

ABSTRACT

Title of Thesis: PERCEPTION, SPACE, MOVEMENT:
ILLUSIONISTIC CEILINGS IN
SEVENTEENTH-CENTURY ROME

Vianna Naomi Newman, Master of Arts, 2019

Thesis Directed By: Professor Anthony Colantuono
Department of Art History and Archaeology

The seventeenth century marked the emergence in Italy of a novel type of painted illusion: *quadratura*. Its practitioners created a new genre of art, with ceilings as its domain, which relied upon linear perspective and the real setting of the illusion to produce a sense of wonder in beholders and to persuade them of a rhetorical message. This thesis focuses on three illusionistic ceilings: the *Apotheosis of Saint Clement*, the *Allegory of Divine Providence*, and the *Glorification of Saint Ignatius*. In treating these works as varied manifestations of the same artistic and cultural milieu, this investigation produces a model, or foundational set of tools, with which to analyze the creation and reception of illusionistic ceilings of seventeenth-century Rome.

PERCEPTION, SPACE, MOVEMENT: ILLUSIONISTIC CEILINGS IN
SEVENTEENTH-CENTURY ROME

by

Vianna Naomi Newman

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Advisory Committee:

Professor Anthony Colantuono, Chair
Assistant Professor Emily Egan
Professor Meredith Gill

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Introduction

Since the Baroque age, tightly scripted and carefully crafted illusionistic spaces have taken beholders out of their normal world and presented them with fictive realities. These environments engage beholders' senses and their physical and imaginative participation so as to convince them of something that, at its foundation, is not true of the particular space and time that they inhabit. A sultry, starlit evening, spent a stone's throw from a bayou, unfolds on the other side of a wall from the southern California sun blazing at midday. Eight twilights suffuse an Italian sky beneath an American roof in the time it takes the Earth to make a single rotation.¹ People from all known corners of the world, a saint, and Christ Himself float overhead in the shocking heights of a church blasted open to the heavens—all painted on the underside of a smooth, curved, plaster ceiling.

The history of illusion stretches back far beyond the dawn of the seventeenth century, but that century marked the emergence, in what is now called Italy, of a novel type of illusion: *quadratura*. Its practitioners, artists known as *quadraturisti*, created a new genre of art—with ceilings as its domain—that relied upon linear perspective and the real setting of the illusion to produce a sense of wonder in beholders and to persuade them of a rhetorical message. Three illusionistic ceiling paintings completed in seventeenth-century Rome that provide a particularly rich taste of this phenomenon are the *Apotheosis of Saint Clement* (1596–1600), the *Allegory of Divine Providence* (1633–1639), and the *Glorification of Saint Ignatius* (1688–1694) [Figures 1-3]. In 1596, Pope Clement VIII Aldobrandini commissioned the artist brothers Cherubino and Giovanni Alberti to paint the *Apotheosis of Saint Clement* on the vault of the Sala Clementina, the

¹ Norman M. Klein, *The Vatican to Vegas: A History of Special Effects* (New York: New Press, 2004), 63.

sala dei palafrenieri of the papal apartments in the Apostolic Palace at the Vatican. Pietro da Cortona painted the *Allegory of Divine Providence* on the ceiling of the grand *sala dei palafrenieri* (known as the *salone*) of Palazzo Barberini. Andrea Pozzo's *Glorification of Saint Ignatius* appears on the lofty nave vault of Chiesa di Sant'Ignazio.

These examples illustrate the function of illusionistic ceilings in three different but overlapping types of spaces. The Sala Clementina served in part as an audience hall for the pope in the Apostolic Palace (a function it still carries out today), which marked it as a semi-public, ecclesiastic, and diplomatic space. Palazzo Barberini contained two households, one secular and the other ecclesiastic, but both utilized the *salone* with Pietro da Cortona's ceiling fresco, and both belonged to relatives of Pope Urban VIII who actively served him. Finally, the Chiesa di Sant'Ignazio, an unmistakably ecclesiastic space, was the most public of the three. One should not overestimate the differences between these three spaces. The papal Sala Clementina served as the model for the vaulted and painted ceiling of the Palazzo Barberini *salone*.²

These three ceilings span the length of the seventeenth century, with the Albertis completing the *Apotheosis of Saint Clement* just in time for the jubilee of the Holy Year of 1600, and Andrea Pozzo finishing the *Glorification of Saint Ignatius* in the last years of the century. While this thesis does not take up the changes in technique or style—or overall “development”—between *quadratura* of the 1600s, 1630s, and 1690s as a main focus, certain differences, such as artists' conception of space and their use of it, will emerge in the larger discussion of the ceilings. This thesis treats the three ceilings as

² John Beldon Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini* (Princeton, N.J.: Princeton University Press, 1991), 126: In the ambit of sixteenth- and seventeenth-century palaces, the Sala Clementina may be understood as a *sala dei palafrenieri*, or room for noble attendants, the explicit function of the *salone* at the Palazzo Barberini.

varied manifestations of the same artistic and cultural milieu. At the risk of overlooking historical circumstances that likely affected the development of *quadratura*, the strong similarities between the three illusionistic ceilings encourage an examination of them through the same lens—a magnifying glass, one might imagine.³

One of the unifying qualities of all three ceilings is the artists' intense engagement with the challenges of linear perspective. In the nearly thirty years since Martin Kemp wrote his chapter "Perspective and Meaning: Illusion, Allusion and Collusion" in *Philosophy and the Visual Arts* in an attempt to reconcile the two overarching modern interpretations of perspective, no one has directly addressed his argument against the possibility of a general theory for illusionistic art such as Pozzo's vault fresco in Sant' Ignazio. This thesis proposes no such theory—it concurs with Kemp's statement that there are too many "intricacies"⁴ in these works of art to divine one, neat explanation for the entire genus—but this thesis does propose a model by which we may attempt to understand the creation and reception of illusionistic ceilings of the seventeenth century, at the very least within the cultural ambit of Rome. The model is therefore a foundational set of tools rather than a single theory or explanation applied equally to all illusionistic ceilings.

This thesis argues that the illusionistic ceilings of seventeenth-century Rome functioned as a form of rhetoric—persuading beholders through calculated perceptual experiences—and constituted a distinct artistic genre, the study of which requires a specific set of considerations that serve in interpreting their purpose, creation, and

³ In the interest of specificity, recognizing the differences between the ceilings, and the relevance of optics, one might imagine applying multiple lenses, in various combinations and arrangements, depending on the particular ceiling.

⁴ Martin Kemp, "Perspective and Meaning: Illusion, Allusion and Collusion," in *Philosophy and the Visual Arts* (Dordrecht: Springer Netherlands, 1987), 257.

reception. In recreating the path of movement for the beholders of each of these ceilings, this thesis considers the physical context of the ceiling, the goals of the patron, and the artist's working method and particular use of perspective. Beholders are evaluated according to their social status, education, and probable understanding of a ceiling, as well as their particular use of the spaces that house the ceilings. A variety of sources serve as evidence for the conclusions drawn about the three ceilings under consideration, including historical documentation of the decisions involved in creating the paintings and contemporary written accounts of the ceilings.

The toolbox of approaches in this thesis reflects the author's methodology in wrestling with the questions that arise from an attempt to understand these ceilings. Necessarily, some considerations are included only briefly, or omitted entirely. These lacunae do not reflect the author's opinion on what is valuable to examine in regard to these ceilings. The goal is to include what is necessary for understanding the very core of these ceilings: the steps taken, metaphorically and physically, to bring these ceilings into existence and to apprehend them as a viewer. If pursued further, the questions addressed here only cursorily would enhance the proposed model, particularly those related to reception, due to their potential to enrich the understanding of beholders' readings of the ceilings, whether in the seventeenth or twenty-first centuries.

The study of the production and reception of *quadratura* requires a special combination of approaches due to its unique characteristics. *Quadratura* sits at the nexus of multiple media, techniques, disciplines, and philosophies. In the seventeenth century, the creation of a *quadratura* ceiling involved a broad range of media: certainly, drawing on paper and then painting in plaster or on canvas, but often also sculpting in wood, clay,

or wax. Artists also used physical apparatuses, such as screens, veils, nets, and mirrors to assist in the drawing and painting of foreshortened objects. *Quadratura* required mathematics and, somewhere along the way, an understanding of optics. An artist's decisions about perspective and distortion involved philosophical and ethical considerations. Beholders of *quadratura* also involved their religious and philosophical views in their acceptance and interpretation of these compositions.

Illusionistic ceilings and spaces have become a popular topic in the scholarship of the past few decades. In 1978, Ingrid Sjöström published *Quadratura: Studies in Italian Ceiling Painting*, which was in many ways a foundational text for the subject. Sjöström's book supplied crucial contributions, but its scope was fairly narrow: her purpose was to analyze the formal and technical aspects of *quadratura*, and to survey its origins and development.⁵ A substantial trove of literature exists for many of the distinct aspects of illusionistic ceilings that this thesis considers, particularly on optics and perspective, but this thesis seeks to combine these facets in a way that other authors have not, especially within a single text. Sjöström and other art historians have categorized *quadratura* as a distinct genre, but they have not provided an adequate explanation for this designation. This thesis makes a case for the necessity of a special model to approach the genre of *quadratura* and the particular qualities of illusionistic spaces. The literature does not devote sufficient attention to the matter of the beholder's movement through illusionistic spaces, or how the sensory experience of illusionistic ceilings relates to that of worship and to other types of spectacle in the seventeenth century. This thesis opens the door for

⁵ Ingrid Sjöström, *Quadratura: Studies in Italian Ceiling Painting*, Stockholm Studies in the History of Art 30 (Stockholm: University of Stockholm, 1978), 7.

an intensified application of reception theory to the study of illusionistic ceilings that addresses the experiences of both historical and modern beholders.

Many of the considerations discussed in this thesis come under the broader concept of rhetoric. Rhetoric, the art of persuasion, has its roots in Greek and Roman literature and philosophy. In creating works of art, whether written or visual, an artist employs rhetoric in the attempt to communicate narrative, emotional, and otherwise intellectual content to the viewer. Renaissance and Baroque artists were highly invested in the use of rhetoric in their paintings, owing to humanists' strong embrace of rhetoric—along with a slew of other devices and principles from classical literature—beginning in the fifteenth century. Renaissance humanist authors fashioned themselves on the model of classical authors. Visual artists, however, had no such parallel in classical thought. In order to elevate their position in society, artists needed to find an exalted place for themselves in the classical mindset. They saw their work as being closest to the endeavors of writers, and thus attached themselves to that station and its associated rules and standards. Painting treatises of the fifteenth and sixteenth centuries worked to establish this connection, affiliating painting with writing as well as with mathematics.

One particular trait of seventeenth-century illusionistic ceilings is the use of iconography in the delivery of a rhetorical message. Unlike an illusion based on a phenomenon taken entirely from the natural world, such as the setting of the sun, these ceilings made use of religious figures, personifications, allegories, and other symbols that a beholder must recognize in order to understand the full force of the ceiling's meaning. This was the case especially for Cortona's fresco at Palazzo Barberini. The composition is filled with figures whose attributes and stories provide them with specific significance in

the context of the fresco. The primacy of the iconography in that ceiling prompted multiple individuals to write explanations of its iconographical content. In painting the ceiling, Cortona utilized perspective to direct the beholder's viewing behavior. A beholder will notice the substantial foreshortening of the figure of Divine Providence, see that she rises above the rest of the figures, and understand that she is the most important figure in the ceiling, even if he cannot properly identify her significance. Cortona, the Alberti brothers, and Pozzo took into account the shape and use of the spaces in which they worked, but these artists also manipulated beholders such that they moved and looked in a controlled sequence, all the better for viewing the iconography and otherwise experiencing the illusionistic power of the ceiling and its rhetorical message.

The concerns of artists and patrons with rhetoric influenced the subjects and styles of painting throughout and beyond the seventeenth century. Like their Renaissance antecedents, Baroque artists sought to visually express texts in ways that communicated literary intricacies and demonstrated the artists' nuanced understanding of the narrative. In paintings with Christian subjects, the text was the Bible; secular paintings would draw from classical texts or more recent literature. Often, artists worked from texts written for their specific commission. These either served as intermediary compositions, their scholarly authors having finessed an existing text into something more paintable, or were original texts that created a custom program for the secular or ecclesiastical patron. One task of the artist was to transmit the content of these programs, such that the beholder could align what he saw with what he had or could read. This thesis examines written descriptions of the ceilings, in particular the Palazzo Barberini *salone*, and considers their relation to the paintings and to the way that they instruct the experience of the viewer.

The *quadraturisti* who painted illusionistic ceilings aimed to persuade beholders that they were looking at an extension of their world, and patrons aimed to persuade beholders of a particular message. Artists succeeded at this persuasion through the content, composition, and style of paintings, and they used perspective, the physical space of the room, and the movement of beholders in order to optically erase the vaults that their frescoes spanned. This movement was in part determined by the layout of the space as it already existed, as well as the artists' uses of composition and perspective to encourage and even require certain movement. This thesis investigates the manner in which artists used this visual rhetoric to persuade their viewers, as well as the reasons for this type of rhetorical persuasion—that is, why patrons chose the medium of *quadratura*.

The reproduction of these painted ceilings in other media also demands decisions. Like any artistic medium, it is impossible to convey all of the components and subtleties of *quadratura* in another medium. The act of representing these ceilings therefore requires sacrifices of one or more of the characteristics of *quadratura* that make it a unique medium with dramatic potential. The means of reproducing these ceilings have continued to multiply and develop. At the time of their creation, the media used to reproduce them were the same or rather similar to those first used to create them: drawings and prints. Although they mark a return to the two-dimensional realm in which these *quadratura* were conceived, drawings and prints do not convey the full effect of the ceilings due to scale, viewing distance, and position relative to the beholder. In the nineteenth century, the invention of photography introduced yet another way to reproduce these ceilings. Despite the reliance of photography on optics, and the ability of a camera to capture details of light and shadow, the nature of cameras and of photography

constrains the ability of photographs to effectively reproduce *quadratura* ceilings.

Twentieth- and twenty-first-century technological developments based on photography, namely variations of virtual reality, have introduced yet another way to recreate these ceilings and their settings. The use of any form of photography to record these ceilings requires decision-making on the part of the person who takes the photographs.

In the interest of understanding these illusionistic ceilings as would a beholder when moving beneath the ceilings themselves, rather than looking at disjointed photographs, the descriptions of the three ceilings featured in this thesis will follow the order, to the degree possible, that a beholder would apprehend them. Thus, a description may begin from one end of the ceiling, from the middle, or from another section, and will progress to the subsequent portions in the order particular to that ceiling. These descriptions will contrast at times with the description one might expect for an easel painting that a beholder could (in theory) apprehend at a glance. Normally these descriptions begin with the most important elements, whether determined by placement, size, or content, but the beholder (or writer) is free to choose the order of description; whereas, these ceilings, and the rooms they crown, operate together to guide the beholder along a certain path that determines how much of the painted illusion is visible from any particular location. This thesis will attempt to balance a beholder's initial visual impression of these ceilings with the subsequent views attained through movement through the space and consequentially adjusted gazes.

Central to this study and its proposed model are the ceilings themselves, or rather—to be accurate and to introduce here a considerable concern of this study—photographic images of the ceilings. The circumstances under which this thesis was

written required the author's reliance upon photographs (several of which were taken by the author, but without foresight of this project) and numerous scholarly articles and books that also relied on photographs. A critique of the interaction of photography with *quadratura*, appearing in Chapter 3, considers the benefits and complications of photographing *quadratura* ceilings, and proposes a specific approach for the endeavor. The attention to photography and its use as a tool in the study of these ceilings relates to a broader premise of exploring this topic from a contemporary perspective.⁶ The author has attempted to avoid anachronisms, but it is neither possible nor useful to entirely ignore an early twenty-first-century understanding of the function of illusionistic ceilings, and of illusion more broadly. The insights this approach might bring to the main topic at hand justify some experimentation with it.

⁶ James Elkins, *The Poetics of Perspective* (Ithaca: Cornell University Press, 1994), 32–40. Best to get a (purposeful) fall on the ice of slippery perspective metaphors over with at the start.

Chapter 1: Foundations

Rhetoric

Giovanni and Cherubino Alberti, Pietro da Cortona, and Andrea Pozzo all employed rhetoric to communicate an intellectual message in their ceiling paintings. The latter two artists also directed another rhetorical strategy at beholders in order to strongly stimulate their emotions: the populous and energetic compositions of the Palazzo Barberini *salone* ceiling and the Sant' Ignazio nave vault are meant to overwhelm—to envelop the beholder and to make him feel small. The power depicted in these ceilings is somewhat frightening. Threatening thunderbolts electrify the air. The drama of the scene might pull the beholder up into its vortex and into a visible but unexplored space. This *terribilità*, as Michelangelo named it, encompasses the terror and exultation that are simultaneously and forcefully present in these ceilings. The combined fear and awe that these ceilings induce in the beholder has its origins in the classical rhetoric of the sublime. The ancient Roman author Longinus expounded upon the idea of the sublime in his text *On the Sublime* from the first century (originally *Peri hypsous*, *hypsous* meaning height). In his book, Longinus writes of the necessity of allaying the distrust that results from the use of “figures” (in art); the way to do this is to “call in the powerful aid of sublimity and passion.”⁷ This idea is one origin for the principle of “art without art” that characterizes illusion.

⁷ Ralph Dekoninck and Annick Delfosse, “Sacer Horror: The Construction and Experience of the Sublime in the Jesuit Festivities of the Early Seventeenth-Century Southern Netherlands,” *Journal of Historians of Netherlandish Art* 8, no. 2 (2016): 9.

The rhetoric of these three ceilings employs the visual principle that the most elevated component or figure of a painting is the most important. In each of them, one or two figures occupy the highest region of the fictive space: Saint Clement in the Sala Clementina, Divine Providence in Palazzo Barberini, and Christ, followed by Saint Ignatius, in Sant' Ignazio. (Strictly speaking, several of the angels hover above Saint Clement, but they are understood as a framing device to enhance rather than outshine him.) In these paintings, which create deep, three-dimensional space, this extreme height is a more consistent indicator of hierarchy than a central placement according to the picture plane. The Baroque aversion to centrality and symmetry, in comparison to Renaissance paintings, manifests in the later two ceiling paintings, in which the most important figures are off-center. In Cortona's ceiling, the placement of the female allegory of Divine Providence at the apex associates that virtue most strongly with the Barberini family. The thickly crowded composition overwhelms the beholder, and the spatial intervals between the figures and motifs are key in the reading of the ceiling.

The use of perspective and painted architecture to create a convincing continuation of the real space of the room is another aspect of rhetoric in these *quadratura*. Unlike the use of symbolic elements to persuade the beholder of the patron's power, virtue, or other qualities, which could be accomplished on any painting support, the rhetorical element that John Beldon Scott has named "optical persuasion" utilizes the optical and perspectival particulars of *quadratura* to persuade the beholder that what they perceive occurs in their real, experienced space.⁸ Scott specifies that this optical persuasion is in fact optical deception: the painter strives to convince the beholder that his

⁸ John Beldon Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini* (Princeton, N.J.: Princeton University Press, 1991), 15.

fictive architecture, figures, and sky exist as more than just paint. The use of deception to communicate something that is meant to be real and true—whether that Christ’s divine light shines down upon the faithful as in Sant’Ignazio or that the Barberini enjoy divine favor—reveals a central paradox of *quadratura* and the attempt by the artist, on the instruction of his patron, to communicate a message to the beholder.

Other painted ceilings, or planned ceilings, embodied the connection between painting and rhetoric more explicitly. In 1670, Giovanni Battista Passeri published his iconographical program for the vault of a new room of the Accademia di S. Luca in Rome. The central motif of the vault was to be an allegorical figure of Mute Poetry, to which were chained winged putti carrying attributes of painting, sculpture, and architecture.⁹ The characterization of painting as a type of mute poetry follows in a Renaissance tradition based on ancient thought. The saying, attributed to Simonides by Plutarch, that painting is mute poetry that speaks a picture, was referenced in Horace’s *Ars Poetica* as *ut pictura poesis*.¹⁰ The notion was that painters and poets performed the same function. Poetry, in turn, had been linked with rhetoric since Plato, and thus *ut pictura poesis* equated painting with rhetoric.

The need to persuade beholders implied that beholders had a choice: they could accept the message being presented, or they could disregard it. For Cortona’s ceiling, this was the power and virtue of the Barberini family. The Barberini family, when Pope Urban VIII commissioned Pietro da Cortona to paint the *salone* ceiling at Palazzo Barberini, was in a new and precarious position of authority, having recently joined the

⁹ Anthony Colantuono, “Invention and Caprice in an Iconographical Programme by G.B. Passeri,” *Storia Dell’Arte*, no. 87 (1996): 188–189.

¹⁰ Rensselaer W. Lee, “Ut Pictura Poesis: The Humanistic Theory of Painting,” *The Art Bulletin* 22, no. 4 (1940): 197.

ranks of the more established papal families. Rome, Urban's own Church, and the world beyond could have all chosen to deny (to a certain extent) the Barberinis' claims to ecclesiastic and secular power. It was important for the Barberini to establish their superiority through visual and more generally experiential means, specifically, the art and architecture of Palazzo Barberini and the *salone* fresco. In Sant'Ignazio, the message from the Jesuits concerned free will and salvation.

The possibility for rejecting a message that relates ultimately to power becomes greater in periods of social change. The Catholic Church of the seventeenth century was keenly aware of the choice of Protestantism that had begun to pull away Catholics early in the previous century. In order to maintain and expand its diminished flock, the Church decided that it needed to persuade its new and recommitted members of the Catholic order of the universe. The presentation of doctrine was not sufficient on its own; it had to be presented in a convincing manner. A central conduit for this was visual art. The content of this art had to be compelling in a way that gripped the senses, emotions, and to some degree, the imagination. The Jesuits had come to understand this by the first quarter of the seventeenth century, and implemented it in their artistic projects across media. As Ralph Dekoninck and Annick Delfosse explain in their discussion of the Jesuit festivities held in the Southern Netherlands in 1622, intensified emotion was the goal of a "cumulative effect" that "submerged [and] carried away" spectators by means of extraordinary splendor.¹¹ The aim, beyond simply creating a spectacle with scenery and firework displays, was to "convert" spectators.¹² The Jesuits knew that the subtle symbolic messages of allegories, emblems, and mottoes escaped most of the audience.

¹¹ Dekoninck and Delfosse, "Sacer Horror," 7.

¹² Dekoninck and Delfosse, 7.

The experience of the spectacle was more important, and more effective, than a nuanced understanding of its specific components.¹³

The Sensuous, the Sublime and the Spectacular

As Marcia Hall and Tracy Cooper discuss in their book *The Sensuous in the Counter-Reformation Church*, the Catholic Church made extensive use of the sensuous—encompassing images, relics, liturgy, processions, music, and theater—in the religious experience created for the faithful.¹⁴ Historical Church writings had recognized the role of the senses in religion, and the Church established them as part of the foundation of the Counter-Reformation. Counter-reformers also realized the utility of emotion in bringing lapsed Catholics back into the fold.¹⁵ The concern with reinforcing the Catholic ranks involved a broader privileging of the laity, beginning at the Council of Trent (1545–1563).

This shift in emphasis was reflected in the infrastructure of churches and in the experience of worship. In 1564, year after the closing of the Council of Trent, Duke Cosimo of Florence on his own initiative transformed S. Maria Novella and S. Croce. He removed the rood screens that had separated the laity from the holiest part of the church – blocking their view of the high altar – moved the friars’ choir from in front of the high altar to the space behind it, and placed altars in every bay of the nave.¹⁶ The laity now had a more direct connection, spatially and visually, to the high altar, as well as to the newly installed nave altarpieces. The subjects of these altarpieces in Santa Croce were the

¹³ Dekoninck and Delfosse, 8.

¹⁴ Marcia B. Hall and Tracy Elizabeth Cooper, *The Sensuous in the Counter-Reformation Church* (New York: Cambridge University Press, 2013), abstract, 1–2.

¹⁵ Hall and Cooper, 2.

¹⁶ Hall and Cooper, 3.

stages of Christ's Passion, and worshippers were meant to meditate on this narrative, moving from one altarpiece to another.¹⁷ Not only was movement around the nave, which had previously been divided horizontally by the rood screen at around the fifth bay, now more possible, it was intended that worshippers circulate from between designated points. Choreographed movement and looking, introduced in this way to Santa Croce in the 1560s, laid the groundwork for this type of activity in Sant' Ignazio at the end of the seventeenth century.

Catholic worship and religious experience had long incorporated physical movement and the senses. Since the late fifteenth century, pilgrims had traveled to *sacri monti* sites in Piedmont and Lombardy in order to undergo a simulated, "multimedia" performative experience of the Holy Land. Pilgrims relived and contemplated the stages of Christ's life through intense emotional and empathetic experiences that at times involved kneeling, crawling, and the touching of statues. *Sacri monti* sites encompass sculpture, painting, architecture, set design, and landscape. Illusionistic paintings, sculptures, and other two- and three-dimensional props combine real and fictive space, heightening the ambiguity of pilgrims' physical position. Pilgrims' close proximity to polychrome, naturalistic statues contribute to the sense of participation in an event rather than distanced observation.¹⁸

Worshippers also practiced regularized movement and tactile interaction in churches. The act of kissing the pax, or *instrumentum pacis*, was common practice

¹⁷ Hall and Cooper, 3.

¹⁸ D. Medina Lasansky, "Body Elision: Acting Out the Passion at the Italian Sacri Monti," in *The Body in Early Modern Italy* (Baltimore: Johns Hopkins University Press, 2010), 252–255.

throughout Europe by the fifteenth century.¹⁹ While the exact use of the pax during a mass varied, in many cases the celebrant, after the prayer of peace, kissed the altar and then the pax, an object made of stone, wood, ivory, glass, or metal, as was typical of fourteenth- and fifteenth-century Italian paxes.²⁰ After the celebrant kissed the pax, he passed it to the other clerics, and then to the laity; the procedure reinforced a social hierarchy, as the pax moved next to the most elite members of the laity and then eventually to women worshippers.²¹ In 1698, just four years after Pozzo completed the *Glorification of Saint Ignatius*, a Russian nobleman by the name of Peter Tolstoi visited Rome as part of an extended European tour. In his travel diary, Tolstoi notes the statue of Saint Peter that visitors (and Tolstoi himself) kissed upon entering St. Peter's Basilica.²² He also describes the way in which visitors to the church of Santa Scala must ascend the staircase on their knees, up to the closed door of the church.²³ The Catholic Church had long implemented immersive worship experiences that engaged all of the senses (including holy objects, incense, the host, and music) and at times involved specific movements.

Illusionistic ceilings operate in the vein of this tradition and the new strategies of the Counter-Reformation. While it does not directly engage the full range of senses, it engages vision rather intensively, and its trompe l'oeil aspect implies a type of imagined tactility and movement: rather than simply beholding a visually intense image (such as a complex, abstract pattern), the beholder can imagine touching the realistically-rendered

¹⁹ Adrian W. B. Randolph, *Touching Objects: Intimate Experiences of Italian Fifteenth-Century Art* (New Haven: Yale University Press, 2014), 217.

²⁰ Randolph, 219–220.

²¹ Randolph, 219.

²² Petr Andreevich Tolstoi, *The Travel Diary of Peter Tolstoi: A Muscovite in Early Modern Europe*, trans. Max J. Okenfuss (DeKalb: Northern Illinois University Press, 1987), 281.

²³ Tolstoi, 276.

figures and non-figural elements, and might envision his own upward movement into the fictive space. The placement of a *quadratura* painting in the nave of a church, as in Sant' Ignazio, situates it firmly within the realm of the laity (rather than by the high altar). The visual accessibility of *quadratura* marks it as something intended for the laity, rather than transmitted physically (or verbally) from the clergy, like the pax. In this sense, too, ecclesiastical *quadratura* is a consequence of the Council of Trent and the privileging of the laity. Additionally, the Council of Trent proscribed images that could possibly foster false doctrines or that could potentially expose uneducated beholders to dangerous errors and misinformation.²⁴ Despite its complexity, the totalizing quality of an illusionistic ceiling and the experience it enforces for beholders allow for less ambiguity than a less imposing work of art, such as an easel painting.

Those who came to worship in Sant' Ignazio were meant to engage fully with the magnificent illusion that towered above their heads. The foundations for such an engagement were laid by the founder of the Society of Jesus, Saint Ignatius of Loyola. Saint Ignatius wrote the text known as the *Spiritual Exercises* over the course of two decades (1521–1541), intending them as a set of instructions for an exercitant, who often also had the help of a director.²⁵ At the foundation of the *Spiritual Exercises* lay the idea that the engagement of an exercitant's senses would draw him into meditation. The participant would choose a subject, such as hell, and then imagine experiencing it, via

²⁴ Giovanni Sale, S.J., "Architectural Simplicity and Jesuit Architecture," in *The Jesuits and the Arts: 1540–1773*, ed. John W. O'Malley, S.J. and Gauvin Alexander Bailey (Philadelphia: Saint Joseph's University Press, 2003), 32.

²⁵ Saint Ignatius of Loyola and George E. Ganss, *The Spiritual Exercises of Saint Ignatius: A Translation and Commentary*, Jesuit Primary Sources, in English Translations 9 (St. Louis: Institute of Jesuit Sources, 1992), 2–4.

one sense and then another.²⁶ However, unprompted imagination did not always suffice. In his prayer manual *Instruttione di meditare* (1600), the Jesuit novitiate master Bartolommeo Ricci advocated for the use of visible spaces as an aid in meditation.²⁷ Pozzo's vault, then, operated as a type of 'visible space,' as well as a sensuously overwhelming full-body experience. Rather than carrying out the *Spiritual Exercises*, a worshipper would enter Sant' Ignazio and engage with Pozzo's painting using as many senses as possible. The Jesuits took the approach of the *Spiritual Exercises* and applied it in the worship experiences in their churches, and this is certainly the case with the vault of Sant' Ignazio.

The intense engagement of the senses that Pozzo's ceiling commands is best characterized as belonging to the sublime. The ceiling's impact on a beholder is not coincidental to the aims of the Jesuits; rather, it is essential and completely linked to the intellectual content of the ceiling. The Jesuits had already begun to embrace the sublime as a tool much earlier in the century. Ralph Dekoninck and Annick Delfosse have written about the use of the sublime in Jesuit festivals in the Southern Netherlands in the 1620s. These festivals, which took place outdoors, involved the use of ephemeral scenery, fireworks, polychrome statuary, and fake blood. The design of these festivals relied upon the concept of *sacer horror*, which was based on the feeling that ancient Greeks and Romans were understood to have felt when in the presence of divinities.²⁸ While later recast as a secular phenomenon by Enlightenment thinkers, the sublime developed out of

²⁶ Hall and Cooper, *The Sensuous in the Counter-Reformation Church*, 9–10.

²⁷ Steffen Zierholz, "'To Make Yourself Present': Jesuit Sacred Space as Energetic Space," in *Jesuit Image Theory*, ed. Wietse De Boer, K.A.E. Enenkel, and Walter S. Melion, *Intersections: Interdisciplinary Studies in Early Modern Culture* 45 (Leiden: Brill, 2016), 427–428.

²⁸ Dekoninck and Delfosse, "Sacer Horror," abstract.

religion, originating as this *sacer horror*.²⁹ The Roman writer Longinus wrote a book on the sublime, which comes from the word *sublimare*, meaning to raise up. Longinus connected this meaning to the physical and moral sense of “high,” “lofty,” and “great.”³⁰ In addition to the divine, the sublime also referred to the grandeur of nature, or to human moral strength. For Christians, this still ultimately related back to God. As Dekoninck and Delfosse write, “If the sublime aims at grandeur, its ultimate vanishing point is God himself.”³¹

Experience of the sublime was a physical as well as an intellectual process. Historian of comparative religion Rudolf Otto discussed the *mysterium tremendum* in this context: a mystery that makes one tremble and shiver. Otto considered this the most profound and intimate of all religious emotion.³² It seems that the Jesuits agreed, given the reactions they sought from their art. Otto identified a connection between the *mysterium tremendum* and awe, in the sense of “respect mixed with fear and admiration.”³³ In the seventeenth century, the *horror* of the ancients—the trembling, cold sweats, and inability to speak—was tied to the adjective *sacer* to bring the concept into a Christian context.³⁴ The connection between the sacred and the sense of horror was so prevalent in Jesuit literature and took such a hold in the French language in particular that by the end of the seventeenth century, the definition of the word *horreur* described it as

²⁹ Dekoninck and Delfosse, 1.

³⁰ Dekoninck and Delfosse, 2.

³¹ Dekoninck and Delfosse, 2.

³² Dekoninck and Delfosse, 2.

³³ Dekoninck and Delfosse, 2.

³⁴ Dekoninck and Delfosse, 2.

the feeling one has upon entering a church, as one is filled with fear or respect, having seen a certain place or objects that inspire this feeling.³⁵

The reference to specific spaces or objects as the cause of *sacer horror*, rather than just the church itself, aligned with the conclusions of the Council of Trent in the previous century. In 1562, at one of the later sessions, the Council decided that worshippers needed external aids, such as lights, incense, and vestments, to help them meditate on divine matters.³⁶ By the seventeenth century, Jesuit spectacles were making full use of the trappings of *sacer horror*. Jesuit writers described the effect of the scenery they constructed in marking the canonizations of Ignatius of Loyola and Francis Xavier as being one of *sacer horror*.³⁷ The focus on *sacer horror* aligned with the broader emphasis on emotion in Catholic art spurred by the Council of Trent. Reformers at the Council placed a renewed emphasis on the creation of images, especially those that provoked emotional responses, with the goal of increasing worshippers' devotion. After the Council, patrons and artists looked for ways to address these concerns.³⁸ Reformers felt that the Mannerist paintings of the mid-sixteenth century did not offer sufficient emotionality. The Church and private patrons wanted to fill churches with highly emotional works of art.³⁹

Due to the similarities in sensuous and emotional impact between the Jesuit festival spectacles and the ceiling of Sant' Ignazio, and the Jesuits' intentional employment of *sacer horror*, it follows that *sacer horror* and the sublime emerge in Pozzo's ceiling. Important elements of the Jesuit festivals were *copia*, or abundance, and

³⁵ Dekoninck and Delfosse, 2–3.

³⁶ Dekoninck and Delfosse, 3.

³⁷ Dekoninck and Delfosse, 4.

³⁸ Hall and Cooper, *The Sensuous in the Counter-Reformation Church*, 4.

³⁹ Hall and Cooper, 6.

varietas, or variety. Together, they gave the impression of a visually saturated and resplendent universe.⁴⁰ The visual surfeit of Pozzo's ceiling adopts this strategy, resulting in a 'universe' full of figures, holy and mundane. Pozzo's ceiling does not exhibit the restrained composition of Michelangelo's *Creation of Adam*, which presents a pictorial universe populated only by God and angels on one side and by Adam on the other. In the densely packed ceiling of Sant' Ignazio, it is as though all of the figures appearing on the Sistine ceiling have been brought together in one space, contiguous with that of the beholder. It does certainly seem that the Jesuits aimed for "visual intoxication," to use Hall and Cooper's term.⁴¹ The sheer spectacle of Pozzo's ceiling makes this difficult to deny. The Jesuits did not, however, wish to do away with reason, as their critics charged in the eighteenth century.⁴² Rather, they tried to bring emotionality and rationality together in the service of devotion and religious understanding. Visual amazement was the means to an end: awe was a crucial step in belief and devotion.

The spectacle of Jesuit festivals was meant to transport beholders out of themselves.⁴³ Pozzo also achieves this in his audience by inducing a feeling in the beholder of the possibility that he will imminently soar upward to join the figures floating above him. This sense of being outside of oneself was linked to being full of the holy horror of God.⁴⁴ The use of senses brings information about the world, or a particular spectacle or space, into the consciousness of the beholder. At the same time, such a sensuous experience can also pull a beholder out of his own awareness and into an external and potentially shared experience. The idea of a shared experience is itself

⁴⁰ Dekoninck and Delfosse, "Sacer Horror," 6.

⁴¹ Hall and Cooper, *The Sensuous in the Counter-Reformation Church*, 9–10.

⁴² Hall and Cooper, 9–10.

⁴³ Dekoninck and Delfosse, "Sacer Horror," 3.

⁴⁴ Dekoninck and Delfosse, 3.

something of an illusion: the beholder's senses and perception fundamentally operate in the same manner as they did prior to his sense of being transported out of his singular experience. This layering of illusions is one of the special qualities of *quadratura* and fictive spaces.

Jesuit festival scenery produced feelings of astonishment and fear, which then turned to admiration.⁴⁵ Pozzo's ceiling produces these feelings, although the order in which they occur is more fluid, and the beholder likely cycles between astonishment and admiration. The beholder's experience of the illusion, which depends on a number of factors, including the location from which the ceiling is first beheld, the beholder's prior awareness of the illusion, and his knowledge of illusionistic painting in general. An initial viewing of the ceiling from the intended viewing point may first induce astonishment, while apprehension of the ceiling from the entrance to the church, from where its distortions may be more apparent, is likely to lead to admiration of the illusion once seen from the ideal station point.

Decorum

Decorum equates to the idea that there are rules, based on antiquity and the writings of (humanist) scholars, which governed what was appropriate in the creation of art, including the painted decoration of interior spaces. These rules determined what subject matter an artist could use. Changing attitudes during the Renaissance and a renewed attention to classical mythology from ancient Rome and Greece had allowed for the introduction of this subject matter in fresco cycles, such as in the Stanza dei Giganti at the Palazzo del Te. The monstrous bodies that Giulio Romano made to tear down the

⁴⁵ Dekoninck and Delfosse, 7.

very walls that surrounded them were taken from the classical theme of the gigantomachy, or battle between the Greek gods and rebellious giants. Decorum applied also to religious subject matter. While less contentious than mythology—one did not need an excuse to depict Christian subjects in the way that one needed an excuse for pagan gods—decorum still held that there were more and less appropriate ways to present Christian stories. Whether or not a subject was appropriate could depend on the space in which it would appear, and the social station of the patron who hoped to commission it.

Decorum also extended beyond content to govern the form, or presentation, and narration of an event. Artists had to strike the right balance. Christ's suffering on the cross should be apparent, and while this was more easily communicated through the depiction of his bare flesh and wounds (and a mostly-nude Christ was in keeping with the gospels), Christ could never be shown completely nude: a loincloth was always required in order to maintain a basic level of dignity required for the depiction of the messiah.⁴⁶ Such rules, which extended to saints, popes, and other figures of import, helped maintain respect for those depicted. The relative consistency in depiction that resulted from adhering to the rules of decorum helped make figures and scenes legible. Decorum even extended to the emotions and gestures of figures. Renaissance treatises insisted on moderation in most cases. Not every work of art aligned with these precepts, and sometimes art was later altered to make it acceptable. Michelangelo's *Last Judgment* (1536–1541) on the altar wall of the Sistine Chapel in Rome shocked papal censors with its ubiquitous nudity—not appropriate at all above an altar, and even worse, present in the

⁴⁶ Virginia K. Henderson, "A Vision of Poverty: Remembering the Passion and the Christian Ideal in the Imagery of the Observant Franciscans," in *Dreams and Visions: An Interdisciplinary Enquiry* (Leiden; Boston: Brill, 2010), 247–249.

ranks of the saved as well as of the damned—and artists were sent in to cover offending regions with flowing cloths.

Michelangelo's push against decorum for the sake of accuracy—everyone would be nude on Judgment Day—presaged the violations of decorum that occurred with persistence in some of the most remarkable works of the seventeenth century. Famous for flouting decorum, Caravaggio's raw, earthy paintings thrust the dirty feet of saints into the space of the beholder and located Christ in pedestrian taverns. Caravaggio, too, sought to create naturalistic—and, as much as suited his purposes—realistic scenes that produced emotion and immediacy at the expense of expected propriety. Baroque art brought emotion and gesture never before granted to holy figures. Nowhere is this more evident than Bernini's *Ecstasy of Saint Teresa* (1647–1651); Teresa's facial expression betrays a degree and type of religious passion exceeding the fervor of any saint before her. While many examples of Baroque art pushed past the boundaries of decorum that governed the art of the Renaissance, artists and patrons were largely still concerned with these conventions.

However, major changes in Christendom required new roles for art. In answer to the Protestant Reformation of the sixteenth century, the Catholic Church carried out its Counter-Reformation on a variety of fronts. The Church formed the Society of Jesus in 1534, and the Jesuits, whose work included worldwide evangelization and religious scholarship, flourished in the following century. In addition to spreading their faith, Jesuits were tasked with revitalizing the devotion of Catholics. The Jesuits relied heavily on the art in their churches to educate and invigorate their flock. The art they commissioned was based on religious scholarship and reflected intellectual

considerations, but it communicated its messages primarily through sensual means.⁴⁷ This Counter-Reformation art engaged viewers—who in many cases were made active participants through their looking—through emotion, space, movement, and light.⁴⁸ The new demands placed upon religious art, and the new art that emerged over the course of the seventeenth century, resulted in new definitions of decorum.

The rules of decorum applied to ceiling paintings, just as they did to mural and easel paintings.⁴⁹ Factors that determined appropriate subject matter for a ceiling included the social station of the patrons, the function of the building, and the specific location of the imagery (in relation to what lay below it).⁵⁰ Specific to ceilings was the concern of elevated placement: the depicted subject matter had to be appropriate for the celestial realm.⁵¹ Giovanni Battista Passeri's unrealized program for the Accademia di S. Luca vault made a definitive visual statement about decorum. The allegory of Mute Poetry operates in concert with the allegories of Decorum and Invention, which impose boundaries upon the artist's imagination.⁵² Decorum acts as a counterpoint to Invention, but must also serve as the foundation for artists' poetical inventions.⁵³ Despite strong Baroque departures from Renaissance decorum, seventeenth-century artists were still guided by that principle: Andrea Pozzo altered the foreshortening of his figures in order to make them more pleasing, per a directive from his patrons (see Chapter 3). The ceilings of the Palazzo Barberini *salone* and the nave of Sant' Ignazio illustrate changes in

⁴⁷ Hall and Cooper, *The Sensuous in the Counter-Reformation Church*, 6–10.

⁴⁸ John Rupert Martin, "The Baroque from the Point of View of the Art Historian," *The Journal of Aesthetics and Art Criticism* 14, no. 2 (December 1955): 168.

⁴⁹ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 14.

⁵⁰ Scott, 14.

⁵¹ Scott, 14–15.

⁵² Colantuono, "Invention and Caprice in an Iconographical Programme by G.B. Passeri," 198.

⁵³ Colantuono, 197, 201.

standards of decorum over the course of the seventeenth century. Nicolas Poussin remarked that Cortona's figures were "improper"; even in 1650, it was not the custom to show figures from below.⁵⁴ Others thought the subject matter was too grandiose for the Barberini family. Half a century later, Pozzo painted the Holy Trinity and Saint Ignatius, all foreshortened, with no complaint from the Society of Jesus or any other quarter.

The precedent for prescribed movement in churches that formed part of the foundation for *quadratura* had parallels in the private world of palaces. Patricia Waddy, in her book *Seventeenth-Century Roman Palaces: Use and the Art of the Plan*, explains that the Roman palaces of that century were designed for an occupant with the office of cardinal. Rigid rules dictated how the cardinal would receive guests at his palazzo, including in which room they conducted their visit, and at which point the cardinal and his gentlemen moved out toward the door to greet and to bid farewell to a guest.⁵⁵ The placement of chairs during the interaction also indicated a favorable or unfavorable disposition toward the visitor. These strict rules and the ability to deviate from them to send a message supports the notion of highly regulated movement for visitors within these spaces. The experience of visiting a person of rank, such as a cardinal, noble, or the Pope himself, was carefully designed on a number of levels, including the physical movement and also what the visitor would have encountered visually: the art and architecture of the palazzo. The regulated nature of palazzi, and the established use of the

⁵⁴ John Beldon Scott, "The Art of the Painter's Scaffold, Pietro Da Cortona in the Barberini Salone," *The Burlington Magazine* 135, no. 1082 (May 1993): 327; Mary Beal, "Richard Symonds in Italy: His Meeting with Nicolas Poussin," *The Burlington Magazine* 126, no. 972 (March 1984): 141–142. Richard Symonds recorded Poussin's comments in 1649–1651.

⁵⁵ Patricia Waddy, *Seventeenth-Century Roman Palaces: Use and the Art of the Plan* (New York: Architectural History Foundation, 1990), 4–6.

palazzo for rhetorical ends, similarly set the stage for *quadratura* in private palazzi, such as Palazzo Barberini.

Just as decorum governed whether an artistic subject was fitting for a particular space, it also dictated how a person should move his body. In early modern Italy, specific movements carried certain connotations. In her essay “‘Sauter et voltiger en l’air’: The Art of Movement in Late Renaissance Italy and France” Sandra Schmidt refers to Giovanni Bonifacio’s 1616 *L’arte dei cenni*, the Art of the Gesture. According to Bonifacio, turning one’s face toward heaven indicates the soul extending itself toward God, and raising one’s head indicates uprightness of the soul.⁵⁶ In keeping with this theory of movement and gesture, gazing up at a *quadratura* fresco was akin to looking upward toward God. This was doubled, and made more literal, when an artist included a representation of heaven and of God, as did the Alberti brothers and Pozzo in their frescoes. They followed a long tradition of depicting heaven on ceilings, extending back to Correggio’s dome in the Parma Cathedral (1524–1530) and even further to Giotto’s ceiling in the Arena (Scrovegni) Chapel (c. 1305) [Figures 4-5].

A beholder’s movement of his body in palaces and in churches was a central component of his experience in those spaces. In the seventeenth century, the painters of illusionistic ceilings would draw on the idea of that movement, and strategically

⁵⁶ Sandra Schmidt, “‘Sauter et Voltiger En l’Air’: The Art of Movement in Late Renaissance Italy and France,” in *The Body in Early Modern Italy*, ed. Julia L. Hairston and Walter Stephens (Baltimore: Johns Hopkins University Press, 2010), 221; Giovanni Bonifacio, *L’arte de’ cenni: con la quale formandosi favella visibile, si tratta della muta eloquenza, che non e’ altro che un facondo silentio* (Vicenza: F. Grossi, 1616), 43–44: “Faccia volta verso il Cielo: Sicome si volta la faccia, così è segno che si volti l’animo verso il Cielo à Dio, dove hà particolare stanza... Et perche solo l’huomo tra gli animali aspira di salire dopò la morte al Cielo, donde prima venne; perciò havendo Iddio fatti gli altri animali riguardanti la terra, fece solamente l’huomo retto, che ammirasse le bellezze del Cielo, come ben disse Ovidio: ‘Os homini *sublime* dedit coelumque videre Iussit, & erectos ad sydera tollere vultus’... Questo levar di faccia in alto è anco indicio di confidenza, d’ardire, e di magnanimità...” (italics added here).

manipulate it, in order to communicate their patron's message. A key element of this manipulation, and of the broader sensory experience that this illusionism created, was the artist's convincing execution of his composition. Central to this was the construct of perspective, particularly *sotto in su* perspective, which worked as a powerful tool on the beholder.

Chapter 2: Calculations

The illusionistic ceilings known as *quadratura* due to the techniques used to create them were remarkable for numerous reasons, and this genre of painting diverged from other forms of ceiling paintings in several ways. Ceiling paintings of the sixteenth century were normally composed of distinct panels that were created using the *quadro riportato* method. In this type of ceiling painting, artists created compositions that followed the same conventions of a painting done on a vertical surface, whether on a wall or a moveable support. It was as if the artist had painted on a stretched canvas and then attached it to the ceiling. This type of perspective was also used for ceilings done in fresco, as with Michelangelo's paintings on the ceiling of the Sistine Chapel (1508-1512) and Annibale Carracci's vault of the Farnese Gallery in the Palazzo Farnese (1597-1601) [Figures 6-7]. *Sotto in su* perspective, by contrast, is rendered as if the viewer and the painting exist in a continuous, vertical plane; there is no imaginary window that separates the viewer from the action as there is with a painting constructed with standard linear perspective, whether it appears on a wall or a ceiling. The placement of the viewer and the depicted action in a continuous plane creates a new conception of space. This construction of space is more dynamic, and the depicted figures seem to have a stronger presence in the space of the viewer than figures depicted using standard linear perspective.

The ceiling of the Sistine Chapel provides a useful contrast between the principles of *quadro riportato* and *sotto in su* perspective. While the panels conform to *quadro riportato*, the muscular ignudi that sit, crouch, and twist between the panels are rendered in a type of in-between perspective. Michelangelo places them on the same plane as the

narrative panels, but their foreshortening and shadows suggest that they inhabit the real space of the Chapel, rather than sharing the imaginative space of the panels.

Sotto in su perspective should not be confused with other types of illusion. The idea of *trompe l'oeil*, the tricking of the eye, had expression in pictorial arts from ancient times. The act of representational painting itself implies a kind of trickery, alchemy, and suspense of disbelief: pigments applied to a support in a strategic manner are meant to evoke beings and objects that exist somewhere else in the world, or not at all. Efforts to make these objects appear as if they were really there, extant in the physical space of the viewer and available for tactile as well as visual apprehension, extend back to ancient Greece (as in the story of Zeuxis' grapes and Parrhasios' curtain). Other ancient art had introduced illusionistic objects and spaces, such as those in Second Pompeian Style of wall painting (first century BCE). Viewers seemed to look through a window out into a garden, or even on to a scene populated with multistory structures, temples, and fountains. In this type of painting, the depicted elements were still understood to exist in a space separate from the interior space occupied by the viewer. The *sotto in su* ceiling paintings of the seventeenth century, by contrast, created an illusionistic space continuous with the space of the viewer.

Andrea Mantegna produced one of the earliest instances of the use of *di sotto in su* perspective in the *Camera degli Sposi* at Mantua in 1475 [Figures 8-9]. On the ceiling of this chamber, which functioned as the bedroom of the master and mistress of the estate and as a chamber of state, Mantegna painted a circular balcony open to a fictive blue sky, populated by billowy clouds. The balcony, built from units of one stone circle inscribed within another (stacked four high with twenty-four of them comprising the circumference

of the balcony), provides a spatial playground for Mantegna's figures. Cherubs, women, men, and a peacock all line the balcony. Mantegna painted each figure and the large potted plant (which would threaten to fall on the viewer, if not for the added bar that supports it) at a different angle, using a different formula for the foreshortening of each head and pair of wings. The humans carefully peer over the balcony, their faces either parallel with or at an angle to the picture plane. The cherubs involve themselves more thoroughly with the balcony. Three stick their heads through the stone circles, each at a different angle, and the plump hand from another otherwise unseen cherub holds a wand pointing up at the peacock. Three additional cherubs stand precipitously on the narrow molding that links the balcony to the base of the oculus. They are a tour-de-force in foreshortening, their pudgy thighs brashly declaring Mantegna's mastery of perspective.

There is some sense of continuity between the space of the fictive oculus and the Camera itself. The pilasters painted on the walls support a painted canopy that covers most of the ceiling, opening in the middle to the oculus. One wall of the room features a blue, cloudy sky like that seen through the oculus, and the playful cherubs on that wall could be part of the same group whose more adventurous members have flown up to the balcony. The stacked circles of the balcony are repeated in the dado section of the walls, and as an architectural element in one of the wall scenes. On the whole, however, Mantegna did not create an unambiguously unified space between the real room and the imaginary sky above it. The arched areas of the wall panels are painted with garlands and other ornamental motifs that do not correspond to the scenes below them, and the wall scenes unfold in different settings that do not relate spatially to the room itself.

Nevertheless, Mantegna's exercise in *sotto in su* perspective heralds the later use of *sotto in su* in the illusionistic ceilings of the seventeenth century.

Optics and Perspective

As hinted at above, a discussion of optics and perspective is foundational to the study of *quadratura*. The creation and study of all visual arts involve optics, but *quadratura* in particular demands special attention. The greater the emphasis on *trompe l'oeil* in a work of art, the more an artist must account for optics, as he is reliant on the science for an effective result. The special characteristics of *quadratura*—among them the (varying) curvature of the painted surface, the substantial viewing distance, the aerial location, the multiple viewing points, and the creation of illusory spatial depth—necessitate consideration of the properties of vision. As with any branch of science, theories of optics have changed over the course of centuries, and theorists have proposed explanations in opposition to their contemporaries and their antecedents.

Like the broader genre of *quadratura*, perspective itself is interdisciplinary and pluralist; no single definition can properly encompass its full significance.⁵⁷ The dimensions of optics most relevant to *quadratura* are those that converge with issues of perspective. The canonical narrative of European art has linked optics and perspective with Brunelleschi's famed but lost and poorly documented perspective panel, painted around 1425-1427 [Figure 10]. Brunelleschi's experiment may be understood as a point in the formation of perspective practices, but it does not mark a singular beginning or

⁵⁷ James Elkins, *The Poetics of Perspective* (Ithaca: Cornell University Press, 1994), xi-xii; Barry Schwabsky, review of *Review of The Poetics of Perspective; The Origin of Perspective*, by James Elkins, Hubert Damisch, and John Goodman, *The Print Collector's Newsletter* 27, no. 2 (1996): 72.

invention of the idea. (Whitney Davis characterizes Brunelleschi's experiment as the pictorialization of perspective.⁵⁸) As James Elkins clarifies, the Renaissance had multiple, different perspectives that artists used at different times and for different purposes.⁵⁹

These Renaissance perspectives, Elkins argues, were concerned with the depiction of objects, rather than the depiction or creation of spaces.⁶⁰ The concept of pure, abstract space came from the work of Descartes, Newton, and Kant.⁶¹ Of those, only Descartes' writings (especially *Geometry*, 1637) would have been available to seventeenth-century artists, and yet, Baroque artists from that period expressed a fascination with the infinity of space.⁶² John Rupert Martin refers specifically to seventeenth-century landscape painting when he notes a beholder's "exhilaration...in contemplating the continuum of space," but he continues his discussion with the infinity of space that is present in the illusionistic ceiling paintings of the century.⁶³ The vast sky, extending into heaven, that Pozzo created on the nave vault of Sant' Ignazio presents a space that is not dependent upon the objects—mainly figures—that occupy it. Pozzo's drawing of the architecture for the ceiling, as well as the engraving by Van Westerhout, confirm that this was a fictive space into which Pozzo placed objects, rather than an attempt to depict figures in perspective, which then required a setting constructed using perspective. Baroque perspective differed in other ways from Renaissance perspective. Elkins explains that after the Renaissance, perspective lost some of the serious meanings and melancholic

⁵⁸ Whitney Davis, *Visuality and Virtuality: Images and Pictures from Prehistory to Perspective* (Princeton: Princeton University Press, 2017), 271–272.

⁵⁹ James Elkins, "Renaissance Perspectives," *Journal of the History of Ideas* 53, no. 2 (June 1992): 210.

⁶⁰ Elkins, *The Poetics of Perspective*, 14–15.

⁶¹ Schwabsky, "Review of The Poetics of Perspective; The Origin of Perspective," 73.

⁶² John Rupert Martin, "The Baroque from the Point of View of the Art Historian," *The Journal of Aesthetics and Art Criticism* 14, no. 2 (December 1955): 168.

⁶³ Martin, 168–169.

associations it had gathered. He claims that it became an unproblematic device in the hands of seventeenth-century *quadraturisti*.⁶⁴ Perspective may have discarded some of its ponderousness, but *quadraturisti* were certainly concerned with its proper usage, both in its technical and rhetorical dimensions. In the seventeenth century, perspective did not have the full host of metaphorical and symbolic meanings that Panofsky and others have assigned to it in the past century.⁶⁵ Nevertheless, the larger project of *quadratura*, for which perspective served as a foundation, certainly functioned on metaphorical, allegorical, religious, and ethical levels.

The following section explores the theories of optics and perspective that were relevant to the creation of the ceiling frescoes of the Sala Clementina, the Palazzo Barberini *salone*, and the nave of Sant' Ignazio. Treatises on these subjects were available to *quadraturisti*, including those who painted these three ceilings, and it was imperative that *quadraturisti* understood the principle ideas at work, or at least how to translate them into an optically persuasive work of art. Some *quadraturisti*, including Pietro da Cortona and Andrea Pozzo, wrote or co-wrote their own perspective treatises. These sources are especially helpful in understanding their authors' planning and painting techniques, as well as the philosophies about optics, perspective, distortion, and illusion that underpinned their decisions. A survey of the writings on optics and perspective available to *quadraturisti* at any given time is an essential component of the model for the study of *quadratura*.

⁶⁴ Elkins, *The Poetics of Perspective*, 120.

⁶⁵ Elkins, 12–13, 29.

Brunelleschi's experiment and the artists and writers who reacted to it laid the foundation for the modern European conception of perspective, but artists had already been concerned with the idea. In paintings predating the first quarter of the fifteenth century, the oblique views of buildings and the similarly architectonic treatment of pictorial elements such as the throne of the Virgin Mary indicate that artists were interested in depicting these components as if they were seen from a particular viewing point that incorporated more than one plane of the object. These artists, however, did not create their compositions based on a single viewing point as Brunelleschi would—or, if they did, the relationship between the viewing point and the seen object was not calculated according to anything other than approximation (likely rooted in memory) rather than measured observation.

Despite the uncertainties surrounding Brunelleschi's Baptistery exercise, his concern with creating an image of the Baptistery that produced the same visual sensation as standing opposite the Baptistery in the western portal of S. Maria del Fiore indicates a concern with reproducing the physical experience of beholding the Baptistery from that particular spot. According to Antonio di Tuccio Manetti's account of Brunelleschi's painting, the beholder was meant to view the panel by means of a mirror—looking at it through a small hole in the back of the panel—at the same point just in front of the church portal from which the view was constructed. This allowed the beholder to see the image of the Baptistery and the image of the building at the same time, and to judge the accuracy of the painted perspective.⁶⁶ If a beholder who had seen the Baptistery from that portal were to view Brunelleschi's panel somewhere other than that particular spot, he

⁶⁶ Dominique Raynaud, *Studies on Binocular Vision: Optics, Vision and Perspective from the Thirteenth to the Seventeenth Centuries*, vol. 47, Archimedes, New Studies in the History and Philosophy of Science and Technology (Cham, Switzerland: Springer, 2016), 16–17.

would be imaginatively transported back to that place upon viewing Brunelleschi's painting. This type of spatial recreation engages the perceptive and psychological faculties of a beholder in a fundamentally different manner from the depiction of an object or place without the application of these optical principles. *Quadratura*, rather than referencing an existing structure, space, or view, creates an original image that is unique to the room in which it is painted. *Quadraturisti* employed perspective and optics to persuade the beholder that he was seeing a scene that occurred partially within and partially outside the confines of the real space that he inhabited. Unlike Brunelleschi's depiction of the Baptistery, which employed a single, highly controlled viewing point—a beholder looked through a hole the width of a lentil bean (about five millimeters)—*quadraturisti* had to construct a painted illusion that functioned from a greater number of viewing points. For any individual commission, an artist had to decide how many viewing points to accommodate for the ceiling as a whole, and for any given component of the composition. The Alberti brothers chose to make some elements in the Sala Clementina convincing from multiple distinct viewing points, as is the case with Saint Clement at the apex of the ceiling. Other elements were only legible from a single viewing point, or from a small area around that point, such as the heraldic device in the southwest corner of the vault.

Leon Battista Alberti (1404-1472), in his treatise *De pictura* (written in Latin in 1435 and translated into the vernacular in the following year as *Della pittura*), provided the first written account of a method for constructing pictures in correct perspective according to the system of *perspectiva artificialis*. This system of perspective relied upon a single center of projection, and Alberti founded his arguments on the geometry of the

pyramid of vision, as described by Galen and Euclid.⁶⁷ In the third century BCE, Euclid expounded upon the angle of vision in his *Optics*, discussing concepts such as visual rays and the visual cone.⁶⁸ In Alberti's theory, a beholder views a painting as if he is looking through a window, and it is presumed that both his position and gaze are unmoving. Alberti does not consider the physiology or psychology of vision, which had been crucial components of medieval optical theories.⁶⁹

In the later part of the fifteenth century, theorists such as Pietro Cataneo began to again acknowledge the movement of the eye and that perception is a process, rather than an instantaneous occurrence.⁷⁰ In his treatise (*L'architettura*, 1567), Cataneo writes that when looking at a man's face, "non si puo vedere ogni sua parte a un tratto"—it is not possible to view every part all at once—and that the beholder can only examine one feature—the mouth, eyes, nose—at a time.⁷¹ Cataneo adopts his account of this process of vision from the treatise *De aspectibus* by the Islamic scholar Abu Alì ibn al-Hasan ibn al-Haitham, known as Alhazen (965-1039). Alhazen's treatise was translated into Latin in the twelfth century, and was highly influential in the field of optics.⁷² Alhazen divides the process of vision into two parts: a first glance and then a series of observations that enable a beholder to judge and begin to analyze what he sees.⁷³ His consideration of

⁶⁷ Thomas Frangenberg, "The Image and the Moving Eye: Jean Pèlerin (Viator) to Guidobaldo Del Monte," *Journal of the Warburg and Courtauld Institutes* 49 (1986): 150.

⁶⁸ Thomas Frangenberg, "The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries," *Renaissance Studies* 6, no. 1 (1992): 1.

⁶⁹ Frangenberg, "The Image and the Moving Eye: Jean Pèlerin (Viator) to Guidobaldo Del Monte," 150–151.

⁷⁰ Frangenberg, "The Image and the Moving Eye," 150–151.

⁷¹ Frangenberg, "The Image and the Moving Eye," 151.

⁷² Frangenberg, "The Image and the Moving Eye," 151.

⁷³ Frangenberg, "The Image and the Moving Eye," 151–152.

physiology and psychology alongside geometrical optics became standard for writings on *perspectiva naturalis* from the thirteenth to the seventeenth century.⁷⁴

Alberti addressed his treatise to potential patrons rather than to artists; he told them what subjects were suitable for paintings, the idea being that they would then direct artists accordingly.⁷⁵ Thus, from the beginning of the tradition of perspective, patrons (at least well-read ones) were made familiar with its inner workings. Perspective, then, was not some esoteric technique lodged in a recess of the painter's mind, but a shared language between patron and artist, and to some degree, audience. Alberti linked perspective to rhetoric in his treatise *De pictura*. This text takes the structure of a humanistic primer on grammar, and Alberti locates his section on perspective in the customary place of rhetoric.⁷⁶ James Elkins also argues in his book *The Poetics of Perspective* that artists used perspective to rhetorical ends. Thus, Alberti early on established perspective as a rhetorical tool, not just for the artist but also for his patron. This formed part of the foundation for *quadratura*, and it is also in this rhetorical role that perspective makes an appearance in the ceilings of the Sala Clementina, Palazzo Barberini *salone*, and Sant' Ignazio nave.

Piero della Francesca (c. 1416-1492) wrote the first analysis of the relation of vision and perspective in *De prospectiva pingendi*, which likely dates from the 1470s.⁷⁷ The title of Piero's treatise indicates that the work was intended specifically for

⁷⁴ Frangenberg, "The Image and the Moving Eye," 152–153.

⁷⁵ Judith Veronica Field, *The Invention of Infinity: Mathematics and Art in the Renaissance* (Oxford: Oxford University Press, 1997), 25.

⁷⁶ D.R. Edward Wright, "Alberti's *De Pictura*: Its Literary Structure and Purpose," *Journal of the Warburg and Courtauld Institutes* 47 (1984): 63.

⁷⁷ Frangenberg, "The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries," 5.

painters.⁷⁸ His analysis enabled the discussion of two further topics: how the construction of an image related to the geometry of vision, and the consequence of conceiving of a perspective image as an object of vision.⁷⁹ Piero's treatise was reproduced in close to its original form by Daniele Barbaro as 'La pratica della prospettiva' in 1568 and 1569 in Venice, and was widely read in this version.⁸⁰ Although it was not printed until the nineteenth century, its quotation by sixteenth-century writers including Egnatio Danti and Daniele Barbaro suggests that the manuscript form had a considerable circulation.⁸¹ It was likely known to *quadraturisti*. Based on the contemporary belief that the eye only apprehended less than a right angle, Piero recommended 60 degrees as the maximum angle used in constructing a perspective image.⁸² Piero della Francesca tacitly assumes that a beholder views an image from the eye point used to construct it, and he analyzes perspective on the basis of a single eye point. He does not address the possibility of constructing perspective images such that they can be viewed from more than one point.⁸³

Perspective treatises codified and further spread the knowledge that artists needed for the creation of *quadratura*. Certain treatises also include characterizations of painting that contributed to its larger significance, beyond being the act of applying prepared pigments to a support. The Italian painter Pietro Accolti wrote his treatise on perspective, *Lo inganno de gl'occhi, prospettiva pratica*, in 1625. In his prefatory letter, Accolti declares the Art of Painting as the most noble among all the Arts, and all that is needed

⁷⁸ Field, *The Invention of Infinity: Mathematics and Art in the Renaissance*, 80.

⁷⁹ Frangenberg, "The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries," 1.

⁸⁰ Field, *The Invention of Infinity: Mathematics and Art in the Renaissance*, 80.

⁸¹ Frangenberg, "The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries," 5.

⁸² Frangenberg, "The Angle of Vision," 6.

⁸³ Frangenberg, "The Angle of Vision," 9.

for the working of perspective.⁸⁴ Accolti's identification as a "Florentine gentleman" on the title page of his treatise asserts his familiarity with the liberal arts, and Accolti's association of painting with these arts elevates it to the level of rhetoric. (Specifically, it is painting's likeness to poetry that gives it a place among the liberal arts.)⁸⁵ The particular relevance of the treatise for *quadraturisti* comes especially in the section on *disegnare di sotto in su*, in which he provides a diagram and instructions for mapping points onto the surface of a vault.⁸⁶ Accolti's treatise also supplied an idea that has continually influenced and haunted perspectival studies. Accolti reproduced Alberti's method of perspective, and due to a misunderstanding of another text, he asserted that Alberti's method was the only correct one, and from his treatise it came to be known as the 'costruzione legittima.'⁸⁷

The use of perspective, particularly in the creation of illusory space, gives rise to a paradox of truth and deception of which perspective theorists and *quadraturisti* were well aware. In order to present the beholder with a scene that was truthful and accurate in its presentation of a particular narrative set in a convincing space, the artist was compelled to paint forms that represented but did not replicate the shape of their real-world counterparts. This inescapable conceit first occurs at the very foundation of a perspective picture, as constructed by theorists and artists beginning in the fifteenth century. Numerous perspective treatises, including those by Alberti and Pietro Accolti, provide a

⁸⁴ Pietro Accolti, *Lo inganno de gl'occhi, prospettiva pratica di Pietro Accolti gentilhuomo fiorentino. E della toscana accademia del disegno. Trattato in acconcio della pittura* (Appresso Pietro Ceconcelli. Alle Stelle Medicee, 1625), 2.

⁸⁵ Rensselaer W. Lee, "Ut Pictura Poesis: The Humanistic Theory of Painting," *The Art Bulletin* 22, no. 4 (1940): 197.

⁸⁶ Accolti, *Lo inganno de gl'occhi, prospettiva pratica di Pietro Accolti gentilhuomo fiorentino. E della toscana accademia del disegno. Trattato in acconcio della pittura*, 54–55.

⁸⁷ Field, *The Invention of Infinity: Mathematics and Art in the Renaissance*, 30.

method for constructing what is known as the *pavimento*.⁸⁸ This *pavimento* or pavement formed the ground of the pictorial space. In theory it consisted of a network of evenly sized and evenly spaced square or rectangular tiles. However, due to their aim of depicting such a floor as it appears optically to a beholder from a fixed viewing station and height, perspectivists were obliged to depart from the shapes of a real-world *pavimento* in their rendering of it in two dimensions. Due to the properties of human, binocular vision, square floor tiles perceived at an oblique angle will, when conceptualized in two rather than three dimensions, appear as a trapezoid: the close and far sides run parallel to each other, and the left and right sides appear positioned at converging angles. A beholder who is familiar with such floors, or who standing on such a floor moves about it and observes that each portion of the floor, once seen from directly above, is indeed a square, will know that the floor is composed of square rather than trapezoidal shapes.

Perspective paintings suppose a two-dimensional view of the world instead of a three-dimensional experience of it, and thus present the depicted scene through pure vision rather than comprehensive knowledge. In the modern European tradition, Cubism takes the opposite approach, and attempts to depict objects as beholders conceptualize them, or would view them over time—that is, as three-dimensional objects that exist beyond what a beholder’s eyes can perceive from one single angle. The vast majority of pictorial arts throughout human history have attached themselves to knowledge rather than vision, or more strictly speaking, to information that a beholder could gather from multiple experiential moments, using vision and other senses, rather than from what amounts to a single glance. The properties of paint and painting of any type permit the

⁸⁸ Field, 29–30.

artist to depict the world or aspects of it in any conceivable manner (within the physical possibilities of paint and the particular support of choice). The decision to depict objects and spaces according to the early modern European laws of perspective, developed from earlier Greek, Latin, and Arabic writings on optics, henceforth constrained artists working within the mode of perspective to specific conventions. Artists working in that mode were able to create convincing, illusory spaces. Herein lay the paradox launched by perspective. Artists attempted to adhere to the laws of optics in order to make their paintings resemble what was real, or what could be real, but the exercise involved deception.

Piero della Francesca was the first author to consider the role of distortions in perspective. He states that when a beholder views a picture from the correct viewing point, the “geometry of vision” compensates for the distortions in the image.⁸⁹ In fact, the construction of compositions that approximate the perception of three-dimensional space is possible because of lateral distortion.⁹⁰ This is why the *pavimento* is so useful in the construction of perspective pictures, as it provides a clue to the beholder that the image he sees contains its own fictive space. The highly distorted tiles that comprise the floor in Piero della Francesca’s painting *Flagellation of Christ* (c. 1455-1465) function, along with diminution of scale, to communicate the recessed space of the composition [Figure 11].

The deception that was fundamental to perspective pictures, starting with the *pavimento*, became even more essential in paintings that disobeyed the construct of a frame or an edge that clearly separated the painting from the real world. A perspective

⁸⁹ Frangenberg, “The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries,” 9.

⁹⁰ Frangenberg, “The Angle of Vision,” 9.

painting with clear visual boundaries, such as *Christ Giving the Keys of the Kingdom to Saint Peter* (1481-1483) by Perugino (Pietro di Cristoforo Vannucci, 1446/1447-1523) on the north wall of the Sistine Chapel, involves minimal deception. Perugino did not seek to convince beholders that the figures and buildings in his fresco occupied the same space as the beholders, that is, the space of the Sistine Chapel. By contrast, an artist employs the technique of trompe l'oeil, at its core a deception, in order to persuade the beholder that the form the artist has painted, in addition to consisting of a material other than paint (as is the alchemic conceit of representational painting), shares the same real space as the beholder. Trompe l'oeil painting requires a definite or implied boundary, as the artist's deception—the very goal of the endeavor—involves the apparent crossing of that boundary. In the case of easel paintings, the trompe l'oeil element transverses the boundary of the third dimension by seeming to enter into the space of the beholder. In the painting *Trompe l'Oeil of an Etching by Ferdinand Bol* (c. 1675, oil on panel), the unknown artist did not create any fictive space receding from the picture plane, as the entire background consists of a painted plane of wood [Figure 12]. (That the wood background is painted and not the unadulterated surface of the wooden support is another, though secondary, trick of the eye in this painting.) The artist painted a crinkled piece of paper, the bottom corner of which curls upward. As there is no recessed space in the painting, the paper appears to lie in front of the picture plane, and therefore seems to enter the real space that exists between the picture plane and the beholder. An artist may reinforce the three-dimensional effect in a trompe l'oeil painting by including a pictorial element that crosses a conventional two-dimensional boundary, such as a framing device, as in Titian's *Portrait of Gerolamo (?) Barbarigo* (c. 1510) [Figure 13].

Perspectivists developed rules and guidelines for perspective based on theories of optics and geometry, as well as through their own experimentation. For Leonardo da Vinci especially, experiments were central to his writings on perspective; they provided him with evidence that contradicted the writings of Euclid and Piero della Francesca, and what was considered common sense.⁹¹ Leonardo da Vinci, who addressed some of the same questions as Piero della Francesca, was concerned with calculating the appropriate distance from the eye to the plane of intersection. He based one solution on geometry, and the other on his experiments.⁹² As for the designation of a viewing or station point, Leonardo advised against restricting the beholder to one station point, as the presence of more than one beholder would negate the functionality of a single viewing position. In order to accommodate this, he ordered that a painting should have a sufficient viewing distance, such that there is minimal distortion at the edges.⁹³

Some of the most important writing on the relation between optics and perspective appears in Egnatio Danti's commentary on Vignola's *Due regole della prospettiva pratica*, which he published in Rome in 1583.⁹⁴ Danti himself was a professional mathematician from a family of painters.⁹⁵ He was primarily concerned with practical applications, like the design of stage scenery. Like many of his predecessors' treatises, his describes devices that aid in drawing perspective.⁹⁶ The Vignola-Danti text provided the first substantial instructions of perspective techniques as related to

⁹¹ Kim H. Veltman and Kenneth D. Keele, *Linear Perspective and the Visual Dimensions of Science and Art*, Studies on Leonardo Da Vinci 1 (München: Deutscher Kunstverlag, 1986), 14–15.

⁹² Frangenberg, "The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries," 11.

⁹³ Frangenberg, "The Angle of Vision," 11.

⁹⁴ Frangenberg, "The Angle of Vision," 33.

⁹⁵ Field, *The Invention of Infinity: Mathematics and Art in the Renaissance*, 147.

⁹⁶ Field, 150.

quadratura.⁹⁷ Danti emphasizes “how much the rules [of linear perspective] work in accordance with truth and in accordance with what nature herself works in our vision,” and he holds that there is complete accord between Euclidean optics and linear perspective.⁹⁸ However, Danti did negate the idea that perspective constructions could be based upon the size of visual angles.⁹⁹ Danti, like Piero della Francesca, believed it was necessary for a perspective image to correspond to what a beholder’s eye could apprehend in a single glance, without rotation.¹⁰⁰ He argued that linear perspective in a painting would hold, as long as the viewing distance was sufficiently large and the visual angle was not too wide.¹⁰¹ Danti writes that one should normally locate the principal perspective point in the center of the ceiling, but admits that at times it may be more appropriate to place the point along a side of the ceiling.¹⁰²

By the middle of the sixteenth century, painters were expected to be competent in the use of perspective, and a large number of printed perspective treatises provided instruction aimed at painters.¹⁰³ For the most part, these treatises were not mathematically rigorous. They began with instructions for constructing the *pavimento*, and then moved to simple solids such as the cube, and then in some cases to simple architectural settings. Woodcut illustrations guided the reader through the instructions. Instead of reproducing Piero della Francesca’s method for constructing more complicated solid shapes, these

⁹⁷ Ingrid Sjöström, *Quadratura: Studies in Italian Ceiling Painting*, Stockholm Studies in the History of Art 30 (Stockholm: University of Stockholm, 1978), 82.

⁹⁸ Frangenberg, “The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries,” 33–34.

⁹⁹ Frangenberg, “The Angle of Vision,” 34.

¹⁰⁰ Frangenberg, “The Angle of Vision,” 36.

¹⁰¹ Frangenberg, “The Angle of Vision,” 36.

¹⁰² Daniele Di Marzio, “La Sala Clementina in Vaticano. Procedimento per la costruzione diretta della prospettiva su superfici curve: ipotesi teorica e verifica sperimentale,” in *La costruzione dell’architettura illusoria* (Rome: Gangemi, 1999), 156.

¹⁰³ Field, *The Invention of Infinity: Mathematics and Art in the Renaissance*, 117.

treatises instructed artist to use instruments similar to those used for surveying.¹⁰⁴ In some treatises, such as Albrecht Dürer's text on geometry, *Treatise on Mensuration* (German 1525, Latin translation 1538), artists were instructed to rely on the presence of an actual object. In his lesson on how to draw a lute, Dürer trained painters in how to draw a lute using a string as a sightline, with one end anchored to the wall behind the painter and the other attached to the farthest point of the lute (or other object). The artist would then mark points onto a drawing paper that was suspended in front of him on a frame [Figure 14].¹⁰⁵ These were similar to other mechanical drawing aids that appear in several treatises on geometry and perspective, such as the 'velo' or veil as described by Alberti and Leonardo, or the coarse netting recommended by Dürer and Vignola.¹⁰⁶

While their theories and guidance had implications for later illusionistic painting, Piero della Francesca, Leonardo da Vinci, and others were not directly addressing issues of *quadratura*, as this type of painting had not been invented. (According to Sjöström, the fundamental principles of perspective as they apply to *quadratura* are found in Leonardo's sketchbooks and Vasari's account of Paolo Uccello's paintings.)¹⁰⁷ Sjöström notes that anything related to the emerging genre of *quadratura* appeared "in a rather disparate collection of writings," in the fifteenth through seventeenth centuries, and was only a small part of the perspective literature in that period.¹⁰⁸ Instead, the authors of most perspective treatises, in their instructions of processes and illustrations of devices, assumed that an artist would be creating a perspective scene on a flat, rectangular support (paper, panel, or canvas). *Quadraturisti*, however, rarely if ever enjoyed a consistently

¹⁰⁴ Field, 118.

¹⁰⁵ Field, *Invention of Infinity*, 120–121.

¹⁰⁶ Field, *Invention of Infinity*, 121–122.

¹⁰⁷ Sjöström, *Quadratura*, 82.

¹⁰⁸ Sjöström, *Quadratura*, 82.

flat surface as the destination of their creativity. In planning their paintings, *quadraturisti* had to account not just for a surface that was above rather than in front of them, but that curved at various angles from the apex of the ceiling down to the cornice at the border of the walls. Thus, *quadraturisti* required a specialized understanding of perspective.

Certain noteworthy Italian texts, beginning in the late sixteenth century, did address *quadratura* more directly and provided instructions for this type of painting: Vignola-Danti (1583), Accolti (1625), Viola Zanini (1629), G. Troili (1672), B. Contino (1684), and Pozzo (1693–1700).¹⁰⁹ There is considerable variation in the amount of detail that the authors provide in the exposition of their methods. Vignola-Danti's descriptions are the most limited, while the subsequent texts provide more text and illustrations.¹¹⁰ Sjöström notes the difficulty in assessing the importance of perspective texts in the development of *quadratura* painting. She recognizes their greatest use as documentation of the practice, rather than instructions that determined the outcome of artists' endeavors. Many of the authors were practicing artists, and their writings are drawn from their own experience and that of their contemporaries, as is the case with Pozzo's treatise.¹¹¹ There is no evidence that these perspective treatises on the whole drove the techniques of *quadraturisti*. Vignola and Pozzo attempted to impart some influence, such as in their insistence on the use of a single vanishing point, but their treatises did not launch *quadratura* painting in new directions. Thus, Sjöström concludes that the practice of this art, rather than the instructions in treatises, led to innovations in the genre. The texts, therefore, operated more as reference books for those learning the art than as influential

¹⁰⁹ Sjöström, *Quadratura*, 82.

¹¹⁰ Sjöström, *Quadratura*, 83.

¹¹¹ Sjöström, *Quadratura*, 83.

catalysts for change.¹¹² Frangenberg notes the substantial departures from perspective theory in actual artistic practice. Artists knew that illusionistic, three-dimensional spaces and objects did not have to completely adhere to the theories and rules of linear perspective in order to convince beholders.¹¹³ Nevertheless, perspective treatises are relevant in understanding the intellectual and artistic background of illusionistic ceilings, including the decisions artists grappled with, and the type of literature they may have encountered in that process. The treatise of one artist in particular, Andrea Pozzo, provides insight into the connection between practice and theory, and presents other issues central to the complexity of illusionistic ceiling painting.

Pozzo's Artistic Background: Devotion of the Forty Hours

Andrea Pozzo was born in 1642 and joined the Jesuit order in 1665. It was from the Jesuits that he received his training as a painter, and he decorated the order's buildings in several cities in northern Italy. Giovanni Paolo Oliva, the General of the Society of Jesus, called Pozzo to Rome in 1681. From 1681–1686, Pozzo painted the illusionistic corridor of the Casa Professa del Gesù. In 1685, he began work on the Chiesa di Sant' Ignazio, first painting the illusionistic dome over the crossing of the church, and then the nave vault, completing it in 1694. During this time, Pozzo published his treatise *Perspectiva pictorum et architectorum* (1693).

Andrea Pozzo is most famous for the *Glorification of Saint Ignatius*, but his artistic endeavors did not begin on the vaults of churches. Prior to his frescoing of permanent architecture, Pozzo designed and built apparatuses for the ceremony known as

¹¹² Sjöström, *Quadratura*, 83–84.

¹¹³ Frangenberg, "The Angle of Vision: Problems of Perspectival Representation in the Fifteenth and Sixteenth Centuries," 44.

the *L'Orazione delle Quarant'Ore*, or Devotion of the Forty Hours [Figure 15].¹¹⁴ As Mark Weil explains in his article “The Devotion of the Forty Hours and Roman Baroque Illusions,” the Devotion of the Forty Hours is a ceremony during which the Eucharist is exposed to clergymen and to the laity for forty hours. It was one of the most important liturgical services during the Counter-Reformation. In Rome, it was an exercise of continuous prayer that rotated from one church to another, the service beginning in the next church as it ended in the previous one.¹¹⁵

The Forty Hours Devotion became a major theatrical event in Rome during the seventeenth century. Activities included the colorful processions of religious companies, the preaching of special sermons, and the singing of hymns and litanies. The most important decorative element inside the church was called the *teatro* or *apparato* and was a temporary set placed in the chapel of the high altar with the intention of drawing attention to and glorifying the Sacrament. In previous eras, these *apparati* consisted of candles, oil lamps, silver reliquaries, silver vases with flowers, and various types of hangings. In the first decade of the seventeenth century, churches began to construct *apparati* made to look like complex architectural settings. By the middle of the century, the *apparati*, painted on flat surfaces, provided illusionistic space separate from the real space of the church. Unlike standard stage sets, *apparati* operated as complete illusionistic architectural spaces, rather than as just a backdrop.¹¹⁶ The perspective techniques and methods that Pozzo employed for his *apparati* (or *macchine*) provided the

¹¹⁴ Maurizio Fagiolo dell'Arco, “Tra Barocco e Illuminismo: Andrea Pozzo, Fratello Gesuita, Pittore,” in *Chiarezza e Verosimiglianza: La Fine Del Dramma Barocco*, ed. Silvia Carandini and Associazione Sigismondo Malatesta, I Libri Dell'Associazione Sigismondo Malatesta 10 (Rome: Bulzoni, 1997), 195.

¹¹⁵ Mark S. Weil, “The Devotion of the Forty Hours and Roman Baroque Illusions,” *Journal of the Warburg and Courtauld Institutes* 37 (1974): 218.

¹¹⁶ Weil, 218.

foundations for his later illusions.¹¹⁷ As with the vault of Sant’Ignazio, Pozzo’s task was to enlarge the space of the church through trompe l’oeil.¹¹⁸ In his treatise, Pozzo devotes three figures, the sixtieth through sixty-second, to a discussion of Forty Hours “machines” [Figure 16].¹¹⁹ Pozzo’s treatment of the subject indicates that he prioritized it as a topic for artists, and that he conceptualized it as relating to the practice of *quadratura*, with which he ends his treatise.

The Church developed the Devotion of the Forty Hours, and the accompanying theatrical elements, in response to the secular carnivals that took place outside of church edifices. As a result, the *apparati* and other experiential elements of the Devotion had to be more spectacular than those masques and street festivals.¹²⁰ The Devotion also complemented the outdoor festivals organized by the Church, such as the Jesuit festivities in the Southern Netherlands, mentioned previously. The trompe l’oeil paintings that expanded the space of churches, whether via a constructed apparatus or the vault of a nave, were part of richly sensuous experiences that began out of doors and moved into the church. For a beholder, the experience of seeing a Forty Hours apparatus or illusionistic ceiling was related to the experience of spectacles, religious and secular, that he had undergone, sometimes immediately before entering the church, and likely a number of times at various points in his life, possibly even multiple times per year.

¹¹⁷ Fagiolo dell’Arco, “Tra Barocco e Illuminismo: Andrea Pozzo, Fratello Gesuita, Pittore,” 194.

¹¹⁸ Fagiolo dell’Arco, 194.

¹¹⁹ Andrea Pozzo, *Perspective in Architecture and Painting: An Unabridged Reprint of the English-and-Latin Edition of the 1693 “Perspectiva Pictorum et Architectorum,”* Dover Books on Architecture (New York: Dover Publications, 1989), 134–139.

¹²⁰ Fagiolo dell’Arco, “Tra Barocco e Illuminismo: Andrea Pozzo, Fratello Gesuita, Pittore,” 194.

The Working Process

Quadratura exists as a special and distinct artistic category due to the use of perspective, a grid system, and a ceiling to produce an illusion, but this art form did not exist in a vacuum, and other media and techniques were present in the creation of illusionistic painted ceilings. By definition, illusionistic ceilings are painted on two-dimensional surfaces, but the figural and non-figural elements in these compositions are meant to appear as three-dimensional objects in three-dimensional space. While the vaults of spaces featuring *quadratura* were themselves often curved, as they were in the three cases explored here, this curvature only increased the challenge of creating a convincing illusion. *Quadraturisti* began their projects with a drawing rendered on paper, a two-dimensional support. Thus, the painting of a *quadratura* ceiling necessitated the transfer of a design from one two-dimensional support to another, but it also required calculations that ensured the three-dimensional appearance of the final painting. The artist and his assistants had to account for the changes resulting from the increase in distance between the viewer and the painting. The imaginative power of these artists must have been impressive, but to make their illusions even more successful, they turned to sources that were themselves in three-dimensions: namely, sculpture.

Sculpture was irreplaceable as a connector to reality. As a medium that replicates the physical world in the full number of dimensions available to human experience, sculptural models provided an ideal tool for the study of light, shadow, and foreshortening. Artists hung clay or wood *bozzetti*, or models, from a height in order to capture the appearance of a real figure from below.¹²¹ Artists could adjust their light

¹²¹ Alessandra Buccheri, *The Spectacle of Clouds, 1439-1650: Italian Art and Theatre*, Visual Culture in Early Modernity (Burlington: Ashgate, 2014), 99–100.

source in order to observe the effect on the model that they would later replicate for their painted figures. Special attention to light and shadow characterized Baroque painting, no more so than in the work of Michelangelo Merisi da Caravaggio (1571–1610). For *quadratura* in particular, light and shadow, though often not as exaggerated as in Caravaggesque canvases, were essential to the creation of a convincing illusion. By examining a model from the angle he wished to replicate, an artist could confidently and accurately render the figure in a drawing according to linear perspective.

Sculpture also relates to *quadratura* through movement, a topic addressed more thoroughly in chapter 3. Free-standing sculpture, which first reappeared in the Renaissance in the form of Donatello's bronze *David*, is created with the intent that the viewer will move around it and look at it from multiple angles. *Quadratura* by default incorporates this idea of movement and looking from multiple angles, although individual ceiling paintings made use of movement to different extents.

Another integral part of the model for the study of illusionistic ceilings is consideration of an artist's progress and method in moving from an idea to a finished ceiling. The creation of a *quadratura* ceiling began with a request from an artist's patron. A program was then developed for the ceiling, either by the artist, as in the case of the *Glorification of Saint Ignatius*, or by another individual. A scholar might advise the artist in matters such as iconography, as Francesco Bracciolini did for Cortona. Early in the process, the artist would have made pen drawings and oil sketches. An early drawing by Pozzo for the ceiling of Sant' Ignazio provides insight into the primacy he assigned to fictive architecture, and the care he took to ensure that it performed its function in harmony with the figures. An oil sketch by Giovanni Battista Gaulli for the illusionistic

vault fresco in the Chiesa del Gesù demonstrates how the artist conceptualized the connection between the fictive space of the ceiling and the real space of the nave. Cortona's changes to his ceiling fresco in the Palazzo Barberini *salone* indicate a larger preoccupation with perspective.

Pozzo himself invented the program for the vault of Sant' Ignazio; as a Jesuit brother, he was qualified for the task. Pozzo explained the program and identified himself as its author in a 1694 letter to Anton Florian of Liechtenstein, ambassador of Holy Roman Emperor Leopold I to the Holy See.¹²² Pozzo drew on a quotation from Saint Luke: "I am come to send fire on the earth; and what will I, if it be already kindled?"¹²³ Pozzo partially refigured the fire as the rays of light emanating from Christ and God the Father that strike Saint Ignatius, the angel's mirror, and the allegories of the four continents. Each allegorical group includes a female personification and an animal from that continent.¹²⁴ Pozzo did include flames in various parts of the fresco; these fires serve to soften the hard hearts of disbelievers. Thunderbolts destroy those who continue to resist. Pozzo references a specific biblical passage and expands upon it with symbols, but the clear visual links between the Holy Trinity, Saint Ignatius, and the four continents leave no doubt about Saint Ignatius' role in spreading the message of Christ.

¹²² Andrea Pozzo, *Copia d' una Lettera scritta da Andrea Pozzo della Compagnia di Giesu Pittore all' Illustrissimo, ed Eccellentissimo Principe Antonio Floriano di Liechtenstein Ambasciadore dell' Augustissimo Imperadore Leopoldo Ignazio presso la Santita di Nostro Signore Papa Innocenzo Duodecimo circa alli Significati della Volta da lui dipinta nel Tempio di Sant' Ignazio in Roma*, Rome, 1694, reproduced in Hans Tietze, "Andrea Pozzo Und Die Fürsten Liechtenstein," *Jahrbuch Für Landeskunde von Niederösterreich* 13–14 (1914): 432–46.

¹²³ Miriam Milman, *Trompe-l'oeil: Painted Architecture* (New York: Skira/Rizzoli, 1986), 58.

¹²⁴ Robert Enggass, "La Chiesa Trionfante e l'affresco Della Volta Del Gesù," in *Giovan Battista Gaulli: Il Baciccio, 1639-1709* (Milan: Skira, 1999), 35–36.

Another medium that is central to the creation of *quadratura* is architecture. The reliance of *quadratura* on fictive architecture reflects Brunelleschi's goals for his conception and application of perspective. Brunelleschi developed artificial perspective due to his interest in the writings of Vitruvius on architecture.¹²⁵ Brunelleschi strove to construct the buildings he designed such that the proportions of their components were readily apparent, and founded on the ancient principles laid down by Vitruvius.¹²⁶ By definition, *quadratura* are situated on the ceilings of real buildings, but architectural elements, specifically fictive versions, are necessary for the creation of a successful illusion and of a convincing illusory space beyond the physical boundary of the ceiling. Architecture creates the framework for the illusion. Without its presence, the location of the human figures would be unclear, and the viewer would not understand how they relate to the real space that the viewer occupies. In certain ceilings, such as the Sala Clementina, the figures around the perimeter of the ceiling would seem to collapse inward, poised for a tumble into the room and onto the viewer. The fictive architectural framework of the Sala Clementina ceiling—the arches and colonnades in the background—effectively pulls the figures and their architectural moorings into the same structural setting, thus creating a believable illusion that includes all elements of the ceiling. While it is unknown how the Alberti brothers conceived of the architecture of their ceiling painting, Andrea Pozzo's drawing of the Sala Clementina ceiling demonstrates such a parsing of the fictive architecture [Figure 17]. Pozzo rendered the background architecture in a faint blue chalk, but used brown ink for the figures and their direct supports. It thus seems that Pozzo made this distinction in his study of extant

¹²⁵ Field, *The Invention of Infinity: Mathematics and Art in the Renaissance*, 20.

¹²⁶ Field, 20–21.

ceilings; he also carried it forward into the creation of his own. While Pozzo's drawing of the Sant' Ignazio ceiling does not differentiate the architectural elements of his ceiling in quite this way, it reinforces the absolute necessity for a pronounced architectural scheme.

Pozzo's drawing from an early stage in the design process features heavy, massive fictive architecture. This alternative design is incongruous with the built walls of the nave and seems almost on the verge of collapsing inward.¹²⁷ The density of this architecture feels claustrophobic. Pozzo must have noticed these discrepancies and adjusted his plans to better accommodate the existing architecture. Architecture like this would have also made it more difficult to include a great number of figures, and to make them legible against the oppressive background [Figures 18-19].

Giovanni Battista Gaulli, called Baciccio, painted the central portion of the nave vault in the Chiesa del Gesù, another Jesuit church in Rome. His fresco, *Triumph of the Name of Jesus* (1676-1679) is painted partially on the surface of the vault, and in part on pendentive stucco forms. The figures that are painted on the ceiling proper appear in this oil sketch in the center, inscribed within the oval border that is replicated on the vault [Figure 20]. Three groups of figures are positioned outside of this oval: two, in close proximity, form a curve that bisects the oval, and the third group forms a mass below the oval. On the ceiling, Baciccio formed these figures using painted stucco. The material solidity of these figures, their larger scale, their saturated colors, and their heavy shadows convey their presence in the space of the church rather than on the imagined far side of the vault. Baciccio replicated these strategies in his finished work. His clear and effective use of them in this oil sketch aids in the parsing of illusionistic ceiling.

¹²⁷ Katherine Wheeler, "Fictive and Real Architecture: A Preliminary Drawing for Andrea Pozzo's Vault Fresco at Sant' Ignazio, Rome," *Thresholds*, no. 28 (2005): 102–104.

Cortona's task of painting the *Allegory of Divine Providence* was technically challenging. The *salone* ceiling was the largest vault that an artist had attempted to unify pictorially since Michelangelo painted the Sistine Chapel.¹²⁸ John Beldon Scott has studied the importance of the scaffolding that Cortona used.¹²⁹ Like many artists, Cortona contributed to the design of the original scaffolding for the project. Decades later, at the end of the century, Andrea Pozzo would advise in his treatise that artists should involve themselves with the design of scaffolding, as a good scaffold was necessary not only for successful work, but also for the safety of artists, assistants, and workmen.¹³⁰ Cortona used a hanging scaffold, like that proposed by Bramante for the Sistine Chapel (Michelangelo's scaffold was used instead).¹³¹ The system of beams suspended from the vault, upon which were laid removable wood planks, permitted Cortona to continuously assess his progress from the viewpoint of an observer. From this viewpoint, Cortona could decide if he needed to alter such elements as the figure scale, use of color, and spatial illusionism. It appears that Cortona made a great many such adjustments.¹³²

The challenge, of course, was two-fold: first, the *salone* vault was curved, and second, Cortona and his assistants painted an arm's length from the ceiling, but their artistry had to look correct to beholders standing many meters below, and from more than one viewing point. Cortona did not have the benefit of the guidance Andrea Pozzo supplied decades later in his treatise *Perspectiva pictorum et architectorum* (first edition

¹²⁸ John Beldon Scott, "The Art of the Painter's Scaffold, Pietro Da Cortona in the Barberini Salone," *The Burlington Magazine* 135, no. 1082 (May 1993): 327.

¹²⁹ Scott, "The Art of the Painter's Scaffold," 327–328.

¹³⁰ Scott, "The Art of the Painter's Scaffold," 328.

¹³¹ Scott, "The Art of the Painter's Scaffold," 333–334.

¹³² Scott, "The Art of the Painter's Scaffold," 334.

1693, second 1700, and subsequently reissued). In the 1702 version, Pozzo's final three figures concern the projection of a design onto a vaulted ceiling.

Scott surmises that what Cortona objected to in the spring of 1637, and what led him to change so much of his nearly completed painting after his visit to northern Italy, was his use of illusionistic elements.¹³³ The most intensely illusionistic portion of the fresco is the pyramid of figures topped by the personification of Divine Providence. This grouping appears to rise on a vertical plane and break through the surface of the vault as seemingly demarcated by the fictive marble frame.¹³⁴ Cortona might have learned how to render this illusionistic effect through study of the ceiling paintings in the Sala del Maggior Consiglio in the Palazzo Ducale in Venice, which he references in the treatise he co-authored with Giovanni Domenico Ottinelli. Cortona praises Veronese's oval canvas of the *Triumph of Venice*, in which foreshortened, vertically arranged figures lead to a central personification, the model for Cortona's Divine Providence.¹³⁵ The figures and columns appear perpendicular to the horizontal plane. This model provided Cortona with a compromise between the extreme perspective and foreshortening of strict *quadratura* painting and the lack of illusion in *quadro riportato*. Cortona's scaffolding system would have once again allowed him to rapidly evaluate his progress as he made these changes to the fresco.¹³⁶

Quadraturisti applied paint to plaster, but their aim was to make the surface disappear. No barrier was meant to separate the world of their frescoes from the real, three-dimensional space that they crowned. Even when they acknowledged a surface, it

¹³³ Scott, "The Art of the Painter's Scaffold," 334–336.

¹³⁴ Scott, "The Art of the Painter's Scaffold," 336.

¹³⁵ Scott, "The Art of the Painter's Scaffold," 336.

¹³⁶ Scott, "The Art of the Painter's Scaffold," 337.

was illusionistic, meant to appear as the surface of a stone arch or corbel rather than the curved, plaster-covered ceiling. The use of one material acting as another—paint and plaster as real stone, un-ending blue sky, flowing cloth, or rays of light—was by no means unique to *quadratura*, or to any form of trompe l'oeil, but this sort of alchemy reached its greatest height in these illusionistic ceilings. The surface was something to be overcome and hidden, ignored by the viewer but only as a result of the most careful attentions of the artist. The artistic process that led to these complex illusions was put to the test as the beholder crossed the threshold, stepped below the ceiling, and looked up.

Chapter 3: Observations

The three ceilings considered in this thesis are located within an hour's walk of each other, in Vatican City and in the city of Rome. The Sala Clementina, tucked within the compact group of buildings on the north side of St. Peter's Basilica, lies furthest to the west. To the east, across the Tiber, Palazzo Barberini sits upon the Quirinal Hill above Piazza Barberini. Between them, in the center of Rome and only a few hundred meters from the Pantheon, rises Chiesa di Sant'Ignazio di Loyola.

Sala Clementina

Once a visitor to the Apostolic apartments has ascended the staircase to the second floor, he is positioned directly in front of the public door to the Sala Clementina, located on the south side of the room near the west wall [Figure 21].¹³⁷ Entering from the southwest corner, the visitor beholds much of the room, including the entire north wall. Much of the east wall would be visible, as well as the west wall, but from a considerably oblique angle.¹³⁸ A beholder would apprehend the northern section of the ceiling, including the northern edge and the floating papal tiara and keys, likely within the first few glances. From this station point, the papal tiara and keys are properly foreshortened,

¹³⁷ The beholder, as treated in the discussions of the three ceilings in this chapter, has been assigned the male pronouns he/him/his. This decision in part reflects the historical reality of these three settings. In the seventeenth century, visitors to the Sala Clementina and the Palazzo Barberini *salone* were almost exclusively male. While women did worship at Chiesa di Sant'Ignazio, lack of documentation of women's experiences as beholders in this and other settings made the present author hesitant to assume the same conditions for female beholders. In using "he," the present author does not mean to indicate a definitive, universal beholder, but rather to refer to the types of beholders for whom there is more documentation, while also drawing attention to the existence of beholders not properly represented by this pronoun. The author is aware of the limitations of this approach, and hopes to more fully address these important aspects of reception in future scholarly investigations.

¹³⁸ Stefania Macioce, *Undique Splendent: Aspetti Della Pittura Sacra Nella Roma Di Clemente VIII Aldobrandini (1592-1605)* (Roma: De Luca, 1990), 205.

and appear to be floating above and just in front of the figure of Religio, who stands in contrapposto and looks toward her outstretched hand.¹³⁹

Even as a beholder began to apprehend the painted ceiling, most of what would fill his field of vision would be the walls of the room. The walls and floor were constructed at the same time as the frescoes, and were done under the direction of Giacomo della Porta.¹⁴⁰ The walls, as well as the floor, are composed of inlaid white, green, yellow, gray, red-orange, and red-purple marble [Figure 22]. The north wall serves as a backdrop for the pope, who sits in a chair elevated on a stepped dais. The configuration of marble and decorative elements looks somewhat like a fireplace: gray marble with moldings constitutes a rectangular frame around the pope's chair. Yellow marble volutes flank either side of this frame, and a slab of black marble projects horizontally above the gray frame. Above this projection is a carved, marble inscription indicating Clement VIII as the pontifical builder of the room. To either side of the inscription and between the marble-framed, wooden doors are dark yellow roundels inscribed in green squares. These appear above multi-sided red marble slabs outlined in white. The same colors and similar decorative elements appear on the lower portion of the other four walls of the Sala Clementina.

The Albertis painted the upper portions of the north, west, and east walls so as to continue the architectural and decorative elements of the room. On the north wall and the northern portions of the east and west walls, the brothers painted four rows of columns, raised on pedestals, which recess into fictive space. They appear in various arrangements

¹³⁹ Daniele Di Marzio, "La Sala Clementina: L'Impalcato Prospettico della Volta," *Bollettino* 21 (2001): 307; Scott, *Images of Nepotism*, fig. 164.

¹⁴⁰ Laura De Carlo, "Lo Sfondato Prospettico Di Giovanni e Cherubino Alberti Nella Sala Clementina in Vaticano. Artifici e Meccanismi Prospettici Nella Costruzione Dello Spazio Illusorio," in *La Costruzione Dell'architettura Illusoria* (Rome: Gangemi, 1999), 109.

of red, green, and yellow marble, and support a series of entablatures and arches. The difference in the percentages of the east and west walls that are painted with these round columns suggest an oblique angle of viewing, such as a beholder would have from the entrance near the southwest corner of the room. The beholder would be able to see significantly more of the east wall than the west from the southwest corner of the room, and so the Albertis continued the column scheme along a greater length of the east wall than the west. The columns and the fictive space around them provide a greater sense of depth than the other painted portions of the east and west walls. This unified space extends on the west wall only to the first door set into that wall, while it extends past the first door on the east side, and almost to the window at the mid-point of the wall. The columns on the north wall provide the setting for the *Baptism of Saint Clement*. A different pictorial scheme decorates the remainder of the east and west walls, namely frescoes of the Theological Virtues Cardinal Virtues [Figures 23-24].

On north end of the east wall, visible from close to the main entrance to the room, is an allegorical vignette set in the fictive space bounded by the painted columns. Stefania Macioce argues that this *Allegory of Art and Science* is specifically an allegory of Perspective, and that in addition to providing a theme for the entire room, it functioned as part of the broader message of Pope Clement VIII's program for the Holy Year of 1600 [Figure 25].¹⁴¹ The female figure, which Macioce identifies as Perspective, holds her proper left arm aloft and points upward with her index finger. In her right hand, which she rests on the shoulder of the male figure of Labor, she holds a compass and a ruler.¹⁴²

¹⁴¹ Stefania Macioce, "The Sala Clementina," in *Rejoice! 700 Years of Art for the Papal Jubilee*, ed. Maurizio Calvesi and Lorenzo Canova (New York: Rizzoli, 1999), 141.

¹⁴² Macioce, *Undique Splendent*, 209.

The idea is that the artist submits his efforts to the laws of perspective, and dedicates his labor to the quest for truth.¹⁴³

Every beholder has somewhat different behavior for looking and moving in any space, and a particular space will influence a beholder's behavior; this, of course, is one of the central reasons for the use of *quadratura*. In the Sala Clementina, a beholder might continue to move his gaze to the right, further along the east wall, and apprehend the *Allegory of Art and Science*. However, if the beholder took a sufficiently vertical viewing posture upon entering the Sala Clementina—his head or at least eyes directed somewhat upward—he would apprehend the base of the ceiling, and see the painted architecture and the figure of Religio on the north end of the room. Once a beholder had seen this portion of the ceiling, he would continue his gaze upward to see the papal tiara and keys, and finally, Saint Clement surrounded by angels in the center of the ceiling [Figure 26].

The youthful angels that form a ring around Saint Clement help to define the fictive space of the vault. While they are surrounded by open sky, the area of the sky within their circle extends higher. The shape made by the angels allows for a shift in plane, as the figures inscribed within the circle—the Holy Trinity and Saint Clement—are actually positioned vertically. Saint Clement, when seen from the center of the room and from the first point of visibility at the door, is foreshortened to indicate his vertical orientation. The Trinity is depicted above and slightly behind Saint Clement. Directly above him is the Holy Spirit in the form of a dove, and above, on a bank of clouds, sits Christ together with God the Father. These last two figures are depicted at a smaller scale than Saint Clement, and are therefore further above him rather than at the same altitude.

¹⁴³ Macioce, *Undique Splendent*, 210.

Substantial variations in the foreshortening of pictorial elements and entire sections of the composition reveal that the Albertis anticipated and facilitated a specific viewing sequence for the beholder. Scholars have identified the use of distinct vanishing points for each segment of the ceiling, including the four walls and corners [Figure 27]. The ideal viewing point for the north side of the ceiling is located a third of the distance into the room from the south wall (and equidistant between the east and west walls) [Figure 28].¹⁴⁴ From this point, the architecture and figures on the north end are properly foreshortened. When looking at the ceiling from a significant distance from this point, particularly if the beholder stands too close to the northern wall, the architecture and figures look distorted, especially the central figure of Religio. The ideal viewing point for Saint Clement at the center of the ceiling lies between the southern wall and the viewing point for the northern wall. While a beholder will likely understand the spatial relationships between Saint Clement and the figures that surround him even when viewing the Saint from close to the center of the room, the beholder will have a better impression of Saint Clement's positioning if he first sees the figure from a more oblique angle.

The beholder's desire to see more of the painted ceiling, as well as the fact that he would proceed further into the room to greet his host or otherwise participate in an audience, lead the beholder to the next stage of viewing the painted vault. As a result of the use of different vanishing points for each side of the vault, the beholder is not strictly bound to a single point of observation once he reaches the central portion of the room; from this area, he accurately perceives the fictive architecture on all sides of the vault, as

¹⁴⁴ Di Marzio, "La Sala Clementina: L'Impalcato Prospettico della Volta," 307.

free from distortion as possible.¹⁴⁵ The beholder is not meant to see the southern half of the vault until he has reached the center of the room. In planning their composition in this manner, the Alberti brothers followed a natural pattern of movement for the visitor to the Sala Clementina. A diplomat, cardinal, or other high-ranking personage is unlikely to suddenly stop, turn about, and gaze up at the corner of the room where he has just entered it. Instead, once the beholder has reached the center of the room and turns to look at his surroundings—or, when he later leaves the Sala Clementina by the door through which he entered, and as he approaches it seizes the opportunity to look at the southern side of the ceiling—he will finally see the illusionistic elements in this part of the room.

Pictorial elements on the southern side of the vault are illustrative for this argument, particularly the heraldic device painted in the southwest corner of the room [Figure 29]. This floating object is a clever transformation of the Aldobrandini coat of arms, which appears in its traditional form on the shields in the northeast and southwest corners of the vault. The Alberti brothers isolated the two elements of the Aldobrandini *stemma*, the eight-pointed star and the *rastrello* (rake) that represents a crenellated wall, and reproduced them in various iterations throughout the ceiling. (Most commonly, the *rastrelli*, also known as “bends battled,”¹⁴⁶ appear in the grasp of figures or floating freely. Giacomo della Porta also incorporated *rastrelli* as marble designs in the floor and walls.) For this heraldic device, the brothers bent the *rastrello* into a solid, three-dimensional circular form. This is how it appears from the center of the room, but when seen from directly below, the form bends inward, and its circular shape is lost. The inscription for the Jubilee of the year 1600 (“An Jubilei MDC”), which appears on the

¹⁴⁵ De Carlo, 117.

¹⁴⁶ John Beldon Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini* (Princeton, N.J.: Princeton University Press, 1991), 162 and 162, n. 12.

inside of the heraldic ring, is also not visible from the corner of the room (in part due to the real cornice that interrupts the line of sight) [Figure 30].

The transitions between the three levels of decoration in the Sala Clementina—the marble and painted plaster portions of the walls, and the ceiling—are not seamless. Molded cornices divide each level from the one above it, and the change in angle between the walls and the long sides of the ceiling is especially apparent from the short sides of the room. The Alberti brothers did not create the illusion of a completely unified space, but this was not necessarily their goal, and was perhaps impossible given the preexisting architecture of the room. Working at the turn of the seventeenth century, the Albertis were painting at a transitional time in how artists conceived of perspective and fictive space. Nevertheless, the Albertis’ repetition of architectural forms and of color provides a sense of cohesion. At the time of its completion, it was the most comprehensive *quadratura* ceiling in existence.¹⁴⁷ The overall unifying decoration of the walls and the vault was a unique novelty in early seventeenth-century Rome.¹⁴⁸ The illusionistic extension of a room through the use of fictive architecture, which was also a new development, established a precedent for the vault of Chiesa di Sant’Ignazio, where Andrea Pozzo accomplished the feat on a breathtaking scale.¹⁴⁹

¹⁴⁷ Ingrid Sjöström, *Quadratura: Studies in Italian Ceiling Painting*, Stockholm Studies in the History of Art 30 (Stockholm: University of Stockholm, 1978), 81.

¹⁴⁸ De Carlo, “Lo Sfondato Prospettico Di Giovanni e Cherubino Alberti Nella Sala Clementina in Vaticano. Artifici e Meccanismi Prospettici Nella Costruzione Dello Spazio Illusorio,” 113.

¹⁴⁹ Anthony Blunt, “Illusionist Decoration in Central Italian Painting of the Renaissance,” *Journal of the Royal Society of Arts* 107, no. 5033 (1959): 325.

Palazzo Barberini

At the time of Urban VIII's election to the papacy in 1623, the Barberini, a successful wool merchant family from Tuscany, were of modest social and financial standing and of somewhat obscure background in comparison to the old Roman nobility and established papal families.¹⁵⁰ For this reason, it was especially important for the Barberini to emphasize the will of God in producing this outcome and the family's consequent good fortune. After all, as it was God who ultimately controlled the papal conclaves, the choice was the result of divine election. Urban VIII adopted this notion of divine election as a central theme for his family's iconography.¹⁵¹

In the 1630s, two of Pope Urban VIII's nephews, Cardinal Francesco Barberini and his brother Taddeo Barberini, lived in Palazzo Barberini on the Quirinal Hill.¹⁵² Taddeo and his wife, Anna Colonna Barberini, lived in the larger northern wing of the palace, while Francesco lived in the southern wing. The *salone* was part of the new construction begun in 1628 to accommodate Urban's relatives.¹⁵³ With dimensions of 110 1/2 x 65 2/3 Roman palmi, or about 24.7 x 14.7 meters, the *salone* is considered large for a room of its function. The ceiling is in the form of a cove vault, which was unusual for the time, as most *saloni* ceilings before that time had flat, beamed ceilings. The vault was planned with the intent that Pietro da Cortona would paint it, and his composition is

¹⁵⁰ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 4.

¹⁵¹ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 5.

¹⁵² Thomas Frangenberg, "La Nascita Di Un Libro," in *Aedes Barberinae Ad Quirinalem Descriptae: Descrizione Di Palazzo Barberini Al Quirinale: Il Palazzo, Gli Affreschi, Le Collezioni, La Corte*, ed. Lucia Faedo and Thomas Frangenberg (Pisa: Edizioni della Normale, 2005), 120.

¹⁵³ Patricia Waddy, *Seventeenth-Century Roman Palaces: Use and the Art of the Plan* (New York: Architectural History Foundation, 1990), 201–203.

bound to its setting by the painted architectural framework.¹⁵⁴ Light illuminates the fresco through the high windows on the east and west walls.¹⁵⁵ The *salone* vault was completed by 1630, but Pietro da Cortona did not begin his work until 1633.¹⁵⁶ He had just painted the vault of Anna Colonna's chapel in 1632.¹⁵⁷ The setting of the fresco could not be better. The *salone* functioned as the juncture between the secular and ecclesiastical apartments—literally and metaphorically the domains—of the Barberini family, and from the *salone*, visitors could see St. Peter's Basilica and the Vatican through the windows on the west wall.¹⁵⁸

Anna Colonna lived in the apartments above her husband on the *piano nobile*. Her visitors ascended a staircase to this level, and then entered the vestibule adjacent to the *salone* [Figure 31].¹⁵⁹ This *salone* served as Anna's *sala dei palafrenieri* or as the room for those who attended official visitors, and it led to the anterooms to her apartments.¹⁶⁰ The *salone* was far from being the only room with a painted ceiling in Palazzo Barberini: among others, Anna's third anteroom is known as the "Salotto della Divina Sapienza" for its vault painted by Andrea Sacchi, and her fourth anteroom is painted with the "Creation of the Angels."¹⁶¹ Waddy argues that Anna had four anterooms at her disposal because of her role as the "consort" of Pope Urban VIII. As his closest female relative, she received guests on his behalf. Etiquette dictated that a woman not venture beyond the door to her apartment: for Anna, the door between the first anteroom (C19 in Figure 31) and the

¹⁵⁴ Waddy, 218.

¹⁵⁵ Waddy, 218.

¹⁵⁶ Waddy, 198.

¹⁵⁷ Waddy, 240.

¹⁵⁸ Waddy, 219.

¹⁵⁹ Waddy, 183.

¹⁶⁰ Waddy, 188.

¹⁶¹ Waddy, 188–189.

salone. The four anterooms provided a sufficient number of stages to reflect the different ranks of her diplomatic visitors.¹⁶² Thus, any diplomat who came to visit Anna on behalf of the Pope passed through the *salone* before progressing through as many as three more rooms before being received. The astounding scene on the ceiling sent a message, impossible to ignore, about the power and divine support of Urban VIII and the larger Barberini family.

The *salone* also served as Francesco's *sala dei palafrenieri*.¹⁶³ Francesco's visitors ascended a spiral staircase on the other side of the portico, emerged into a vestibule, and then would pass into the *salone*.¹⁶⁴ Visitors entered the *salone*, then, through one of the two doors at the west end of the room—the north door in the case of Anna's visitors, the south in the case of Francesco's. The intention was for visitors to first see the painted ceiling from the west end of the *salone*, once they had begun to orient their body toward the far east wall, toward the logical direction of their further progression (rather than across the room and through the door to the opposite vestibule). Contemporary written evidence in the form of a pamphlet by a man employed by the Barberini indicates the pattern of viewing and movement that beholders of the ceiling were meant to follow.

Just after Cortona completed the *salone* ceiling, Mattia Rosichino, a high-ranking servant in the Barberini household, published a pamphlet on the fresco of *The Allegory of Divine Providence* in 1640. As Cortona's *Divine Providence* decorated a semi-public space, its audience included spontaneous visitors, not of any special rank, who were not expected to understand most of the iconography of the fresco without assistance. (One

¹⁶² Waddy, 193.

¹⁶³ Waddy, 180.

¹⁶⁴ Waddy, 199.

iconographical element, the bees from the Barberini *stemma*, would have been familiar to almost any visitor: at the time of Pope Urban VIII's death just four years later, more than ten thousand painted and sculpted Barberini bees appeared on buildings and monuments throughout the Papal States.)¹⁶⁵ In his pamphlet, Rosichino makes no reference to illusion or perspective in his description of the ceiling, but his discussion of iconography has made it possible for scholars to determine the ideal station point for the ceiling through analysis of the iconography.¹⁶⁶ His description begins with the central section of the ceiling, where the personification of Divine Providence sits atop a pyramidal grouping of figures and clouds. In ruling over the present and the future, she appears above Saturn, who represents Time, and the Fates, who represent the future. Gathered around Divine Providence are a variety of figures, notably Eternity and Truth.¹⁶⁷ The centrality of this figure, reflected not only in her location on the ceiling and in her place at the beginning of Rosichino's description but also in her role in the iconographic narrative, establishes her as the most important part of the ceiling, and therefore the determinant of the ideal viewing point.

From the two western entrances, a beholder can see a large swath of the ceiling, including the figure of Divine Providence [Figures 32-33]. Standing at this oblique angle, the beholder perceives that Divine Providence, who gazes upward, her arms outstretched and her proper left hand grasping a baton, is positioned vertically relative to the perceived plane of the ceiling.¹⁶⁸ Furthermore, she is at a higher elevation than the other figures located near the center of the composition and within the bounds of the fictive cornice

¹⁶⁵ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 3.

¹⁶⁶ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini* 136-148, 216-219.

¹⁶⁷ Scott, 138-139.

¹⁶⁸ Scott, 151-152.

[Figure 34]. Immediately, the beholder's attention is captured, and he continues looking at the ceiling as he moves further into the *salone*. Perhaps he pauses in front of the west wall and looks up towards the east side of the room, as Federico Ubaldini recommends in his written account of the ceiling.¹⁶⁹ The resulting view encompasses the entire central section of the ceiling [see Figure 2]. At the end of the ceiling closest to the beholder, the allegorical personifications of Faith, Hope, and Charity, each of whom is paired with a Barberini bee. In front of them are Religion, who holds the papal keys (which strongly recall those on the ceiling of the Sala Clementina), and Rome, who crowns her.

The beholder's gaze is then drawn to the other sections of the ceiling, perhaps down to the far, short eastern cove, in which Minerva overthrows the Giants in "the defense of ecclesiastical things."¹⁷⁰ The beholder's visual journey through the remainder of the ceiling would have been determined in good part by his rank and purpose for visiting the Palazzo Barberini. A visitor of higher rank, such as a diplomat, might soon continue through the *salone* to the first anteroom of the individual he sought—either Anna Colonna or Francesco—and only get a proper look at the other sections of the ceiling, particularly the west cove, when returning through the *salone* at the conclusion of his visit. At this time he would have caught a glimpse of the western cove, which represented temporal government and featured Authority and Abundance.¹⁷¹ Thus, from seeing the center, east end, and west end of the ceiling, the discerning diplomat would have received a message about the Barberini family's unmatched standing in both

¹⁶⁹ Scott, 138, 151: In his account "Il pellegrino, o vero la dichiarazione delle pitture della sala barberina," Ubaldini, a secretary in the employ of Cardinal Francesco Barberini, includes a fictional cicerone who guides the beholder.

¹⁷⁰ Scott, 139.

¹⁷¹ Scott, 139.

ecclesiastical and temporal matters, which was granted to them by divine favor or providence.

The visitors who spent a more extended period of time in the *salone* were more likely to have properly seen all sections of the ceiling, including the long coves on the north and south sides. These visitors would have included the *palafrenieri* who awaited their masters in the *salone*, members of the public who came to the Palazzo expressly to see Cortona's ceiling, and the learned group of men who assembled in the Oval Room adjacent to the *salone*. These beholders, particularly the latter two groups, would have taken the time to observe and ponder the long sides of the ceiling. In the south cove, the figure of Divine Assistance raises the figure of Moral Knowledge; the triad of Dignity, Prudence, and Power occupies the center of the opposite wall.¹⁷² These main figures break out of their respective segments, their bodies overlapping the fictive cornice. This artistic device helps to unify the ceiling, and to establish the fresco as a realm beyond the *salone* itself.

Chiesa di Sant'Ignazio

When a visitor to Sant'Ignazio enters through the main doors of the church and looks ahead, he first beholds the far end of the nave and the mysterious, dark dome that hovers above it. He may experience some apprehension of the nave vault itself, but at a height of approximately 100 feet, he will only barely see it when looking straight ahead or even slightly up. (The angle of upward vision is about 60 degrees, and a 100-foot ceiling will fall outside of this arc.) The immediately apparent attributes of the space are the soaring height of the nave and the pronounced verticality of the space. The nave

¹⁷² Scott, 140–141.

width-to-height ratio of 3:5 compels the eye to move upward.¹⁷³ By 1694, the date of completion for the *Glorification of Saint Ignatius*, illusionistic ceilings had become part of the ecclesiastical landscape in Rome. Much like today, a visitor to a church would expect the ceiling to deliver an important message—and a visual reward. In the previous decade, Giovanni Battista Gaulli, known as Baciccio, had painted the nave vault of the Chiesa del Gesù, creating the illusion that figures were rising up from the space of the church through the ceiling and into the heavens. Thus, decorative precedent along with the great height of the space encouraged the visitor to continue his gaze upward.

The logic of the ceiling's composition and of a visitor's movement within the church dictates that a visitor would raise his gaze while looking forward, and would therefore first behold the southern end of the vault. If the visitor does this from the marble disk in the floor of the nave that marks the ideal viewing point for the ceiling, the visitor, now a beholder of the ceiling, encounters a seamless transition from the built architecture of the space to the fictive architecture above it. Light comes into the nave through windows, which are therefore clearly real, above the built cornice. However, above the tops of the windows, it is impossible to tell where the built structures end and the fictive ones begin. The composition encourages a reading from the south end up to the north, resulting in a “vertical” rather than “horizontal” orientation. Above the center of the real arch at the south end of the vault, the beholder sees a small figural group looking and reaching upward. Above them, framed neatly by a fictive arch, is the angel who holds a mirror that reflects the rays of God [Figure 35]. Craning his neck further and moving his gaze ever upward, the beholder sees what seems to be a blue sky beyond the

¹⁷³ Duncan Stroik, *The Church Building as a Sacred Place: Beauty, Transcendence, and the Eternal* (Chicago: Hillenbrand, 2012), 165.

open, fictive architecture. Soft, pink clouds fill the sky far above; closer to the beholder, several of them float just above or even within the open, fictive architecture. On one cloud sits Saint Ignatius, his arms open and his own gaze also aimed upward, toward the source of the ray of light that strikes him: Christ, who bears the cross and extends his arm toward Saint Ignatius. An engraving of Pozzo's painted ceiling produced several years later confirms that this is the manner in which a beholder was meant to view the ceiling. (The print is addressed in greater detail below.) The text present at the bottom of the print indicates that the print is vertically oriented, with the southern end at the bottom. In this orientation, Saint Ignatius is upright, as is the angel holding the mirror, and Christ appears above Saint Ignatius.

The unity of Pozzo's composition encourages the beholder to seek out the remaining half of the vault, as the carefully rendered architecture, harmonized colors, and spatial unity of the nave indicate to the beholder that, already standing at the center of the nave, he has passed by much of this spiritual spectacle. Looking at the northern half of the ceiling, as a segment or together with the southern half, the beholder realizes that this northern portion roughly mirrors the southern half [Figure 36]. A second band of figures crosses the illusionistic sky, similar to Saint Ignatius and his group, but at a lower height and therefore seemingly closer to the beholder. These figures form an arc with the 'America' and 'Africa' figural groups at either end. Additional figures appear beneath the fictive arch on the northern end of the vault, complementing their counterparts on the southern end. The pastel-pink clouds suffuse the entire sky, revealing only small glimpses of bright blue. At the center of the ceiling, yellow sunlight pushes through an opening in the clouds, surrounding Christ as he emerges to shine his light on Saint Ignatius. Pozzo

repeats yellow and pink liberally throughout the ceiling, clothing many figures in similarly-hued drapery. Under natural sunlight, the rest of Pozzo's colors, even the reds, also take on a softened and somewhat muted appearance. Pozzo uses a wide range of flesh tones for his figures, which originate from and in some cases directly represent the four known continents; their brown, tan, and creamy skins are sprinkled throughout the ceiling in chromatic harmony with the pink sky and off-white marble architecture.

Due to the intricacy of the composition and the substantial viewing distance, Pozzo's use of color is essential to the success of the illusion and to the legibility of the fresco. The variations in color, in addition to the variations in figure scale and placement of figures relative to the architecture, aid in the perception of depth and of different elevations within the illusion. In a type of atmospheric perspective, the colors of the drapery belonging to the lower figures are brighter and more saturated, which reinforces the notion that they are closer to the beholder along the imaginary vertical axis. The use of color and the contrasts (more or less pronounced) between adjacent colors allowed for the tight spacing and even overlap of figures. Pozzo used only color, and no line, to depict the rays of light that extend from the Holy Spirit, Christ, and Saint Ignatius. The off-white rays that come from Saint Ignatius extend to the four continental groups: 'Asia,' 'Europa,' 'America,' and 'Africa.' The use of pure color for this spiritual light enabled Pozzo to maintain the unity of a visually believable space.

An engraving of the *Glorification of Saint Ignatius* issued in 1702 serves as evidence that the effects of the fresco were possible only through the special characteristics of *quadratura* and Pozzo's particular use of color [Figures 37-38]. The engravers, Arnold van Westerhout (Arnoldus van Westerhout) and Giovanni Girolamo

Frezza (Hieronymus Frezza), altered the design of the fresco to better suit their medium. Van Westerhout omitted many of the figures in the fresco, and several of those that remain are not in the same position as they are in the ceiling, relative to the fictive architecture. These discrepancies are especially noticeable in the central section of the vault. The figural grouping at the mid-way point on the western side of the vault has been changed almost completely in the print. The two figures in front of the arch in the fresco have been replaced in the print by three differently posed and arranged figures, and the figures above the architrave in the fresco are not replicated at all in the print. The figure that perches with bent legs in the right corner of the architrave has been rendered in a smaller scale relative to the architecture. Many of the groups of overlapping figures in the fresco include figures that are located in a higher altitude in the fictive space of the vault. Frezza exaggerated the architectural components in order to make them clearer and more legible. In the center of the east wall, depicted on the left side of the print, Frezza has added an open space between the arch and the fictive cornice of the ceiling; in the fresco, Pozzo does not include an open space, and instead implies a gap between the arch and cornice through color, atmospheric effect, and the presence of figures. While van Westerhout could have used a smaller scale and foreshortening to render the higher-altitude figures he excluded, Pozzo's use of color was so instrumental in achieving this effect that the printmakers would still have had to make certain formal changes in order to depict these omitted figures. The printmakers skillfully replicated the rays of light extending from Saint Ignatius to the four continent groups, but the lack of color and the sharp clarity of the rays do not result in the atmospheric effect that Pozzo achieved with his chromatic pigments.

The comparison between Pozzo's *quadratura* and the print of the fresco elucidates key formal differences between the two versions of the *Glorification of Saint Ignatius* and, more broadly, the special characteristics of *quadratura* as a genre and a form. The variations an artist may make in color and level of detail when painting a ceiling, due to both the real and fictive differences in height between the beholder and each portion of the composition, are not available to an engraver to quite the same degree. Study of the prints of other *quadratura* will likewise reveal what was important to the printmakers as well as what was possible. Van Westerhout omitted the grouping of figures next to Christ, which included the Holy Spirit and two angels. By implication, it would seem that although the publisher found the reproduction of Pozzo's ceiling to be a worthwhile undertaking, it was not sufficiently important to replicate every figural detail, including the most theologically significant ones. This print conveys a summary of the content and form of the painted *Glorification of Saint Ignatius*, but omits some important elements. An engraving could not replicate the full effect of a *quadratura* ceiling. Its small scale, its position relative to the beholder—held or positioned for close examination on a wall or a table—and its lack of chromatic effect negate the possibility of the feeling of the sublime, or *terribilità*, that a beholder of a *quadratura* such as *Glorification of Saint Ignatius* might experience. Viewing a print does not afford the full-body experience of entering Sant' Ignazio, moving through the space and raising one's gaze to see that the building one has just entered has a direct line of sight to heaven.

Reception Theory

A model for the understanding of Roman seventeenth-century *quadratura* must consider reception as well as the creation of illusionistic ceilings. What may be called the phenomenon of *quadratura*, like any other aspect of artistic production, developed in the context of beholders' responses to illusionistic ceilings. When patrons and artists produced illusionistic ceilings, they conceived them in relation to existing instances of *quadratura* or other types of illusionistic decoration. In terms of raw numbers, the largest group of people to interact with these ceilings consisted of spectators, or those who were not directly involved in their production. Their experience, whether as Catholic clergy, local laity, pilgrims, art critics, artists, scholars, writers, or tourists, is essential to understanding *quadratura* and the use of technology to represent or reproduce it.

Reception studies encompass a range of approaches. Some scholars, such as David Freedberg, have focused on the psychological experience of beholding. This thesis also addresses the psychological impact of *quadratura* and examines it as a means to an end for secular and ecclesiastical patrons. In the interest of incorporating the experiences of seventeenth- and eighteenth-century spectators, and of considering the variety of experiences for different social groups in those centuries, this thesis also adopts a social history of reception. Pamela Jones provides a model for this type of investigation in her book, *Altarpieces and Their Viewers in the Churches of Rome from Caravaggio to Guido Reni*. Jones considers the reception of sacred art at all levels of society. She takes this comprehensive approach because of the investment that Catholic reformers put into art, based on its power to instruct the faithful and to inspire their virtuous behavior. As her evidence, Jones refers to artists' visual responses to seventeenth-century altarpieces and

to the written accounts of other viewers, including patrons and art critics, contemporaneous with and subsequent to the creation of the altarpieces in her study.¹⁷⁴

Jones explains that visual and written evidence must be interpreted in the context of the cultures from which they originated, rather than being taken at face value or interpreted as if they were modern-day responses.¹⁷⁵ Along with interpreting the preferences and desires of patrons, Jones examines written commentaries from individuals and from confraternities who were not patrons of the altarpieces they describe.¹⁷⁶ Jones argues that a distinct approach is needed for “ordinary” viewers who were not artistic or religious insiders. She works to reconstruct their “horizons of expectations” (a term she borrows from Hans Robert Jauss) based on the wide range of cultural phenomena and productions—such as visual, written, and performed rituals—with which they would have been familiar.¹⁷⁷ Jones selected groups of viewers who came to the churches for specific and documented reasons.¹⁷⁸ In analyzing viewer responses, Jones distinguished prescriptive from descriptive responses, that is, the ideal responses that a work of art was meant to evoke in a viewer, and the actual responses that viewers recorded.

There is rich documentation related to the contemporary reception of Cortona’s *salone* ceiling. Urban VIII was rather pleased with the ceiling, and compared it to Raphael’s Vatican Stanze. Cortona’s artistic peers were more critical, perhaps out of

¹⁷⁴ Pamela M. Jones, *Altarpieces and Their Viewers in the Churches of Rome from Caravaggio to Guido Reni* (Aldershot: Ashgate, 2008), 2.

¹⁷⁵ Jones, 1–2.

¹⁷⁶ Jones, 2.

¹⁷⁷ Jones, 2; Ralph Dekoninck and Annick Delfosse, “Sacer Horror: The Construction and Experience of the Sublime in the Jesuit Festivities of the Early Seventeenth-Century Southern Netherlands,” *Journal of Historians of Netherlandish Art* 8, no. 2 (2016): 4.

¹⁷⁸ Jones, *Altarpieces and Their Viewers in the Churches of Rome from Caravaggio to Guido Reni*, 4.

jealousy. Domenichino wrote a letter, published in Bellori's *Le vite de' pittori, scultori e architetti moderni*, in which he notes that some critics found the work lacking in decorum, and that the subject was not suitable for the palace of a pope's family.¹⁷⁹ Nicolas Poussin criticized Cortona's use of the room's light sources and objects to his floating landscapes and foreshortened figures (Poussin himself worked squarely in the *quadro riportato* mode when painting the Grande Galerie in the Louvre, and found Cortona's figures to be "improper").¹⁸⁰ In the context of these three examples of illusionistic ceilings, written documents such as Rosichino's and Girolamo Tezi's descriptions of the Barberini ceiling and Pozzo's descriptions of his ceiling in Sant'Ignazio offer prescriptive responses, indicating how the beholder should physically and mentally approach, and therefore understand, the illusionistic ceilings.

These prescriptive responses appear in documents that were meant to advertise the ceilings, either to a broad audience, such as in the case of Rosichino's pamphlet, or primarily to a specific individual, in the case of Pozzo's letter to Anton Florian of Liechtenstein, ambassador of Holy Roman Emperor Leopold I to the Holy See. These documents are also worth study because of what they reveal about the author's conception of the ceiling and his priorities of communication. Certain descriptions of ceilings linger only briefly on their illusionistic properties, and some omit them altogether. This raises a significant question: did the authors elide the illusion because they felt it was obvious and did not merit their attention? Or did they not want to call

¹⁷⁹ John Beldon Scott, "The Art of the Painter's Scaffold, Pietro Da Cortona in the Barberini Salone," *The Burlington Magazine* 135, no. 1082 (May 1993): 327.

¹⁸⁰ Scott, "The Art of the Painter's Scaffold, Pietro Da Cortona in the Barberini Salone," 327; Mary Beal, "Richard Symonds in Italy: His Meeting with Nicolas Poussin," *The Burlington Magazine* 126, no. 972 (March 1984): 141–142.

explicit attention to the artistry of the illusion, lest they diminish its sensational effect or the efficacy of its message?

Diplomatic visitors to Palazzo Barberini, along with their attendants, formed a core audience for Cortona's fresco, but other types of beholders also regularly encountered his ceiling. Scott argues that the existence of Rosichino's guidebook, and some of its content, indicate that the *salone* was open to any sufficiently presentable visitor to the palace. In 1640, just one year after the completion of the fresco, so many curious visitors had already besieged Rosichino that he found it necessary to publish a guide for them. The *salone* soon appeared in guidebooks created for pilgrims and other visitors to Rome. An English traveler, John Evelyn, visited the Palazzo Barberini in 1644 and mentioned seeing Cortona's ceiling in his journal (but notes nothing beyond its recent completion).¹⁸¹ The presence of casual visitors would not have interfered with the goings on in the palace, and their reports of the ceiling would further advertise the glory of Pope Urban VIII and the Barberini family.¹⁸² One audience of the *salone* ceiling was a group of cultured, intellectual men—many of whom were cardinals—that gathered for an informal academy of sorts in the oval room adjacent to the *salone*. These men had a comprehensive understanding of the ceiling's iconography and of the meaning of its message.¹⁸³ The average visitor, on the other hand, did not understand the ceiling so thoroughly, and it was many of these who turned to Rosichino for an explanation. Even

¹⁸¹ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 193; John Evelyn, *The Diary of John Evelyn*, ed. William Bray, *Memoirs and Secret Chronicles of the Courts of Europe* (New York: M.W. Dunne, 1901), 105.

¹⁸² Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 193.

¹⁸³ Scott, 194–195.

Domenichino, living in Naples at the time, took an interest in the ceiling and desired to know more about the program and how Cortona executed the fresco.¹⁸⁴

While the visual surfeit of the *salone* ceiling may have produced a strong effect on beholders, it seems they readily reacted to it as something they should interpret and understand in detail, to the best of their ability. The fresco was undeniably pictorial, but beholders approached it as a text, aware that it presented them with a targeted message. Even those that did not understand its intricacies, at first or ever, were correct in recognizing that the Barberini had the intent of communicating a specific meaning, their divine favor. This instinct was rooted in Renaissance theory and the notion of the painted image as text. The audiences of the *salone* fresco accepted what they saw on the ceiling as a form of rhetoric. Rosichino writes that visitors sought him out because they felt “deprived of the enjoyment of understanding the meaning,” of the fresco.¹⁸⁵ For these visitors, the primary reason for spending time beneath the ceiling was not to experience amazement at its purely visual qualities.

Girolamo Tezi and the *Aedes Barberinae*

Girolamo Tezi was an educated, traveling gentleman in the family of Cardinal Antonio Borghese (brother of Francesco). He wrote the *Aedes Barberinae*, a complex description of the Palazzo Barberini, which provides a useful contemporary perception of the palace.¹⁸⁶ Unlike Rosichino’s pamphlet, which was meant for literate but not

¹⁸⁴ Scott, 195.

¹⁸⁵ Scott, *Images of Nepotism*, 195.

¹⁸⁶ Lucia Faedo, “Girolamo Tezi e Il Suo Edificio Di Parole,” in *Aedes Barberinae Ad Quirinalem Descriptae: Descrizione Di Palazzo Barberini Al Quirinale: Il Palazzo, Gli Affreschi, Le Collezioni, La Corte*, ed. Lucia Faedo and Thomas Frangenberg (Pisa: Edizioni della Normale, 2005), 3.

especially educated members of the public, Tezi's book was aimed at high-ranking and noble visitors, who received copies of the book, in many instances customized with their heraldic arms. The book's opulence extended to the foldout engravings of the palace's major painted and sculpted decorations.¹⁸⁷ Tezi produced the first edition in 1642; published in its final edition in 1647, it is also one of the first illustrated books of art.¹⁸⁸ Tezi set out to interpret the ceiling paintings of the palace, including Pietro da Cortona's *Divine Providence* in the *salone*. Tezi's representation of the palace and its luxury is at times almost theatrical; Tezi puts his reader in the place of the gentlemen and other figures in the court.¹⁸⁹ Pietro da Cortona's fresco celebrates the ecclesiastical and secular positions of Urban VIII and his family as a result of the will of God. The rich iconography of the ceiling includes personifications, historical and mythological figures, and other symbols. Cortona's ceiling set a new precedent for Roman palaces.¹⁹⁰

Scott notes that Tezi's volume was useful even to readers who never paid a visit to the palazzo.¹⁹¹ The book's physical form—its leather binding, tooled gold borders, and foldout engravings—made it more suitable for reading at a table rather than while moving through the Palazzo or standing beneath the *salone* ceiling. Despite being aimed at a reader who had not seen and might never see the fresco, Tezi did not attempt to recreate for his readers the experience of seeing the fresco; his interest was in analysis, rather than in pure description. He writes that although some of the images (or figures) move freely above the clouds, others are fixed in place. The figures that inhabit the clouds are the personifications, while the others are mythological figures that belong to

¹⁸⁷ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 195.

¹⁸⁸ Frangenberg, "La Nascita Di Un Libro," 146, 151, 219.

¹⁸⁹ Faedo, "Girolamo Tezi e Il Suo Edificio Di Parole," 3-4.

¹⁹⁰ Frangenberg, "La Nascita Di Un Libro," 120.

¹⁹¹ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 195.

the terrestrial realm.¹⁹² Tezi refers to the structure of the ceiling and describes its curved parts, including the almost monochrome (“quasi monocrome”) figures that are meant to resemble statuary and that form a rectangular border around the center of the vault, and extend down from each corner of the frame to the corner of the ceiling.¹⁹³ Thus, Tezi begins with the center and then moves to the four sides of the vault.

Tezi’s text was intended as a substitute for visiting the Palazzo. He devoted two sections to Cortona’s ceiling: the first provided a visual description of the vault, and the second offered an iconographical analysis.¹⁹⁴ All three descriptions of the *salone* fresco begin with the painted architectonic structure. Tezi encourages his reader, in examining the vault in detail, to first look at the fictive cornice, which, with its apparent solidity, gives credence to what the beholder sees.¹⁹⁵

As with all illusionistic ceilings, the presence of architecture (whether built or merely painted, as in the case of the *salone*) provides a boundary for the fictive space of the fresco. A modern reader imagines, or certainly hopes, that Tezi did not truly first apprehend the painted cornice or entablature when he beheld Cortona’s *Divine Providence*. The chaos of the figural scene must have caught his eye and made a strong visual and emotional impression. But Tezi’s method is to immediately deconstruct the ceiling into the five zones delimited by the painted entablature, rather than remark upon the overwhelming quality of the riotously colorful landscapes and writhing figures.

¹⁹² Hieronymus Tetius, “Aedea Barberinae Ad Quirinalem,” in *Aedes Barberinae Ad Quirinalem Descriptae: Descrizione Di Palazzo Barberini Al Quirinale: Il Palazzo, Gli Affreschi, Le Collezioni, La Corte*, ed. Lucia Faedo and Thomas Frangenberg, trans. Lucia Faedo (Pisa: Edizioni della Normale, 2005), 248–249.

¹⁹³ Tetius, 249.

¹⁹⁴ Frangenberg, “La Nascita Di Un Libro,” 131.

¹⁹⁵ Tetius, “Aedea Barberinae Ad Quirinalem,” 248–249: “prima... guardiamo in essa lo straordinario cornicione... a prestar fede alla vista, solido e ben rilevato.”

Patronage

The artists of these three illusionistic ceilings did not include direct depictions of their patrons, but they included numerous elements that represented the patrons' identity, status, and power. Heraldry was an essential visual reminder of aristocratic status and power. In early Renaissance palaces, sculpted *stemme* appeared on the vaults of important rooms. In the late sixteenth and early seventeenth centuries, elements from coats of arms were blended with the pictorial field.¹⁹⁶ The Albertis, Cortona, and Pozzo represented their patrons in striking ways that took full advantage of the illusions they were able to produce. The Albertis represented Pope Clement VIII via his papal namesake, Saint Clement, and the latter's apotheosis reflects favorably upon Clement VIII, if not outright suggesting that he will enjoy the same destiny. They also scattered versions of elements from the Aldobrandini coat of arms throughout the ceiling, giving them a forceful energy. Cortona's painting operates as a metaphorical family portrait for the Barberini. Standing in for their absent faces are the three massive heraldic bees and mythological figures that represent the virtues the Barberini wanted to impress upon the visitors to their palazzo. In Pozzo's fresco, the unmistakable presence of the Society of Jesus manifests in Saint Ignatius and the IHS emblem, which is formed by the light radiated by Christ and reflected off the angel's divine mirror. These artists' iconographical and compositional achievements have ensured that the meaning of these symbols has far outlasted the lifetime of their patrons.

An understanding of the patronage of these ceilings and of the compositional elements that were important to the patrons' messages aids in knowing how to interpret the ceilings. The placement of the most important figures and pictorial elements at the

¹⁹⁶ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 15.

highest point of the fictive space affects how the ceiling should be viewed, and therefore determines the ideal station or viewing points.¹⁹⁷ In the Sala Clementina, Saint Clement is positioned on a higher plane than all of the other figures, save for the Holy Trinity. A beholder must view the central portion of the ceiling from the correct station point in order to perceive that Saint Clement is positioned on a vertical axis, his body perpendicular rather than parallel to the perceived plane of the ceiling. In the Barberini *salone*, Cortona's perspective requires the beholder to stand at the west, short side of the room in order to perceive that the figure of Divine Providence occupies the apex of the composition.¹⁹⁸ As the beholder moves toward the center of the room, the composition flattens, and Divine Providence appears level or nearly level with several of the other pictorial elements, including the bees.¹⁹⁹ The visual association between Divine Providence and the bees due to their proximity in the vertical and horizontal planes—as well as their relative centrality in the ceiling—draws the beholder's eye to the group and reinforces the importance of those two iconographical elements. In the Chiesa di Sant' Ignazio, a beholder will best understand that Christ, floating above Saint Ignatius, is the most important figure in the *Glorification of Saint Ignatius* if the beholder views the nave vault beginning with its southern end.

Representing Illusionistic Ceilings

The three ceilings considered in this thesis have been reproduced in other media since their creation. Some of these reproductions have already been discussed in this thesis, including Pozzo's drawing of the Sala Clementina and the Van Westerhout and

¹⁹⁷ Scott, *Images of Nepotism*, 136-148, 216-219 for his statements on ideal station points.

¹⁹⁸ Scott, 151.

¹⁹⁹ Scott, 151, Plate IV.

Frezza engraving of Pozzo's ceiling. The Society of Jesus achieved and maintained a worldwide presence not just through its network of missionaries, but also through its widespread dissemination of Catholic and Jesuit images. The Society actively patronized printmakers, commissioning and distributing engravings of Jesuit paintings and all over the world.²⁰⁰ Pozzo's ceiling itself represents the Jesuit determination to spread the messages of Saint Ignatius and Catholicism to every part of the world.

Today, photography is the simplest, fastest, and cheapest way to create and disseminate representations of these and other illusionistic ceilings. Despite the parallels between photography, optics, and linear perspective, the peculiarities of photography, including its differences from human vision, make it a problematic tool for accurately recording the illusionistic effects of *quadratura* ceilings. The interplay of illusion, distortion, deception, and truth that is so intricately woven into the fabric of *quadratura* has emerged in the practice of photographing these works of art.

Photography lends itself to the proliferation of images and to the use of series of photographs. In making photographs of *quadratura* ceilings, a photographer must decide how to use any single photograph, but may also use a series of photographs to convey information about a ceiling. Photographs may be used in a way that imitates the experience of seeing a space in person. In such an attempt, whoever presents the photographs, such as an art historian writing a book or even a thesis, must make decisions regarding the order in which they present the photographs. As many an art historian has noted, photographs of painted spaces are often cropped to exclude the areas around a

²⁰⁰ Gauvin Alexander Bailey, "Italian Renaissance and Baroque Painting Under the Jesuits and Its Legacy Throughout Catholic Europe," in *The Jesuits and the Arts: 1540–1772*, ed. John W. O'Malley, S.J. and Gauvin Alexander Bailey (Philadelphia: Saint Joseph's University Press, 2005), 125.

painted area of interest, intentionally or unintentionally creating the fiction that that detail of a larger space exists in isolation. In order to combat this unhelpful illusion when presenting photographs as a substitute to viewing and experiencing a real space, it is better to present the most comprehensive view first and to then present individual details. This imitates the process of seeing, wherein beholders tend to first see and process a wider view—especially when what they look at is at a considerable distance from them—and then selectively direct their attention to specific details. Still, when a beholder does this, they do so with the memory and knowledge of the larger space they have just seen. This larger space is still in mind as they examine smaller details. This is opposed to the reader of a book who may see a photograph of a detail of a space before seeing the space more fully. Even with a carefully written description of the full space, the reader will not understand the detail in the photograph in the same way—one could argue, not as accurately—as the beholder who sees the full space and then contemplates the specific detail.

John Beldon Scott discusses some of the issues with using photographs to represent illusionistic ceilings, and explains the problem with the most commonly used photographs of Cortona's ceiling. The commercially available photographs that find their way into most analyses of the fresco are taken from directly below the center of the vault, looking straight up—not as the vault was intended to be viewed. Scott lists the most commonly used photographs as Alinari 28565 and ICCD C 11376 and C 11377.²⁰¹ This last one is reproduced here for reference [Figure 39].

²⁰¹ Scott, *Images of Nepotism: The Painted Ceilings of Palazzo Barberini*, 150.

Tezi's book included prints of the Palazzo Barberini *salone* ceiling by Cornelius Bloemaert [Figure 40]. Each print treated a different section of the ceiling. The borders of the prints corresponded roughly with the topography of the ceiling: a print ended where the ceiling began to curve in another plane. But Bloemaert also made adjustments for the logic of the composition, sometimes pushing the edge of his print further in order to fully accommodate a figure that belonged with the scene he was illustrating, even if part of the figure was painted on a different surface from the rest of the scene. While Bloemaert's prints carve up the ceiling unnaturally, their map-like treatment of the curved surface results in an image with no distortion, as if reversing Pietro da Cortona's design process. While a map of the world necessarily involves distortions because of the curvature of the Earth, Bloemaert's prints elide the distortion of the *salone* vault by approximating how Cortona would have originally conceived of the design.

Bloemaert's process suggests a useful model for the photography of curved, painted ceilings. Photographs that show more than a small section of a curved ceiling necessarily produce distortions. Depending on the procedure of the photographer, this may be a distortion that does not correctly reproduce the intended appearance of a painted element, or the distortion may result from the attempt to capture a larger proportion of the ceiling that the human eyes and brain could perceive at once, but that a photographic lens distorts. The first type of distortion may be helpful in the attempt to understand a space with illusionistic painting, such as the photograph of the heraldic device in southwest corner the Sala Clementina that was taken from directly below the device—not from the center of the room, from where it was meant to be seen. The second type of distortion is largely unhelpful, and the use of photographs with this problem should be used

judiciously. Modern-day beholders have grown accustomed to this type of distortion. It is rife in photographs used in contexts ranging from art historical texts to travel websites. Beholders have come to accept these distorted photographs, evaluating them more or less consciously as the price one must pay to see a ceiling to its fullest degree, or perhaps to see it at all, if such a photo is the only channel through which a beholder may see that ceiling.

These wide-angle, distorted photographs do have a purpose: they communicate the maximum amount of information about a ceiling or space, and this does have its uses. However, it is inaccurate information, and this is where the danger arises. Wide-angle photographs that reproduce as much of a ceiling as possible are best used as introductory statements, to provide a viewer with a sense of what other photographs and text describe. Their use should be sparing, and they should cede to photographs that more accurately capture the content and experience of paintings. As modern-day beholders have grown accustomed to photographs, many forget that the camera lens does not work in the same way as the eyes and brain. These wide-angle photographs create a wider visual field than that of the human eye, and so they show more of a ceiling than a beholder could apprehend in a single glance. A single glance might provide a fairly wide view, but some of what a beholder sees will come through peripheral vision, which provides a different sensorial experience from a focused photograph. Certainly, the brain does not produce a curved image like that of a wide-angle photograph. In order to obtain the maximum amount of information from a painted surface, it is best to position the camera's sensor

parallel to the surface; this results in more information about the structure, as well as a more even quality of the details of the texture.²⁰²

Horizontal photographs of *quadratura* ceilings, or more accurately, publication of these photographs in a horizontal orientation, mislead the viewer as to the experience of the beholder beneath the ceilings themselves. As discussed above, for the primary audiences for each of these ceilings, the first proper look at the ceiling, if not the initial peripheral apprehension, was such that the ceiling was oriented vertically. While a beholder might later observe the ceiling in such a position as to make the view horizontal, the heavy reliance on horizontal photographs is fundamentally misleading. Despite the significant differences between *quadratura* and panel paintings, those who produce and disseminate the photographs of *quadratura* should remember that panel paintings are only presented in the one orientation in which they are meant to be displayed: top up, bottom down. While it is possible to view a mounted panel painting from a different orientation, just as it is a *quadratura* painting, it makes little sense to do so, as the panel painting is best understood when viewed in the intended orientation. The same is true for *quadratura*.

A less obvious but useful comparison may be made between *quadratura* and freestanding sculpture. Just as with *quadratura*, the beholder of freestanding sculpture is meant to engage in movement and to observe the sculpture from multiple viewing points. No single photograph will capture all angles and surfaces of the sculpture. Photographs from multiple angles are required for the representation of the entire statue. While it

²⁰² Mancini M.F., Salvatore M., and EuroMed 2016 6th International Euro-Mediterranean Conference on Digital Heritage 6th International Euro-Mediterranean Conference on Digital Heritage EuroMed 2016 6th 2016 10 31 - 2016 11 05, "Surveying Illusory Architectures Painted on Vaulted Surfaces," *Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 10058 LNCS (2016): 381.

might be possible to capture an entire *quadratura* ceiling in one photograph, it will not be an accurate representation; thus, anyone photographing *quadratura* should operate as if she is photographing a statue.

Even in an age of digital photography, video, and modeling, drawings hold excellent potential for the representation of *quadratura* ceilings. As a medium that existed in the seventeenth century, and was fundamental to the process of creating *quadratura*, drawings lie close to the heart of the genre. Pozzo's drawing of the Sala Clementina ceiling serves as a helpful example (see Figure 17). The artist depicts the architecture and figures around the perimeter of the vault. He replicates the ceiling as a beholder would see it—or more accurately, conceptualize it, having turned around and seen every side of the vault—when standing at the center of the room. Each side and corner of the ceiling appears as it does when a beholder views it from the center of the room. As a result, there is no distortion of the type that appears in a photograph taken with a wide-angle lens, such as the one from *The Paintings of the Vatican* [Figure 41]. The figure of Religio has reasonable proportions in Pozzo's drawing, but is overly elongated in this photograph. A photograph taken from the ideal viewing point for a given part of the vault will provide a better indication of how a figure should be seen than the type of drawing that Pozzo produced, as evident in the logical foreshortening of Charitas in this photograph [Figure 42], in contrast to her slight elongation in Pozzo's drawing. However, for the purposes of reproducing every surface of a vault that utilizes multiple vanishing points, a drawing like Pozzo's more accurately conveys the proportions of the fresco than a single photograph of the entire vault.

Photography is a mixed blessing. Its merits for *in situ* works of art like these three illusionistic ceilings are numerous and readily apparent; its drawbacks result in the need for thoughtful usage. The individual who wishes to photograph these works of art must not allow the photographs to develop into a completely autonomous system for representation, too far removed from the original paintings. Such a warning comes from John Baldessari, in his artist's book *Ingres and Other Parables*²⁰³:

The Best Way to Do Art

A young artist in art school used to worship the paintings of Cézanne. He looked at and studied all the books he could find on Cézanne and copied all of the reproductions of Cézanne's work he found in the books.

He visited a museum and for the first time saw a real Cézanne painting. He hated it. It was nothing like the Cézannes he had studied in the books. From that time on, he made all of his paintings the sizes of paintings reproduced in books and he painted them in black and white. He also printed captions and explanations on the paintings as in books. Often he just used words.

And one day he realized that very few people went to art galleries and museums but many people looked at books and magazines as he did and they got them through the mail as he did.

Moral: It's difficult to put a painting in a mailbox.

It is even more difficult to put a ceiling in a mailbox, and that is why texts on *quadratura*, including this one, must continue to rely on reproductions of these works of art. The moral in this context concerns the ways in which one may responsibly photograph or otherwise create representations of illusionistic ceilings.

Truth, Distortion and the Eye of the Beholder

The paradoxical idea that the trickery of *trompe l'oeil* can reveal the truth finds expression in the writings of *quadraturisti*, who were at times conflicted and even troubled by it. Pietro da Cortona embraced the paradox, writing in his treatise that "by deceiving the spectator, the power of fictive representation triumphs." Andrea Pozzo was

²⁰³ John Baldessari, *Ingres and Other Parables* (London: Studio International Publications, 1971).

much more ambivalent about the relationship between trompe l'oeil, truth, and deception, and the various projects he completed seem to have altered his opinion over the course of his career. His corridor at the Casa Professa dei Gesuiti, the walls and ceiling of which he painted in 1685, was meant to be seen from one station point at one end of the corridor. As the beholder proceeds through the space, the anamorphic figures and designs lose their shape, becoming distended as the beholder passes them. The distortion in Pozzo's *Glorification of Saint Ignatius* does not adhere to such an assured strategy.

The beholder of *Glorification of Saint Ignatius* in Sant' Ignazio experiences amazement from the moment of seeing figures floating up through the unexpectedly open and tall architecture. Even upon realizing that the spectacle must be a painted illusion, the beholder gazes in wonder at what he sees and stands in awe of the artistry required to create it. But is this what Pozzo intended: that a beholder is mentally locked into the spectacle and then discovers the illusion, or the inverse, that the full power of the illusion takes hold of the beholder after he has experienced the work's distortion?

Andrea Pozzo worked on the nave vault at Sant' Ignazio for six years. When an artist labors on a project for that length of time, it is likely that he will make some changes to his original plan. In the case of the Palazzo Barberini *salone* ceiling, those changes seem to have manifested in Pietro da Cortona's use of perspective and in the way he foreshortened his figures. Pozzo made changes to his plan for the fictive architecture, apparent in the differences between his drawing and the ceiling. In addition, beyond any changes that Pozzo implemented during the creation of the *Glorification of Saint Ignatius*, in the years following its completion he altered his position on how a beholder

should experience the nave vault, and more or less directly changed the way that beholders interact with his fresco, even to this day.

In a document from 1688, the first for the Sant' Ignazio ceiling, the Jesuit body that awarded the commission of the vault fresco to Pozzo specified that Pozzo should plan his design “in such a way that one enjoys the beauty of the figures and of the architecture not only from one point, but from all sides.” Thomas Frangenberg posited that this requirement was issued as a result of the manner in which Pozzo had painted the church’s fictive dome in 1685, as the illusionism of the dome functions well from a range of vantage points in the nave. Pozzo both adhered to and diverged from the commissioners’ directive in his vault fresco.²⁰⁴ He used a central vanishing point, and in his 1694 letter to Florian he states that one has a better view of the fictive architecture from the middle of the nave than from any other point.²⁰⁵ The advantages of the central vanishing point included the success of the illusory architecture from any viewing point in the nave, with the least possible distortion of the figures and architecture, as the commissioning body had instructed. The consequence, however, was the increase in distortion as the beholder moved further away from the center of the nave.

Pozzo at first acknowledged this distortion as he worked on the ceiling, and accepted the presence of distortion in general in his treatise. In his first edition of *Perspectiva pictorum et architectorum*, published in 1693 before the ceiling’s completion, Pozzo assumes that a beholder of a perspective work such as his fresco on

²⁰⁴ Thomas Frangenberg, “Andrea Pozzo on the Ceiling Paintings in S. Ignazio,” in *Pictorial Composition from Medieval to Modern Art*, ed. Paul Taylor and François Quiviger (London and Turin: The Warburg Institute and Nino Aragno Editore, 2000), 98–99.

²⁰⁵ Hans Tietze, “Andrea Pozzo Und Die Fürsten Liechtenstein,” *Jahrbuch Für Landeskunde von Niederösterreich* 13–14 (1914): 436; John Florio, *Queen Anna’s New World of Words, or Dictionarie of the Italian and English Tongues* (London: Edward Blount, 1611), 586: entry for “Vágo” includes “gracefully-beautiful...gracious to behold.”

the vault of Sant' Ignazio will see the fresco from a variety of points before seeing it from the intended viewing point.²⁰⁶ He even casts a positive light on this phenomenon in his treatise, claiming that any distortion a beholder perceives when looking at an illusionistic work from an unintended point would result in the beholder's heightened appreciation of the illusion when he finally sees it from the intended viewing point.²⁰⁷ In slight contradiction to this, it does appear that Pozzo attempted to mitigate the distortion of his figures when seen from other viewing points, probably in light of his obligation to make them beautiful "from all sides." Modern scholars have observed that many of the figures, especially those that surround Saint Ignatius and those that comprise the allegorical groups of the four continents, are foreshortened according to an oblique viewing position near the entrance of the church, rather than according to the central vanishing point.²⁰⁸

Within a decade of completing the vault fresco in Sant' Ignazio, Pozzo had changed his approach to distortion in illusionistic painting. In his 1702 edition of the *Perspectiva pictorum et architectorum*, Pozzo insists that works of perspective "must have a fixed and predetermined point from which they must be viewed, so that the viewer does not perceive the deformations and distortions" that result from the curvature of the vault.²⁰⁹ Pozzo also introduces the idea of an ideal station point for perspective works such as his Sant' Ignazio vault. He deemphasizes the utility of distortion in a beholder's appreciation of illusion, and assumes that a beholder will delay viewing an illusionistic

²⁰⁶ Frangenberg, "Andrea Pozzo on the Ceiling Paintings in S. Ignazio," 102.

²⁰⁷ Frangenberg, "Andrea Pozzo on the Ceiling Paintings in S. Ignazio," 102.

²⁰⁸ Frangenberg, "Andrea Pozzo on the Ceiling Paintings in S. Ignazio," 103.

²⁰⁹ Frangenberg, "Andrea Pozzo on the Ceiling Paintings in S. Ignazio," 104.

work until he has positioned himself at the ideal station point, such that he avoids seeing any distortion.²¹⁰

Today, a marble disk set in the floor of Sant' Ignazio at the center of the nave marks the ideal viewing point for *The Glorification of Saint Ignatius*. Visitors to the church do look up at the vault from other points in the nave, but beholders understand that they are meant to look at the ceiling from this spot, and most ensure that they do so during their visit, if they do not have other priorities. The earliest documentation of the disk is found in a tourist's account of the Chiesa di Sant' Ignazio, published in 1726. This *terminus ante quem* for the disk's presence in the church places it not long after Pozzo's death in 1709, and it possible that he had encouraged the installation of the disk.²¹¹ The Jesuits who were responsible for its installation have further shaped the experience of beholders for almost the entire lifetime of the fresco, through the viewing behavior that the disk encourages—demands, almost.

Regardless of the order in which a beholder experiences an illusionistic ceiling—first experiencing the ceiling in its intended trompe l'oeil form, or first encountering distortion—if the beholder engages in enough of the intended viewing sequence, he will know that he is looking at an illusion and will feel a sense of amazement by the end of his viewing experience. The power of illusion lies in the duality of tricking the beholder and in also revealing its deception. The beholder does not grasp the rhetorical message as meaningfully without experiencing the realization that what he sees is a construct. If he thinks that he is really, truly seeing Saint Ignatius and Christ above him in the Chiesa di Sant' Ignazio, he will think that this is the nature of reality. While the Jesuits might

²¹⁰ Frangenberg, "Andrea Pozzo on the Ceiling Paintings in S. Ignazio," 104.

²¹¹ Frangenberg, "Andrea Pozzo on the Ceiling Paintings in S. Ignazio," 103.

consider this a satisfactory accomplishment, it is all the more persuasive and effective to communicate to a viewer that the creators of the illusion have the *power* to produce that illusion. On this matter, it is important to account for actual perceptual experiences. Pozzo and other perspectivists concerned themselves with vanishing points, viewing points, and distortion in their treatises and their paintings, but a beholder's experience did not necessarily align with their theories. Martin Kemp notes that the illusion of the Sant' Ignazio vault is more convincing when seen from non-ideal viewing points in the nave than photographs of the ceiling suggest. The beholder's perceptual system maintains the illusion better than one might expect when only accounting for the principles of perspective.²¹² A beholder might alternate between states of belief and disbelief in the illusion he is encountering, but his sense of awe, of the sublime, of *sacer horror*, will bring him closer to the rhetorical message of the work's creators.

²¹² Martin Kemp, "Perspective and Meaning: Illusion, Allusion and Collusion," in *Philosophy and the Visual Arts* (Dordrecht: Springer Netherlands, 1987), 259.

Conclusion

Quadratura was a tool used by those with power to shape the worldview of beholders. In the three cases examined here, patrons sought to associate themselves in the minds of beholders with specific virtues and with divine favor. The interaction with *quadratura*, as with any illusionistic space, is paradoxical for the beholder. All at once, the beholder is given a type of freedom and access otherwise unachievable on this earthly plane—a soaring heaven just beyond the ceiling—in a highly controlled and carefully calculated environment that constrains the beholder to certain movements and to a specific vision. Once a beholder has entered a space with a *quadratura* ceiling, his choices are few. He may follow the intended program of viewing and movement in order to adhere to the illusion, or he may fall outside of this circumscribed pattern (intentionally or not); either way, he is acting in relation to the illusion that defines the space. By participating in the illusion of a *quadratura* painting, a beholder surrenders his agency. He temporarily yields his perception and understanding of the world to gain the dopamine rush of escapist wonder and amazement. A beholder enters into the same bargain when donning a virtual reality headset: an otherwise impossible ability gained—walking through the Roman Forum of the first century BCE, playing billiards in Van Gogh's *The Night Café*—in exchange for disorientation in one's physical surroundings.

The ideas addressed in this thesis are central to the art historical study of illusionistic Baroque painting, but they are also relevant for other disciplines. In the last decade, there has been a developing interest in *quadratura* and other forms of early modern illusionistic painting among scholars of visual computing and mathematics. Some of the sources cited in this thesis come from this literature, including cross-

disciplinary studies, such as Michele Emmer's book on the relationship between mathematics, imagination, and culture. The study of *quadratura* yields insight into the artistic processes of the early modern era, and into computer modeling techniques for real and imaginary spaces. More broadly, collaborative efforts that combine art history with mathematics and computing result in more holistic understanding of illusionistic spaces, trompe l'oeil effects, and provide new methods for investigating attendant questions. The visual reality projects of today continue in the tradition of *quadratura*, and the study of *quadratura* should help to produce a better, or at least more aware, virtual reality. This union of disciplines also accurately reflects the melding of art and science (as they are categorized today) that led to the great human achievements of the Renaissance and Baroque periods.

Like the fictive space in a *quadratura* sky, the model introduced here for the study of seventeenth-century illusionistic ceilings in Rome is left open. There were outside forces that have only been touched upon briefly here, such as the influence from Venice that informed Pietro da Cortona's perspective system for *The Allegory of Divine Providence* and the influence of *quadraturisti* working in Bologna. This thesis has presented a theoretical foundation of considerations and questions to guide the direction of future research into the creation and reception of illusionistic ceilings. Studies of works of art that rely on reproductions of those works can only achieve so much. Much as it was necessary for Pietro da Cortona to visit other examples of illusionistic ceilings for the sake of his artistic endeavor, it is necessary to experience these and other illusionistic ceilings as a direct beholder for the sake of scholarship.

The illusionistic ceilings of the Baroque period have influenced the wide-ranging abundance of illusions that we encounter in modern life, many of which involve ceilings. Even aside from illusion, ceilings have continued to act as a locus for rhetoric. An example from the second half of the twentieth century, more textual than pictorial, is Yoko Ono's *Ceiling Painting/Yes Painting* (first exhibited in 1966 at the Indica Gallery in London). The work consists of a small, framed white canvas, suspended from the ceiling and perpendicular to the floor. A white ladder is placed beneath the canvas. Suspended from the frame of the canvas, by wire or string, is a magnifying glass. When the beholder ascends the ladder, takes hold of the magnifying glass and peers through it at the canvas, he sees the word "YES," printed in black ink. While a beholder might extract endless possible meanings from this one syllable, the work sets a clear tone: one of affirmation and positivity. Ono intended for the "YES" to remain in the minds of beholders, certainly as a visual imprint but more broadly for its rhetorical significance. So too did *quadraturisti* intend for beholders of their ceilings to take with them the memory of their work, but even more so, the message of their patrons.

Ono's *Ceiling Painting* requires the beholder to engage in a set sequence of specific movements and actions in order to experience the work as intended, and to perceive Ono's message. At the end of this sequence, all that occupies the beholder's visual field, reduced to one open eye, is the magnified "YES," on its stark white background. As with *quadratura*, the beholder has engaged with a rhetorical message. Even if he rejects it, and thinks "no," he does so in direct response to Ono's powerful statement. Just as a gallery visitor sees Ono's ladder and recognizes the task of physical ascent ahead of him, a visitor to the Sala Clementina, Palazzo Barberini *salone*, or Chiesa

di Sant' Ignazio recognizes his perceptual task upon apprehending the lavishly decorated ceiling. The vibrancy of these ceilings and their strong compositional ties to their architectural settings bring them “down” to the viewer and into his consciousness, much in the way that Ono’s suspended canvas brings the “ceiling” down to the viewer (and the ladder and magnifying glass bring the viewer up to the ceiling). A beholder’s engagement with a *quadratura* painting, through guided movement and looking, has its modern counterpart in climbing the ladder and looking through the magnifying glass.

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