examine placemaking through space.\(^ {19}\)


\(^{17}\) The relationships between space and power coming out of the ‘spatial turn’ have been essential theoretical underpinnings for this thesis. The ‘spatial turn’ refers to a movement from 1880 to 1960 when academic discourse (specifically in the social sciences and humanities) focused on situating human nature and narratives in space. Following the 1960s, work by Foucault, Lefebvre and de Certeau theorized space as the result of implicit power relations. The ‘spatial turn’ reminds us that histories, religions, people, things, places, and buildings are situated in constructed spaces that require unpacking to understand their full complexity. Jo Guldi, “What is the Spatial Turn?,” *Spatial humanities: A project of the institute for enabling geospatial scholarship* (2011).


2.2 Digital Methods in Art History

Since the late 1970s, art historians have employed digital technologies, but within the past decade there has been an increased interest in the potential of a “digital turn” to transform the discipline. Early projects turned to computers to manage more efficiently, organize and catalogue large collections of data. Digitization and the internet have made works of art accessible to the public, which, in turn, encouraged multidisciplinary collaboration. Digital theorists in the 1980s and 1990s envisioned art history as benefitting from computers – by data collection through digitization, data retrieval, visual analysis, (re)constructing or simulating objects, and administering or organizing people and things.

While the “digital turn” was originally viewed as tools to be applied to existing methodologies, scholarship in the last two decades has since questioned this paradigm.

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21 Websites such as Reddit (r/MapPorn) and SketchFab allow users to self-publish academic and non-academic projects alike. Collaboration in these digital spaces is common.


23 For scholarship critiquing earlier digital methods see Anna Bentkowska-Kafel and Hazel Gardiner, Digital Visual Culture: Theory and Practice, Computers and the History of Art, Yearbook (Bristol: Intellect Books, 2009); David Berry, “The Computational Turn: Thinking about the Digital Humanities,” Culture Machine 12 (2011): 1-22; Alan Liu, “The State of the Digital Humanities: a Report and a Critique,” Arts & Humanities in Higher Education, vol. 2 (2011): 8-41; Tara McPherson, “Why is the Digital Humanities so White? Or Thinking Through the Histories of Race and Computation,” in Debates in the Digital Humanities, edited by Matthew Gold (Minneapolis: University of Minnesota Press, 2012), 139-160; Kim Gallon, “Making a case for the black digital humanities,” Debates in the digital humanities (2016): 42-49; Sander Münster, Kristina Friedrichs, and Wolfgang Hegel, “3D Reconstruction Techniques as a Cultural Shift in Art History?,” International Journal for Digital Art History: Issue 3, 2018: Digital Space and Architecture 3 (2019): 39-59. Digital theorist Johanna Drucker posed the question in 2013: is there a ‘digital’ art history? She asserts that by utilizing digital methods, art is able to be analyzed in a variety of imaging techniques that can gather more information than the human eye. For Drucker, the importance of ‘digital’ in art history is its ability to affect the process of looking at an object rather than the object itself. See Johanna Drucker, “Is there a “digital” art history?,” Visual Resources 29, no. 1-2 (2013): 5-13. A number of peer-reviewed journals, such as The Artl@s Bulletin and the International Journal for Digital Art History (DAHJ) debate the scale and impact of such technologies in the field, but there is no doubt that the digital has taken hold in art history. The Artl@s Bulletin tends to be interested in digital mapping and visualizations that illustrate networks of exchange. The degree with which these articles engage complexly with digital and historical questions differs greatly. On the flip side, the International Journal for Digital Art History (DAHJ) digs deeper into more comprehensive analyses of digital methods by engaging with technologically centered discussions. Nevertheless, both publications tackle how the “digital turn” has or will shift the field of Art History.
projects have built entirely new tools and methodologies that challenge previous notions of what digital methods mean. Art historians, who are generally inclined to study visual media, have gravitated towards methods of visualizing information as avenues for research. These digital visual analyses are powerful tools of research because of their ability to scale information, edit and tailor to the mode of presentation, combine information from many fields, and recognize patterns in the evidence. More specifically, in the case of the Late Antique, Medieval, and Early Modern periods, digital researchers tend to favor spatial analyses such as digital mapping and 3D modeling, which capture information as visualizations.

Mapping has long been a part of art historical scholarship, particularly in early Christian scholarship. In the prominent 1977 text, *Jerusalem Pilgrims: Before the Crusades* for example, John Wilkinson illustrated pilgrimage movement around the Holy Land in 49 hand-drawn maps. His single layered maps traced data from individual pilgrims and combined itineraries to show general trends of movement. GIS allows scholars to go beyond analog forms of mapping by visualizing geographic patterns embedded in the evidence and exploring the evidence on different scales. Projects like The Digital Archaeological Atlas of the Holy Land or “Min(d)ing the Gaps,” incorporate GIS as analysis to compare, identify, and visualize evidence.

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24 One such example, the Mukurtu Hubs and Spokes project documents the cultural protocols surrounding cultural materials through a digital archive. Because of specific protocols, entirely new forms of metadata were created which shaped the project’s methods of data collection. See Kimberly Christen, Alex Merrill, and Michael Wynne, “A community of relations: Mukurtu hubs and spokes,” *D-Lib Magazine* 23, no. 5/6 (2017).


28 Anne Kelly Knowles and Amy Hillier, *Placing history: how maps, spatial data, and GIS are changing historical scholarship* (ESRI, Inc., 2008).

29 The project becomes a database for thousands of archaeological sites that can be organized by attributes such as site type, features, and time periods and made into layers on a map. Layers can then be compared and analyzed against each other. Stephen H. Savage and Thomas E. Levy, “DAAHL—The digital archaeological atlas of the holy land: A model
been used to document networks less apparent in text. For instance, the Digital Pilgrim Project and essays in *Moving Women Moving Objects (400–1500)* employ GIS maps to examine the “itineraries,” or lives of objects through space and time. Tracing objects is essential for understanding how early Modern people and their artifacts moved and how identities were constructed through objects. Unlike traditional methods of cartography, GIS combines qualitative data, quantitative information, and various formats of media into a single program to better visualize systems and individuals in space.

Visualizing information is an essential affordance of GIS. However, the process of mapping is equally important to the final product, according to David Bodenhamer. He argues that engaging with making maps facilitates new knowledge beyond the maps themselves. “Deep mapping,” or capturing simultaneous narratives across time and space united through shared geography, reveals to researchers how space and place are constructed within culture and society.

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30 The Digital Pilgrim Project uses GIS to map objects from Medieval pilgrimage against datasets of roads, waterways, and demography to illustrate how and why things were used. By collecting the find-spots of medieval pilgrimage badges in a GIS dataset, the researchers are able to transfer evidence to a map which visualizes the medieval pilgrim’s relationship to space through material culture. Amy Jeffs and Gabriel Byng, “The Digital Pilgrim Project: 3D Modeling and GIS Mapping Medieval Badges at the British Museum,” *Peregrinations: Journal of Medieval Art and Architecture* 6, no. 2 (2017): 80-90.


3D technologies provide other digital ways to explore information. They can visualize virtual experiences of things and places. Since initial use in the 1980s, digital models have been an essential form of 3D technology for research. Classicists, archaeologists, and art historians have considered 3D models a way to understand the emotional and embodied experience of space. They have used modeling to investigate, assemble, and visualize buildings or artifacts without disturbing them or their physical locations. For example, Justin Underhill’s model of the refectory of Santa Maria delle Grazie tests the role of light in Leonardo da Vinci’s Last Supper mural without disrupting or harming the space. 3D digital reconstructions also explore sources. Susanne Saft and Michael Kaliske utilize models to understand how a historical keyboard functioned and simulate how it might have been used. By modeling 2D depictions,
researchers can compare and discover differences in perspectives. These examples catalogue the scope and scale of questions that 3D modeling has been able to answer through its integration in the field.

Digital models have also been paired with simulation to gather dynamic data. In practice, researchers can simulate a process and collect information on the resulting effects. On a more theoretical level, Willard McCarty, a Professor of Humanities Computing, has examined the speculative nature of the digital through modeling and simulation. He argues that each digital tool creates either a model or a simulation of space. Models isolate aspects for close study while simulations address entire systems. Visualizations are constructed through the iterations of models which, with each build, bring the researcher closer to an unreachable truth. Like Bodenhamer with GIS, for McCarty, the process of research through iterative exploration is as important as the end result.

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39 This happens in a 3D model of Piero della Francesca’s fresco of “The Resurrection” which uses modeling as an iterative application to examine the scene from different viewpoints and claim possible alternatives to the original fresco’s collocation. Marcello Carrozetto, Chiara Evangelista, Raffaello Brondi, Franco Tecchia, and Massimo Bergamasco, “Virtual reconstruction of paintings as a tool for research and learning,” *Journal of cultural heritage* 15, no. 3 (2014): 308-312. Some researchers employ digital reconstruction to contextualize objects within geographies or in relation to other objects. For examples see Hubertus Kohle, *Digitale Bildwissenschaft* (Hülsbusch, 2013). This particular application provides a space to explore the specific typologies or iconographic images on an object.


41 According to Willard McCarty, models have the ability to approach an unknowable truth while simulations generate infinite alternatives that force disbelief to be suspended. In the case of my project, simulations are more problematic than useful. I chose to create a specific model that has knowable outcomes. For further discussion see Willard McCarty, “Modeling the actual, simulating the possible,” in *The Shape of Data in the Digital Humanities: Modeling Texts and Text-Based Resources*, Digital Research in the Arts and Humanities (London and New York: Routledge, Taylor & Francis Group, 2019), 264-84.

Computer-based visualizations have been recognized as interpretive, scholarly tools for communicating and representing ambiguous interpretations and hypothetical ideas. These visual speculations can critically evaluate sources and expose gaps in knowledge. There are many affordances to using digital mapping and 3D modeling; however, both methods are flawed. Creating visualization always involves editing and manipulation. Many have noted that GIS does not adequately represent space and subjectivity. And 3D models tend to depict speculation as definite images. They have limited value when studying artifacts not based on projection of perspective. Digital mapping and 3D modeling are data driven and employ quantitative methods which imply positivist epistemologies. The visualizations in this thesis are simply reflections of a database that have been molded into abstract realities. Although they are valuable methods for research, scholars still face a number of obstacles. Digital methods reexamine and reorganize evidence. The results are never definitive, but they can at least be understood to have exploratory value.

This project seeks to explore how people have perceived and imparted meaning on space. Objects can extend and connect people to places. And places connect people to the past. Digital visualizations can be considered a form of placemaking. For geographer Yi-Fu Tuan, space becomes place as it is experienced and endowed with value. Space is movement while place is pause. With each pause in movement is a possibility for location to become place.

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44 GIS combines qualitative data, quantitative information, and multiple media formats into a single program but at any given time, only one layer of media is legible.
47 Tuan, Space and place: The perspective of experience.
along digital lines, the process of modeling can be viewed as an environment for placemaking because of the particular choices made when building space. The 3D model of the ampullae’s iconography visualizes the collective perspectival space of the collection. Modeling the Aedicule affords a way to learn from and explore the significance of how the Monza ampullae made place materializable. Visualizing the Monza Ampullae considers how Theodelinda saw the collection by tackling spatial questions and histories through digital methodologies. This work attempts to make sense of a past, not just recreate or simulate one.
3. The Holy Land Ampullae in Monza: Historical Context

The Monza Ampullae are displayed in the Treasury of the Museum of the Monza Basilica of San Giovanni Battista. A small door off the transept leads to the museum’s front desk and tiny gift shop. The space is filled with paintings, tapestries, ivories, and gold reliquaries. In the corner of the first gallery sits a fluorescent lit glass vitrine (Fig. 2). The label is peeling, but “Ampolle di Terrasanta” can still be made out. Inside are sixteen lead flasks dating to 600, each about the size of a human palm.1 Both sides of the flasks are decorated with large central images on the bulbs and crosses on the spouts. All of the ampullae have one of two Greek inscriptions along the borders of the images. “ΕΥΛΟΓΙΑ ΚΩΡΙΟΥ ΤΩΝ ΑΓΙΩΝ ΧΡΙΣΤΟΥ ΤΟΠΟΝ” translates to “blessings from the holy places of the Lord Christ,” and “ΕΛΕΟΝ ΞΥΛΟΥ ΖΩΗΣ ΤΩΝ ΑΓΙΩΝ ΧΡΙΣΤΟΥ” translates to “olive oil of the Wood of Life from the holy places of Christ.”2 These inscriptions indicate that the ampullae held oil from the True Cross in the Holy Sepulchre.3 Molded from clay casts, the designs on the flasks depict fairly abstract and simplified artistic renditions. Their decorations, scenes from the life of Christ in the Holy Land, reflect the style of

1 Ampullae would have likely been carried, worn, or tied to clothing. Lead is a naturally occurring metal in the Holy Land that is found in Mount Hermon and in the Negev. Dov Ginzburg, “Exploitation and uses of metals in ancient Israel according to biblical sources and commentaries,” Earth Sciences History (1989): 43-50.
2 “ΕΥΛΟΓΙΑ ΚΩΡΙΟΥ ΤΩΝ ΑΓΙΩΝ ΧΡΙΣΤΟΥ ΤΟΠΟΝ” eulogia kuriou tōn agiōn christou topōn. “ΕΛΕΟΝ ΞΥΛΟΥ ΖΩΗΣ ΤΩΝ ΑΓΙΩΝ ΧΡΙΣΤΟΥ” elaion xulou zōēs tōn agiōn christou.
3 The internal contents of the flasks are further supported by the Piacenza Pilgrim’s account where he describes the process of gathering a blessing at the Sepulchre: “From Golgotha it is fifty paces to the place where the Cross was discovered, which is in the Basilica of Constantine, which adjoins the Tomb and Golgotha. In the courtyard of the basilica is a small room where they keep the Wood of the Cross. We venerated it with a kiss. The title is also there which they placed over the Lord’s head, on which they wrote ‘This is the King of the Jews’. This I have seen, and had it in my hand and kissed it. The Wood of the Cross comes from the nut-tree. At the moment when the Cross is brought out of this small room for veneration, and arrives in the court to be venerated, a star appears in the sky, and comes over the place where they lay the Cross. It stays overhead whilst they are venerating the Cross, and they offer oil to be blessed in little flasks. When the mouth of one of the little flasks touches the Wood of the Cross, the oil instantly bubbles over, and unless it is closed very quickly it all spills out.” John Wilkinson, Jerusalem pilgrims: before the crusades (Aris & Phillips: Warminster, 1977), 83.
pilgrimage art from Palestine, where flat compositions show clear, cyclical narratives, and individuals and sites are displayed in hieratic scale to communicate power.⁴

Figure 2: Photograph of Museo del Duomo di Monza ampullae case, 2019.

The portable collection acts as the material connection between connect people, places, spaces, things, times, and worlds. They were created and purchased to travel continentally. To pilgrims, each flask depicted ritualistic experiences at a holy site and brought home divine material from the Holy Land. Individually, an ampulla represents a particular location in Palestine. But together, the collection symbolizes the broader Holy Land because of the multiple

temporal and spatial narratives captured on the ampullae. As the group of flasks moved from Palestine to Monza, they were recontextualized and acquired new meanings. In the Lombard Kingdom, the ampullae granted their owner, Queen Theodelinda, material and symbolic access to the Holy Land. Through her acquisition of the collection, Theodelinda may have sought to virtually experience and then simulate the Holy Land patronage and pilgrimage of the empress Helena. The ampullae, therefore, could have acted as objects of Theodelinda’s desire to bridge the gap between herself and Helena, as well as the Holy Land and the Lombard Kingdom. When viewed from Theodelinda’s perspective, the collection produces a spiritual image of the Holy Land and embodies Helena and the power of her legacy.

3.1 Late Antique Pilgrimage

While the Monza Ampullae are part of a larger material culture of pilgrimage, they exemplify how a collection symbolically represents space and provides an avenue for virtual pilgrimage. Examining the significance of the ampullae from a stationary perspective is essential to understanding their nuanced spatial relationship.

In the fourth through seventh centuries, pilgrimage to the Holy Land flourished. People from many classes and geographies were motivated by religion to touch and experience holy places, or loca sancta, to gain blessings and bring them back home. These blessings, eulogia, took the form of oil, water, or dirt that touched the Holy Land. Many of the sites, buildings and artworks of early pilgrimage have been lost, so existing containers of eulogia have helped to

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5 By the seventh century, Helena and her legend were widely known throughout Christendom, especially by women, so it is reasonable to assume that Theodelina was aware of her story. While no documents survive detailing Theodelinda’s knowledge of Helena, Pope Gregory the Great’s letters speak to the greater relationship between Christian women and Helena. He mentions Helena in letters only twice. First, when comparing her to the English Queen Bertha, and second, when referencing her to the newly crowned Empress Leontia. He brings up Helena to praise royal women. The Letters of Gregory the Great, ed. J. R. C. Martyn, 3 vols., (Toronto, 2004), Epp 11.35; 13.40.

reveal experiences of early pilgrimage. These pilgrimage vessels exported pieces of the Holy Land to Europe and gave individuals possession and control of holiness.⁷

Many people, however, were unable to travel to the Holy Land. The artifacts and accounts from pilgrimage then provided non-pilgrims a *virtual* experience of the journey. Figure 3 visualizes one pilgrimage experience, illustrating locations recorded in the sixth century Piacenza Pilgrim’s itinerary. The map plots the stops in the journey, while the iconography from the ampullae illuminates the spiritual experiences along the way. Pilgrim ‘souvenirs’ mimic the pilgrim’s relationship to space: they were created to travel and bring sacred material back to the pilgrim’s home. Small, individualized Late Antique pilgrimage artifacts, such as the Simeon Tokens, Asia Minor flasks, or the Menas ampullae, were made from Holy Land terracotta and transported around Eurasia.⁸ The sixth century Lateran *Sancta Sanctorum* (Fig. 4) wooden box holds earth from the Holy Land supposedly from locations of Christ’s life that are painted on the interior lid. Details of these images include elements contemporary to early pilgrims, such as the top left register, where the Marys flank a fourth century Aedicule instead of the cave Tomb mentioned by the gospels.⁹ The inclusion of these details suggest that an individual could experience Holy Land pilgrimage from afar by touching bits of holy earth and visualizing the symbolic site.

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Figure 3: Map of connected points from Piacenza Pilgrim Itinerary, c. 570. Jerusalem detail of Piacenza Pilgrim map.

Figure 4: Wooden reliquary painted with scenes from the life of Christ, sixth century, encaustic painting on wood, Rome, Lateran Palace “Treasury” of the Chapel of Sancta Sanctorum.

The Monza Ampullae brought the Holy Land to the Lombard Kingdom. They transport *eulogia* from Helena’s Holy Sepulchre and depict symbolic sites from the life of Christ in
Palestine. The most common subjects are scenes that took place in the Holy Sepulchre, such as The Crucifixion, The Ascension, and Marys visiting the Tomb. These images deviate from the gospel text with the inclusions of pilgrims venerating the Crucified Christ and the Aedicule.  

The explicit connection that the ampullae holds with the Holy Sepulchre demands attention. The flasks only existed temporarily in the site, but their imagery and materiality maintain the connection to it. The twelve flasks each convey distinct symbolic representations of the Sepulchre. Monza 2 (Fig. 5) depicts a simplified entrance to the Tomb with a cross on top. The Aedicule on Monza 3 (Fig. 5) takes up almost the entire flask and emphasizes the circularness of the structure which is supported by spiral columns and an open gate. A similar view is captured in Monza 5 (Fig. 7) where the image focuses on the internal contents of the Tomb including two shapes. One is a half-moon and the other a diamond. Monza 6 (Fig. 8) and 8 (Fig. 9) depict simple versions of the entrance to the Tomb with a cross attached on the top. Monza 9 (Fig. 10) contains a particularly ornate Aedicule that shows the sides of the structure which emphasizes its roundness. Grates connect columns and the tops of the columns contain shell designs. Monza 10 (Fig. 11) and 11 (Fig. 12) return to the simplistic entrances of the Tomb, including the gates and a cross. Monza 12 (Fig. 13), 13 (Fig. 14), 14 (Fig. 15), and 15 (Fig. 16) position the Aedicule under the Anastasis Rotunda of the Holy Sepulchre. The structure with its gate and cross is interred under the large roof of the building. In simplified images, the Tomb’s

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10 Incorporating contemporary figures into biblical images is part of a larger trend in art history. An example of this is the S. Paolo Bible from the ninth century which includes an image of Charles the Bald, king of western Francia, enthroned where Christ would typically be. William J. Diebold, “The ruler portrait of Charles the Bald in the S. Paolo bible,” *The Art Bulletin* 76, no. 1 (1994): 6-18. During the Northern Renaissance, donors were also often painted into biblical scenes. In one instance on Merode Altarpiece the fifteenth century donors kneel outside on the left panel while the Annunciation happens in the center panel. Shirley Neilsen Blum, *Early Netherlandish triptychs: a study in patronage* (University of California Press, 1969). For images specific to the early Christianity see Gary Vikan, *Early Byzantine Pilgrimage Art*; Cynthia Hahn, “Loca Sancta Souvenirs: Sealing the Pilgrim’s Experience,” *The Blessings of Pilgrimage*, edited by Robert Ousterhout (Urbana, IL: University of Illinois Press, 1990), 87-88; Vikan, “Pilgrims in Magi’s Clothing,” 102-103.
entrance exists as a backdrop for scenes to play out. In more ornate images, emphasis is placed on the structure and decoration of the Aedicule and brings it to the forefront of the images. Representations of the physical site transmute the heterotopic space of the Holy Sepulchre seen as proof of Christ’s divinity into a movable object which can exert the institutional power of the Christian faith. As a collection that visualizes and materializes a divine presence, the flasks provided the means for non-pilgrims to virtually traverse the Holy Land and experience pilgrimage.

Figure 5: Monza 2, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 2, rendering by author, 2020.

Figure 6: Monza 3, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 3, rendering by author, 2020.

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11 Heterotopias, according to Foucault, are “other” spaces inside a world which simultaneously mirror and trouble the outside. Michel Foucault, and Jay Miskowiec, “Of other spaces,” *diacritics* 16, no. 1 (1986): 22-27.
Figure 7: Monza 5, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 5, rendering by author, 2020.

Figure 8: Monza 6, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 6, rendering by author, 2020.

Figure 9: Monza 8, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 8, rendering by author, 2020.

Figure 10: Monza 9, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 9, rendering by author, 2020.
Figure 11: Monza 10, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 10, rendering by author, 2020.

Figure 12: Monza 11, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 11, rendering by author, 2020.

Figure 13: Monza 12, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 12, rendering by author, 2020.

Figure 14: Monza 13, c. 600, photograph, Monza, Museo del Duomo di Monza. Aedicule from Monza 13, rendering by author, 2020.
3.2 Early Christian Female Patronage

During the seventh century, religious differences between the Catholic Byzantine Empire and the Arian Lombard Kingdom drove the two powers to war.\(^\text{12}\) The Lombards, who subscribed to the teachings of Arius (c. 256-336), understood Jesus Christ to be the Son of God, separate and subordinate to God the Father, and therefore not co-eternal. Catholic Byzantines, including the

\(^{12}\) When the Lombards first arrived on the Italian peninsula, the majority of the elites were Arian, but the land they had captured was part of a religious situation known as the ‘Three Chapters’ schism. During his rule, the Lombard King Authari did not allow his subjects to baptize their children in the Catholic rite. In fact, he actively pushed back against the Latin Catholic people he had conquered by building a Lombard Arian church. Pope Gregory, *S. Gregorii Magni Registrum epistularum*, translated by Dag Ludvig Norberg (Brepols 1982) I, 17. The ‘Three Chapters’ schism originated in the mid sixth century when the work of three authors was condemned although they had previously been accepted by the Council of Chalcedon (451). The three authors were Theodore of Mopsuestia, Theodoret of Cyrhus and Ibas of Edessa. For further information, see Celia Chazelle and Catherine Cubitt, *The Crisis of the Oikoumene: The Three Chapters and the Failed Quest for Unity in the Sixth-Century Mediterranean* (Brepols, 2007). The clergy in northern Italy defended the Three Chapters, thus opposing the judgements coming out of the Fifth Ecumenical Council of Constantinople II (553), while those in Rome denounced the heretical writings. Tensions only increased between the north and Rome when a new bishop of Milan was elected. Pope Gregory sought out a pro-Roman and anti-schismatic bishop while Agilulf threatened to organize a rival election. Walter Pohl, “Deliberate ambiguity: the Lombards and Christianity,” in *Christianizing peoples and converting individuals* (Turinout 2002) 47-58.
Pope in Rome, regarded the Arian rejection of the authorized gospel a disruption to the religious and social unity of the church and empire. When the Bavarian-born Catholic Theodelinda took the throne, she helped convert her people to another form of Christianity, Three-Chapters Christianity, which was more acceptable to the Byzantines and Pope Gregory the Great. Under her leadership, the Lombards honored the Byzantine Romans through the adoption of Roman imperial titles and religious identities. The connection between the two cultures could also be felt by the presence of the flasks in Monza. The collection is associated with the True Cross, a relic that proves Christ’s humanity for the Arians, and Christ’s divine presence for the Catholics. The ampullae arguably act as an extension of Theodelinda in their religious unification of the peninsula.

The flasks may have also been a way to secure the kingdom’s safety. Early queens of Merovingian France, including Radegund in Poitiers, Clotild at Tours, and Ingitrude at Tours, and Caesaria at Arles, founded churches and monasteries and endowed them with resources and relics.

13 Maurice Wiles, Archetypal heresy: Arianism through the centuries (Oxford University Press, 2001), 45.
14 The Lombard position on the Three Chapters’ schism was pro-tricapitoline, anti-Roman and anti-Byzantine. Claudio Azzara, “Il regno longobardo in Italia e i Tre Capitoli,” in The Crisis of the Oikoumene: The Three Chapters and the Failed Quest for Unity in the Sixth-Century Mediterranean (Brepols, 2007) 208-222. Theodelinda likely adhered to the ‘Three-Chapters’ confession and resisted the papal and Byzantine religious policies. She has historically been portrayed as a Bavarian Catholic whose faith converted the Arian Lombards to Catholicism. However, newer literature has attested that when Gregory suggested Lombard conversion, it was not to ‘Catholicism’ but instead to the Three-Chapters Christianity. Pope Gregory’s overall goal was to eliminate pagan Arianism from the northern barbarians. He was successful in this when it came to the Visigoths and the Lombards with the baptism of Theodelinda’s son Adaloald. While Gregory did not agree with the theology surrounding Three-Chapters, he likely saw political and therefore religious peace by overcoming the schism. Alžběta Filipová, “On the origins of the Monza collection of Holy Land ampullae: the legend of Gregory the Great’s gift of relics to Theodelinda reconsidered,” Arte Lombarda (2015), 10-12.
15 Paul the Deacon’s account notes that Theodelinda baptized her son because she was inspired by Roman traditions. He also alleges that her palace had mosaics similar to those in Ravenna. Paulus Diaconus, “Historia Langobardorum IV,” in Monumenta Germaniae Historica, edited by Georg Waitz (Hanover, 1878), 22. Three variations of Christianity dominated Italy in the seventh century: Arianism, Catholicism, and defenders of the Three Chapters. Theodelinda was considered Catholic to differentiate between the other variations. Bruno Schalekamp, “Theudelinda, Catholic Protector of the Langobards: Model Queenship in Paul the Deacon’s Historia Langobardorum,” Bachelor’s thesis, (University of Utrecht, 2019): 18; Ross Balzaretti, “Theodelinda, ‘Most Glorious Queen’: Gender and Power in Lombard Italy,” The Medieval History Journal 2, no. 2 (1999): 183-207.
to guarantee the monks’ prayers for the prosperity of the kingdom. Many rulers believed that relics brought peace and order to a kingdom. According to Paul the Deacon, Theodelinda donated the gifts to her foundation at the Monza Basilica of San Giovanni Battista. Theodelinda’s action insinuates that she subscribed to the attitude that a realm’s security is based on the power of the churches and relics it holds.

More specifically, for Theodelinda to own a collection of eulogia containers containing oil from the True Cross discovered by Helena, could also be seen as the materialization of an imperial religious identity. Helena’s prominent role in Christianizing an empire set an example for future imperial women around Europe. To elevate their own status, queens reproduced her architectural commissions and replicated her actions. Theodelinda’s collection is possibly an example of attempting to embody Helena through things. Theodelinda’s role as queen thus resembled the empress as the religious protector of the kingdom, founding churches and monasteries and endowing them with holy relics to guarantee safety and peace. As Helena ‘discovered’ the Cross inside the Tomb, Theodelinda may have seen the collection as a

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18 Hahn, Strange Beauty, 170-171.


20 Examples of this are seen with Aelia Eudoxia, the wife of Arcadius and daughter-in-law of Flaccilla, who sent a plan, materials and funds to Gaza in 402 to build a church shaped like a cross. In 424/5, Galla Placidia commissioned Sta Croce in Ravenna where the dedication referenced Helena’s discovery of the true cross and the building plan referenced Helena’s complex at Sts Marcellinus and Peter. Leslie Brubaker, “Memories of Helena: patterns in imperial matronage in the fourth and fifth centuries,” In Women, Men and Eunuchs: Gender in Byzantium, edited by Liz James (London: Routledge, 1994): 52-75.
‘discovery’ of faith which could unite her kingdom with the rest of the peninsula.21 Within Theodelinda’s larger patronage program (Fig. 17), the ampullae spatially and temporally connect her to generations of women who protected their kingdoms with religion. The queen’s geographic network spread beyond the borders of the Lombardy Kingdom, as evidenced by her collection of Holy Land flasks. Through patronage, Theodelinda legitimized her rule and solidified a tradition of Christianity in the land that lasted long after the Lombard dynasty.22

Figure 17: Map of location of Lombard Queen patronage following Theodelinda, c. 590-753.

21 Baudonivia, a biographer of the Frankish Queen Radegund, argues that Radegund ‘found’ faith similar to Helena’s ‘finding’ of the cross. Through her relics, the queen is worthy to be granted the discovery. Cited in Hahn, “Collector and saint,” 271.

22 The church and its treasury grew in importance throughout the Middle Ages as recorded in three diplomas by Berengar I, king of Italy (c. 840-924). But in the early eleventh century, the Monza relics moved from an altar to inside a marble sarcophagus, making them less visible to the public. Hahn, Strange Beauty, 202.
4. Visualization the Collection: A Digital Methodology

This thesis developed out of a desire to explore the broader biography of the Monza Ampullae. In order to accomplish this, the project approaches the collection first through historical analysis and then through digital analysis. Incorporating digital methods into the study allows for the ampullae to be explored as a collective symbolic embodiment of a site. The creators of the flasks made specific decisions about space in order to convey meaning which digital models can iteratively explore from a distance. The 3D Aedicule model explores their symbolic iconographic choices. Initially, I used GIS to map the movement of ampullae (Figs. 3 and 17), but later pivoted to a 3D model of the iconography when I discovered how modeling affords close readings and exploratory analysis of the objects.

My initial form of digital analysis was centered on identifying the movement and biographies of the Monza Holy Land Ampullae. I developed the GIS database using translations of the Piacenza Pilgrim’s account, collections of Pope Gregory the Great’s letters, and records of Lombard Queen building programs in Ross Balzaretti’s research. In the absence of extensive primary sources, scholarship on the flasks has been fairly ambiguous. There are no accounts detailing their movement, their sender, or if they were used in pilgrimage. These uncertainties may be confronted by applying evidence to a variety of visual iterations. The internal and external spatial contexts of the objects are one of the major sources of information. Collecting this evidence from imagery on the flasks was the first stage of confronting ambiguous data.

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By building a relational database, I structured evidence into queryable forms. Databases, such as Airtable, shape information to explore emergent patterns. Metadata can be linked across various sheets which highlights connections between sources. For instance, the obverse side of Monza 9 depicts the Aedicule which holds the Tomb of Christ. The Piacenza Pilgrim also references the Tomb in their account of the Holy Sepulchre. The location links two separate datasets and sources. I initially extrapolated the geographic and iconographic data that existed in the primary and secondary sources. Collecting relevant digital information began by combing through texts to collect data, or capta, related to people, places, and things. This capta was then organized into separate tables using the program Airtable.

Beginning the digital project with GIS was advantageous because it structured the evidence and exposed spatial connections. After geolocating the stops via a Google Sheets plugin called “AwesomeTable,” the Airtable sheets were imported into Environmental Systems Research Institute’s (ESRI) ArcGIS Pro software. In this program, XY data became points that were spatially analyzed against other evidence. Shapefiles depicting the seventh century


4 Because I built my dataset from textual information, the evidence I used related only to my project. All unnecessary information was scrubbed in the process of compilation. This dataset has been refined many times and is biased towards my research.

5 Johanna Drucker warns scholars of realist approaches in digital visual humanities that do not confront ambiguity and uncertainty. She calls for digital humanists to conceive of *data as capta* because *capta is “taken” while data is assumed to be “given.” Capta then allows humanists to acknowledge their production of knowledge as partial and situational instead of simply “taken” as fact. Johanna Drucker, “Humanities approaches to graphical display,” *Digital Humanities Quarterly* 5, no. 1 (2011): 1-21.

geopolitical landscape from Duke University’s Euratlas Historical Political Boundaries of Europe became the background of the maps.7

The maps made in ArcGIS visualize spatial evidence as it relates to the ampullae. Plotting the Piacenza Pilgrim’s journey (Fig. 3) exposed gaps in evidence where the itinerary specified the sites but not the routes taken between stops. The map of the physical pilgrimage can be combined with a virtual one depicted in the ampullae’s iconography to create a more complete idea of the journey. The map of Lombard queen patronage (Fig. 17), particularly Theodelinda, places the ampullae into a larger network of material culture in the region. While these maps depict geographic information that pertains to the ampullae, they do not capture how the flasks themselves visually reference space.

This project deviated from mapping as a methodology when I began to consider the value of the symbolic iconography of the ampullae to their owner, Theodelinda. A 3D model, in contrast to a map, visualizes images on the flasks as representative of a collective space. By constructing a model, I can consider what Theodelinda might have experienced when looking at or touching a flask. The process of modeling forces a sustained close reading of the objects to represent depicted space. It gives autonomy to the modeler who can examine and expose connections between the model and the ampullae.

The decision to pursue modeling over other digital visualizations comes from a tradition in Late Antique scholarship where images “recreate” lost buildings.8 An essential version of the fourth century Aedicule was drawn by John Wilkinson in 1981 which combines three Monza

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7 Euratlas Historical Political Boundaries of Europe – 7th century A.D. found at https://idn.duke.edu/ark:/87924/r3cc0xw19.
Ampullae to recreate the lost structure (Fig. 18). My research expands on this work by building a model from different images on Monzas 2, 3, 5, 6, 8, 9, 10, 11, 12, 13, 14, and 15 (Figs. 5-16). While Wilkinson’s model shows the Aedicule from a specific perspective, this 3D version lets viewers autonomously interrogate connections between the model and the flasks. However, because the images on the ampullae do not provide physically accurate representations of the building’s size, I was influenced by Robert Ousterhout’s measurements for the reconstructed plan of the fourth century Holy Sepulchre complex (Fig. 19). The 3D model is based on these calculations of a pre-established imagining of the Sepulchre. My model leverages digital tools to create the next evolution in this line of scholarship.

Figure 18: Figure 34, photograph taken of rendering by John Wilkinson, Egeria’s travels to the Holy Land, 1981.

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The two distinct phases of modeling the Aedicule were based on my control and strategic understanding of the modeling process. I was introduced to the modeling software, SketchUp, by Augustus Wendell. The program prioritizes sketching and user intuition over architectural design and drafting. I chose to construct the model in SketchUp originally using Ousterhout’s measurements and then shifting to details from the ampullae. One of the major affordances of modeling in SketchUp is the “Components” feature, which splits the model into sections. During construction of the second model, I parsed out what each ampulla depicted and created corresponding components on the model. Splitting the model into specific subsections visualized the relationship between object and model. The subsections highlight connections and contradictions amongst the various images on the ampullae. Such classifications afford later stages of modeling specific interactivity to be localized to and activated in the component.

The first phase consisted of a fairly simple rounded building with a front entrance (Fig. 20). Once proof of concept had been developed, I moved on to a second more detailed version (Fig. 21). The first was more concerned with creating an “accurate” account of space using Ousterhout’s measurements while the second focused on the specific space created from a

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10 AutoCAD is an example of architectural-specific software.
collective view of the ampullae. There are a number of differences between the two models. The first is longer and more rectangular and mimics the structure of the larger Sepulchre complex. The second model is significantly rounder, with an emphasis on the front entrance and a heightened roof with a cross on the circular Tomb. During early pilgrimage, people were able to get up close to the Tomb and walk into it. The Piacenza Pilgrim states: “In the place where the Lord’s body was laid [in the Tomb], at the head, has been placed a bronze map. It burns there day and night, and we took a blessing from it, and then put it back. Earth is brought to the tomb and put inside, and those who go in take some as a blessing. The stone which closed the Tomb…is decorated with gold and precious stones…There are ornaments in vast numbers, which hang from iron rods: armlets, bracelets, necklaces, rings, tiaras, plaited girdles, belts, emperors’ crowns of gold and precious stones, and the insignia of an empress.”\textsuperscript{11} This description, along with the visual differences between the first and second model makes explicit that the ampullae’s iconography prioritizes symbolic locations of pilgrim interaction and royal patronage over “accurate” depictions of space.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure20.jpg}
\caption{First stage of Aedicule Model, photograph in SketchUp (left) and in Unity (right), 2020.}
\end{figure}

\textsuperscript{11} Translation from Wilkinson, \textit{Jerusalem Pilgrims}, 83.
Figure 21: Second stage of Aedicule Model, photograph in Unity, 2020.

The second model visualizes a collection of symbolic iconographic choices which brought an image of the Holy Land to Theodelinda. Monza 10 and 11 (Figs. 11-12) focus on the entrance to the Tomb so those became the prototype for the entrance of the digital model. In these depictions, the Aedicule is simply a door, a portal, to access Christ’s Tomb. Monza 3, 5, and 9 (Figs. 6, 7 and 10) emphasize the entirety of the structure which helped conceptualize the height and shape of the model. These images incorporate elements from the Aedicule to visualize it as a building that takes up space instead of as a singular door. In Monza 3, 5, and 9, the virtual pilgrim can understand the area inside the Tomb better than in Monza 10 and 11. The ampullae were displayed together, however, so when an individual looked at them, they might have been able to get a sense of the importance of the entrance to the Tomb and the height of the Aedicule.

Although some flasks depict more ornate versions of the Aedicule, I chose to model only architectural details to gather a general sense of the structure from the whole collection and avoid assumptions about inconclusive decorations. The ambiguous portions of the model were interpolated. For instance, no ampulla shows the back of the Aedicule, so I used images of the
sides as the basis of my construction of the back section. The Aedicule on the flasks is not “realistic,” but rather, it is a speculative representation that was manipulated to produce specific messages about space, experience, and power.

The completed model was brought into the program Unity, where the components were logically keyed to the ampullae. Unity, a game development software, was selected as the interface because it emphasizes exploration, creation, and narrative through “scenes.” Scenes are spaces to design and build a game. With the help of Augustus Wendell, a split-scene was constructed with a model rotating on the left and a dashboard of objects on the right. Components of the model were connected by a script to the corresponding flask. When the mouse hovers over a section of the model, that component becomes highlighted, indicating that it is click-able. Once clicked, the corresponding ampullae appear on the right (Fig. 2). The split scene creates a distinction between object and model but invites interaction between the two. Clicking on a section of the model on the left brings up information on the right. Features on the right, such as the button to “Match Perspective” influence the model on the left.

Several obstacles presented themselves while modeling from the ampullae. First, the images contain other elements that conflict with the Aedicule. Compositions are hierarchically structured and the Angel and Marys tower over the structure. In response, I estimated, from architectural plans and pilgrimage accounts, how much space the Aedicule took up. Second, the ampullae portray different and occasionally conflicting images of the Aedicule and the Tomb. For example, the size of the Tomb’s entrance gate and cross vary across the flasks depending upon what the craftsperson chose to prioritize. On Monza 6 (Fig. 8) the cross and the gate take up about

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the same space. The maker emphasizes the two contact relics, the Tomb and the True Cross. Comparatively, in Monza 5 (Fig. 7), the gate is significantly larger than the cross. This depiction stresses the relics inside the Tomb rather than the True Cross. When constructing the model, I made active choices to split the difference between depictions and approximate feature sizes.

The challenges and resulting decisions from modeling prompted a reconsideration of the images on the objects and even the ampullae themselves. As I did, the makers of the flasks had to make choices about space. Some decided that the entrance to the Tomb was an essential identifying element. Others felt that the Aedicule required further details, such as spiral columns or the Rotunda, to do justice to the site. In every case, however, the Aedicule is dwarfed by the figures surrounding it. Some depictions make it look like a dollhouse in comparison to the Angel and Marys. In this sense, the anachronistic Aedicule becomes a prop to tell the story of Christ. The Aedicule is a reliquary that negotiates the relationship between the human world and the divine realm. It simultaneously conceals the Tomb of Christ to protect it from profane sight while alluding to its divine presence. While the Aedicule itself is immobile, the Monza Ampullae became portable reliquaries meant to spread its holiness around. The collection becomes an interface connecting bodies, things, places, and practices. Their images of the Aedicule contain different perceptions of space. Between the two models and the individual depictions, modeling helps to illustrate how the flasks construct certain symbolic representations of the site.
The relationship between the material object and the digital model was further explored in an interactive digital interface. This website looks at the collection of artifacts through their digital representations in maps, images, and the model. The interface of the 3D model links two separate visual experiences, the model and the ampullae, through a script that highlights relations between personal objects in Europe and holy sites in Palestine (Fig. 23). Adding the Unity scene to the website creates a space for interactive experiences to be shared, not just images. In the Late Antique period, experience informed artworks. Collectively, the site investigates how digital representations inform symbolic artifacts.

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13 The website can be found at: www.cgptthesis.com.
Figure 23: Screenshot of Unity Aedicule Model at cgthesis.com, 2020.

The model of the Aedicule is neither an architectural model nor a realistic simulation. It is the result of choices made during my construction. The capta collected presents situational decisions about the space depicted. Every step of construction fulfilled a specific agenda. The 3D model visualizes perspectival space and contextualizes objects within geography. The model alludes to certain possible experiences. The 3D Aedicule does not exist; it only depicts a space. All constructed work is the reflection of its creator. This project is defined by the multi-layered authorship inherent in any analysis of an artifact.

This project builds on previous work that saw value in depicting place from things, as evidenced in John Wilkinson’s model of the Aedicule constructed through objects. Where the project diverges, however, is by incorporating the whole collection into the digital model which can be interrogated from many perspectives and viewed in dynamic ways. The viewpoints of a digital model are more abstract and do not prioritize one angle or agenda over another. Creating components connected to each ampullae annotates the choices made when building the model. In

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15 Drucker, “Humanities approaches to graphical display,” 1-21.
16 Yi-Fu Tuan, Space and place: The perspective of experience (University of Minnesota Press, 1977), 6.
this application of digital methods, modeling as scholarship centers the conversation on the objects.

Digital visualizations are, ultimately, manipulated spatial representations. A model, by nature, is a reduced representation. Modeling negotiates the relationship of the modeler and the model, the researcher and the theory, the evidence and the world.\textsuperscript{19} The maps and models in this project are speculative representations. They are not likenesses or imitations, but rather, symbolic denotative correspondence that display strong mimetic tendencies.\textsuperscript{20} The 3D Aedicule is a model composed of other models of a place. Comparing the physical ampullae to their digital presence allows for the digital methods utilized to be critically assessed.

\textsuperscript{19} McCarty, “Modeling: A Study in Words and Meanings,” 262-263.
5. Conclusion: The Significance of Theodelinda and Her Collection

The Monza Holy Land Ampullae are the material remains of seventh century pilgrimage and patronage. They belonged to a queen whose Christianizing legacy resonates in the region long after the last vestiges of her kingdom disappeared. Considering the ampullae from the perspective of her patronage and then through digital visualization helps to think about the complexities of the collection.

Digital methods can explore how people and their things operated in the past. They visualize ways that sites could have been embodied, experienced, and constructed by collecting evidence on one platform and then juxtaposing it to another. The Monza Ampullae create multiple spaces and narratives of place. This thesis investigates a few of them by approaching the collection as a material and digital interface (Fig. 24). Under Theodelinda’s patronage, the ampullae were symbolically significant as the point of connection between human and divine power. Within modeling, the collection’s symbolic iconographic choices and physical images are closely examined and actively explored by the modeler. Applying these methods to the ampullae provide opportunities to better comprehend how Late Antique royal women produced space and place with objects.
The Monza Ampullae provided Theodelinda with a virtual means of traversing the Holy Land without leaving the Lombard Kingdom. As objects materially and iconographically tied to the Holy Sepulchre, the collection may have given the Lombard Queen the ability to emulate Helena, the site’s originating patron. Just as the empress helped Christianize her son’s empire, Theodelinda brought non-Arian Christianity to her husband and son’s kingdom. The ampullae materialized a divine presence and synthesized the Holy Land into sixteen objects. The collection, displayed together, exhibits Theodelinda’s power through her things. In a culture that was particularly oppressive to women, textual sources regarding Theodelinda suggest that her importance was undoubtedly recognized by her contemporaries.¹ Like Helena, Theodelinda’s legend and reputation continued to grow posthumously. The spaces that the two women constructed can be recognized through their things.

Incorporating digital tools into this project creates both a technical route for experimentation and a theoretical framework to explore information. The process of gathering evidence, structuring it into a database, and building maps and models forced a sustained reading of the ampullae as I considered how the collection constructs narratives. Maps made with GIS visualize geographic data as it relates to the flasks. In comparison, the 3D model depicts the Aedicule as representative of the space portrayed on the ampullae. Furthermore, modeling several versions of the Aedicule allowed for the collection to be explored from different viewpoints. One model captured a more historically “accurate” account of the space, while another focused on the specific details of space generated by the collective view. These two can thus be compared and expose the selective relationship of the ampullae to the Aedicule. Utilizing two forms of digital analysis was beneficial as it provided multiple routes to experiment, collect, and compare knowledge.

Nevertheless, the accuracy of the maps and, hence, the models in this project must be questioned. The combination of potentially unreliable sixth and seventh century evidence, secondary sources, and modern technologies create inconsistent results regardless of corrections. The digital visualizations created during this project are speculative representations of evidence that has been constantly manipulated. Digital tools are advantageous for exploration, but their results must be understood to have limited value.

This project is influenced by research traditions in early Christian art scholarship but expands beyond them by including digital analysis. As such, the digital tools that I developed for this thesis may be useful to others in the field. The locations and spatial relationships of the ampullae are identified in the GIS database which could be expanded and compared to other material culture networks in early Christianity. For instance, if one were to trace locations of seventh century female patronage, the Lombard Queen Patronage GIS database would be a useful
addition. Moreover, the Aedicule model is downloadable on a GitHub repository and could be used to explore other iconographic images of the Tomb. For example, if the Aedicule on the Bobbio Ampullae was modeled, then the Monza model would allow for a comparison of two different collections created for two different representations of space. The model and the GIS database allow for researchers of Late Antique to expand, refine, and use digital elements for different spatial analyses.

There are a number of ways that the project could benefit from future work. One would be by visiting the collection in person to better understand how an individual experiences the objects. This would inform discussions of how Theodelinda may have perceived the objects. Photographing and creating photogrammetric renditions of the ampullae would also add to the project by incorporating the objects in 3D into the 3D model. Additionally, Theodelinda’s other collection, the Bobbio ampullae remain relatively understudied. Building a model of the Aedicule from the Bobbio flasks would provide a way to compare two symbolic representations of space.

The methodology in the project developed out of a specific interrogation of the Monza Ampullae as they relate to Theodelinda. This study presents a way to critically engage with a popular subject and explore the limits of digital spatial visualizations. Thinking about the ampullae in the contexts of historical patronage and digital visualizations provides a more complex discussion of their significance to Theodelinda. The model in this project captures a symbolic version of space that is representative of a woman’s exercise of power through patronage. The thesis brings us closer to a more comprehensive understanding of how Late Antique women used things to control space and create place.
References


