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Preserved for Eternity on Obsidian  
A Baroque Painting Showing the Miracle of Milk  
at St. Catherine of Alexandria's Martyrdom\*



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After the beheading of St. Catherine of Alexandria, milk flowed from her body instead of blood.<sup>1</sup> Artists almost never depicted this scene in art, preferring to paint the more dramatic moment of Catherine with the infamous spiked wheels of torture or of her kneeling before her executioner, as he prepares to slice off her head with a sword. In a painting in the collection of the Museum of Art and Archaeology at the University of Missouri (Figs. 1, 2, and front cover), the artist paired this uncommon subject matter with an equally rare support, a piece of obsidian, the mottled pattern of which forms part of the composition.<sup>2</sup> Encased in a richly carved and gilded seventeenth-century French frame, this painting reveals the contemporary fashion for sophisticated paintings on semi-precious stone.<sup>3</sup>



**Fig. 1.** Studio of Jacques Stella (French, 1596–1657). *The Martyrdom of St. Catherine of Alexandria and the Miracle of Milk* (detail), ca 1630, oil on obsidian. Museum of Art and Archaeology, University of Missouri–Columbia, Gilbreath-McLorn Museum Fund (2009.126). Photo: Jeffrey Wilcox.

## St. Catherine

Often considered an apocryphal saint whose feast day the Vatican abolished in 1969, St. Catherine of Alexandria was one of the most popular saints in Europe during the Middle Ages and later. Following his papal visit in 2002 to Mount Sinai, Catherine's supposed burial place, Pope John Paul II reinstated her feast day (November 25) as an optional memorial, a testimony to her enduring importance. While tradition and the earliest surviving Greek texts date Catherine's death to 305, the origins of her biography probably date to between the late sixth and the late eighth centuries, with the eighth century being the most likely time of composition.<sup>4</sup> Historical documentation regarding her relics may have begun around the year 800 when monks at the monastery of Mount Sinai are said to have discovered the uncorrupted remains of Catherine on a



**Fig. 2.** Detail of Fig. 1, showing an angel holding the head of St. Catherine. Photo: Jeffrey Wilcox.

nearby mountain. Documentary evidence, however, only emerges in the late tenth century when there is reference to the presence of relics associated with St. Catherine at the monastery.<sup>5</sup>

Despite the lack of documented evidence for a historical Catherine from Alexandria, her cult spread, together with legends of her life. Unlike the histories of saints deriving from living persons, her entire life was constructed over the centuries without recourse to verifiable facts.<sup>6</sup> While the widely disseminated *Golden Legend* of Jacobus da Voragine cites Athanasius as a contemporary source for her biography, no trace of Catherine's life exists in his

writings.<sup>7</sup> Catherine's popularity, which after the Virgin Mary was second only to Mary Magdalene's, resulted in an elaborately embellished biography, aspects of which sometimes developed in relation to contemporary religious interests.<sup>8</sup> Her life contains many of the traits emblematic of sainthood as well as themes relating to virgin martyrs, as seen in the following synopsis of her life based on the *Golden Legend*.<sup>9</sup>

Of noble birth, Catherine was beautiful and well educated. She became queen at the age of fourteen upon her father's death, at which time her advisors suggested she marry so that her husband could help her rule and defend her kingdom and so that progeny for noble succession could be ensured. Preferring to remain chaste and having no desire to be married, she told her advisors that she would rule alone with their assistance. Catherine soon thereafter converted to Christianity, followed by her mystical marriage to Christ, in token of which Christ placed a ring on her finger.

At eighteen years of age, she went to Alexandria to protest the Emperor Maxentius' order that the people come to the city and sacrifice to the idols. Amazed by her knowledge, wisdom, and beauty, Maxentius was unable to compete with Catherine's learning. He, therefore, enlisted fifty philosophers to debate her. This encounter resulted in the philosophers converting to Christianity, which they confessed to the emperor. Filled with rage, Maxentius had them all burned to death. He then imprisoned Catherine in a dark cell for twelve days without food. In the emperor's absence, the Empress Faustina visited Catherine and witnessed angels ministering to the girl's wounds. After listening to Catherine, she and Porphyrius, captain of the guard, acknowledged faith in Christ.

On the emperor's return, he found Catherine not worn out from fasting but more radiant than ever. Since Catherine was still unwilling to deny her faith, he threatened her with torture on four spiked wheels, but as this was about to take place, a thunderbolt miraculously destroyed the deadly machine with "such a blow that it was shattered and four thousand pagans were killed."<sup>10</sup> Lastly, the emperor offered Catherine the choice of sacrificing to the gods or losing her head. She answered: "Do anything you have a mind to! You will find me prepared to bear whatever it is!"<sup>11</sup> Her beheading followed, and the miraculous milk issued forth from her neck instead of blood. After this, angels took her body to Mount Sinai, where it received a hidden burial. Oil capable of healing all ills and sicknesses was said to exude from her bones for years.

The Missouri painting shows a moment not long after Catherine's execution (Figs. 1, 2, and front cover). Her headless body lies on the ground as milk streams from her severed neck. Multiple rivulets emerge from the bloody neck and cascade down to the ground, where they form delicate ripples between her folded arms. Two angels kneel next to the body. One, holding a large flaming candle, arranges a white cloth around the upper body. The other carefully cradles the severed head, which emits a nascent aureole. A saint has been created.

A touching and quiet moment filled with import, the scene contains numerous narrative details. The bloody sword used for the execution lies in the foreground, abandoned alongside the crumpled body. The brilliant blue drapery covering the lower body distinguishes it from the attending angels, who wear glowing red robes. The angel holding Catherine's head also wears a golden yellow shirt that contrasts with the white drapery holding the precious relic. The other angel, who reverently rearranges the cloth covering Catherine, appears to have just arrived on the scene; the drapery still flutters in the air. In the distance burns a fire amidst which are most likely the remnants of the elaborate wheeled device designed to tear Catherine into pieces. Two palm trees stand on the left.

## **The Miracle and Meaning of Milk**

The emission of milk from a wound rather than blood is not an isolated incident in the Christian tradition. It belongs to a larger tradition of milk flowing from the wounds of Christian martyrs, both male and female.<sup>12</sup> St. Paul, who was beheaded in the mid-60s, seems to be the first. Milk spurted out from his neck and splattered the clothes of the executioner. Immediately following the issuance of milk, blood flowed from his neck. The morning following Paul's death and the miraculous effusion, the prefect Longinus and centurion Cestus were baptized.<sup>13</sup>

Milk was a special and precious substance. Provided by a mother to her offspring, milk by its very nature embodies the idea of sustenance and can serve as a metaphor for nutrition and fertility. The Bible is filled with allusions to a Promised Land filled with milk and honey, and one of the rivers of Paradise was believed to have flowed with milk.<sup>14</sup> Before the emergence of Christianity, the nursing mother served as a metaphor for salvation in the Mediterranean world.<sup>15</sup> In Greek mythology, the Milky Way was born from the breast milk

of Hera that sprayed across the heavens as she was breastfeeding Hercules.<sup>16</sup> The origin of the miracle of martyr's milk appears related to the connections between milk and blood surmised by ancient Greek and Roman physicians and philosophers, who in turn derived some of their knowledge from ancient Egyptian medical theories.<sup>17</sup>

In Christianity, the Virgin Mary nursing the infant Jesus is the most famous example of a breastfeeding mother. The cult of the Virgin's milk was exceptionally popular in late medieval Europe, and images of the lactating Virgin were common. On a more fundamental level, the Madonna is a personification of the Christian Church. In her role as the *Virgo lactans*, she provides sustenance and symbolizes the nourishing Mother Church.<sup>18</sup>

The torture and death of a martyr like Catherine was interpreted as a physical imitation of Christ's suffering and death. While the spilling of milk during these tragic circumstances was not generally linked in the literature to the *Virgo lactans*, the milk itself was inseparable from the nourishment provided by a mother's milk.<sup>19</sup> Martyrs nurtured the Christian community through their actions and words. The milk coming from a martyr's body, whether male or female, served to further sustain the Church and was a sign of God's intervention and a prelude to the saint's eternal life.

## The Miracle of Milk and St. Catherine

The numerous manuscripts and printed texts of Jacobus da Voragine's widely popular *Golden Legend* ensured that the story of Catherine and other saints graced with the effusion of milk continued to be part of the collective European imagination.<sup>20</sup> St. Catherine's continuing fame, however, was not solely dependent on the reissuing of Voragine's work. She was included in other collections of the lives of saints and martyrs.<sup>21</sup> The sheer mass of texts touching on the life of Catherine is immense—from the most intricate and scholarly to simple publications for the less educated.<sup>22</sup> Moreover, scores of churches were dedicated to her, and innumerable images of her were created.

Voragine considered her superior to other virgin martyrs.<sup>23</sup> Like Voragine, Jacopo Foresti da Bergamo (1434–1520) in his 1497 book placed her before all other holy virgins, except the Virgin Mary.<sup>24</sup> Among the female martyrs, Catherine was the most highly educated, most eloquent (besting fifty philosophers) and graced with numerous privileges that further emphasized

her particular importance and sanctity. Among these, she was joined with Christ in a mystical marriage, angels carried her body to Mount Sinai, and oil flowed from her bones.

Writings concentrating on the life of St. Catherine frequently mention the miracle of milk. References to it may consist of only a simple remark; milk can appear by itself or be mixed with blood; and sometimes a more detailed description is given, occasionally including a comment on the significance of the event. Moreover, descriptions of St. Catherine and the miraculous appearance of milk were not limited to biographies dedicated to her. During the early modern period, Catherine and the effusion of milk inspired painters and sculptors, as well as innumerable orators and poets. She was the focus of liturgical dramas, oratories, operas, poems, hymns, and popular pamphlets. She and the miracles punctuating her life were not merely textual but also visible and to be heard, as the events of her life were reenacted in numerous performances of differing formats.<sup>25</sup>

Women commissioned portrait images of themselves in her guise. The fifteenth-century author Jacobus Philippus Bergomensis (1434–1520) put it well: “No kingdom, no city, no town, no hamlet, no private home exists in the world where the temples, chapels, altars, and image of Katherine do not shine forth. . . [S]he everywhere enraptures the many painters and sculptors, both greater and lesser, who represent her with brush, and who, in many places, especially the most famous, show off all their skill and the strengths of art.”<sup>26</sup>

The milk shed by Catherine was interpreted in consistent terms that could be interlinked as found in Giovanni Pietro Besozzi (1503–1584), who compared the milk spilled by Catherine to her indescribable innocence and purity, which mirrored that of the milk itself.<sup>27</sup> In analogizing the flow of milk to a torrent of purity and a river of modesty, he further described it is a sign of her sweetness, great value, kindness, pleasantness, and angelic nature. The angels took her body away because the ground was not worthy of her. Catherine’s purity remained exceedingly important in the texts, which frequently related the effusion of milk with Catherine’s pure virginity, and thus she came to serve as an ideal model for young women and nuns to preserve their virginity.<sup>28</sup> The spilling of milk could certainly be interpreted as a sign of Catherine’s virginal innocence,<sup>29</sup> yet the miracle also testified to her sanctity.

In the sixteenth century, Marco Filippi (called *il Funesto*, fl. 1550) composed a sonnet dedicated to the life of the saint.<sup>30</sup> Several references to milk occur



throughout the text. The twelfth canto contains an eight-line stanza that merits translation:

And so the divine eternal squadrons [of angels],  
 In a pure white, soft sheet  
 Place the lifeless but still lovely members,  
 And that body so white and so delicate:  
 Then from the rough, humid and dark ground  
 They gather that subtle, white liquid  
 Without leaving on top of the dirty earth  
 A drop of milk or a single hair.<sup>31</sup>

Even if it is impossible to know whether Filippi's poetry served as the source for the Missouri painting, it still provides a useful commentary on the significance and possible interpretation of the subject, helping the viewer to relate more closely to the miracle. The miraculous flow of milk was a special privilege that distinguished St. Catherine in several ways. An easily understood reference to her purity and a clear indication that the Lord was pleased with her actions, it was also a sign that she, like St. Paul, with whom she was compared in the literature,<sup>32</sup> converted unbelievers and nourished the faithful with words and actions, rather than being a reference to the nourishment provided by the *Virgo lactans*. As Pietro Aretino clearly explained in his life of St. Catherine, published in both the sixteenth and seventeenth centuries, the milk that flowed was a miracle "that showed her life was, and was going to be, nourishment for many souls."<sup>33</sup>

## Paintings with Severed Head and Fluid

While images of the martyrdom of St. Catherine of Alexandria abounded throughout the Middle Ages and during the Renaissance and Baroque period, depictions of the moment following the execution were much less popular than those showing the saint before her death. Unlike the heroic and inspiring images of Catherine kneeling as a soldier prepares to execute her, or positioned next to the wheels of torture, the reality of the trauma and suffering accompanying her death becomes unavoidable with the separation of her head from her body. Works of art showing the moment after the execution mostly span the late thirteenth century through the early eighteenth century. In these works, images

of the miracle of milk flowing from the saint's severed neck are quite rare.

Of the thirty-four works so far known that depict Catherine with her severed head, about one-third show the flow of milk.<sup>34</sup> Seven of them definitely show milk; three more appear to have milk; and three show a mixture of milk and blood. Of the ten believed to show only milk, five were created in Germany (ca. 1270, 1514–1515, 1696, 1702, 1753), three in Italy (ca. 1490, 1608, ca. 1630), one in Spain (1456), and one in South America (seventeenth century). Of those showing a mixture of milk and blood, a fresco in Italy dates to ca. 1368 while a German artist did a drawing and print after it in 1609.

Of the works showing Catherine and her head, only eleven depict blood. Some of the remaining works of art do not show the flow of liquid, and the fluid depicted in frescoes is often no longer visible. Although the portrayal of the emission of blood seems more popular to us today because blood is typically associated with beheadings and although, owing to the fate of history, more images showing blood are found in museum collections, yet the flow of milk may have been represented more frequently. Milk in relation to Catherine's martyrdom contained deeper spiritual significance than blood. Even if images showing the miracle of milk are known from only four countries at present, interest in the subject lasted almost five hundred years, from the earliest known illumination ca. 1270 to a fresco of 1753. Further depictions showing the miracle of milk in all likelihood remain to be found.

## Stylistic Attribution

While fundamentally Italianate in style with its Baroque and Mannerist tendencies, Missouri's painting reveals a touch of French classicism. The heightened emotion and theatrical scene as well as the agitated drapery of one figure are clearly Italian Baroque in nature as is the dramatic positioning of the martyr's body with bloody neck and outpouring of milk placed directly before the viewer.<sup>35</sup> The use of a brilliant and selective lighting to accentuate flesh, the unveiling of Catherine's shoulders and arms, and the diagonal placement of her body recall Caravaggio's (1571–1610) bold and realistic depictions of religious stories. Moreover, the covering of only the right shoulders of the angels along with the Baroque flourish of the fluttering drapery on the right further recall the art of Caravaggio and, more specifically, the angel in his painting *St. Francis in Ecstasy* of 1594 (Fig. 3).



**Fig. 3.** Caravaggio (Michelangelo Merisi) (Italian, 1571–1610). *Saint Francis in Ecstasy*, ca. 1594–1595, oil on canvas. Wadsworth Atheneum Museum of Art, Hartford, Connecticut, The Ella Gallup Sumner and Mary Catlin Sumner Collection Fund (1943.222).

Both the Missouri and the Connecticut paintings show a relatively uncommon narrative moment, a poignant encounter between an angel and a saint. Missouri's painting, while showing a dramatic moment, is restrained when compared to Caravaggio's empathic encounter. Caravaggio shows the angel tenderly cradling St. Francis' body, which has dropped to the ground following his stigmatization. The relationship between the angels and St. Catherine, on the other hand, seems subdued and more distant as they treat the saint's head and body with the utmost respect. Although the angels are protective, their faces remain vertical and unconnected emotionally. The tempered emotions and slightly staged poses reflect the complexities, formal language, and forced naturalism of Mannerism, with a touch of French classicism in the naturalistic drapery folds, clarity of narrative, and relief-like presentation.

The Missouri painting's mixture of Mannerist and Baroque with Italian and French stylistic tendencies is also present in the art of Jacques Stella when

he was painting in Rome, although his works lack a strong Caravaggesque element. A French painter, draughtsman, and engraver (1596–1657), Stella began working in Florence in 1617, when Cosimo II de' Medici, Grand Duke of Tuscany, provided lodging and a pension.<sup>36</sup> Stella left Florence soon after the death of Cosimo II (1590–1621) and was in Rome by Easter of 1623, where he stayed for about ten years.<sup>37</sup> He became interested in painting on stone in Italy and most likely learned the technique while in Florence, where a number of artists were painting on stone for the Medici family, which collected numerous such paintings. Among the foreign artists painting on stone who were working for Cosimo II, Stella would have known Cornelis van Poelenburgh (1594–1667), who worked in a very sophisticated fashion, seamlessly weaving the patterns of the stone with the painted portions.<sup>38</sup>

Painting on stone is thought to have evolved out of Sebastiano del Piombo's (ca. 1485–1547) Roman painting experiments on stone in the 1530s as a way to preserve his paintings.<sup>39</sup> Already in 1550, Giorgio Vasari (1511–1574) wrote that a number of artists had learned the true method (*modo vero*) and painted on a great variety of stone types.<sup>40</sup> Artists appreciated the preservation of pictures painted on stone and were also sensitive to the stone's inherent qualities. The dark stones that artists initially adopted enhanced night scenes. Other stones soon were prized for their intrinsic pictorial effects that challenged the artist to respond with a suitable composition. This initial interest in stone as a stable support became part of the greater fascination with hard-stone decorations and furnishings that grew during the sixteenth and seventeenth centuries throughout Europe. Stone paintings were produced in the greatest numbers in Italy, especially in Florence, Rome, and Verona. Painters working in Lombardy, Emilia, the Veneto, and Naples were also embracing stone supports, as were Dutch painters working in Florence and Rome. Beyond Italy, artists in France, Flanders, Spain, and at the Hapsburg court of Rudolph II produced numerous paintings on a variety of stones.

Stella would have had easy access to beautiful stones in Rome where the ancient art of polychrome marble inlay had increased throughout the medieval period and flowered during the Renaissance, resulting in a wide availability of ancient colored stones. Moreover, Stella's connections with Florence ensured access to an even wider array of stones from throughout Italy and beyond as Medicean *pietra dura* inlay and carving gained artistic supremacy. Stella's skilful and suave exploitation of the veins of stones and his accomplished painting

technique were already appreciated at the highest level by 1626 when Pope Urban VIII (Maffeo Barberini, reigned 1623–1644) gave Stella's 1624 painting on stone *Assumption of the Virgin Surrounded by Angels* to the Duke of Pastrana, Philip IV of Spain's ambassador in Rome.<sup>41</sup>

While Stella in all likelihood would have appreciated the remarkable stone used for the miracle of St. Catherine, since he himself painted on uncommon stones and enjoyed portraying nocturnal scenes, yet he does not appear to have painted the Missouri work. He typically used a more complicated painting technique involving a larger number of colors and additional layers of paint. The Missouri painting relies almost exclusively on red and blue for coloristic effect, while Stella typically adopted a more sophisticated use of color involving numerous decorative hues assembled in a thoughtful arrangement. Furthermore, the golden yellow color of the garment covering the angel holding Catherine's head is not typical of Stella. The subtle and fine delicacy of modeling, complex disposition of drapery, intricate and precise painting style, and inclusion of an exceptional amount of detail (all distinctive of Stella's work) are missing in the Missouri painting. Struggles in the creation of depth—most notably in the forearms of the angels—are also evident in the Missouri painting. Moreover, the Missouri painting is too Caravaggesque in style to be attributed to Stella. While an echo of Caravaggio occasionally occurs in Stella's work from around 1625 until his departure from Rome, it is typically toned down.

With only three figures, Missouri's painting outwardly appears to possess a relatively simple composition recalling printed images of saints that were in wide dissemination, such as those by Jacques Callot (ca. 1592–1635).<sup>42</sup> While probably conceived around the same time as the Missouri painting, no image from this collection served as a direct source. The subject of St. Catherine and the miracle of milk does not appear to have been as popular in the printed medium since the only known printed versions of it are the works shown in Figures 4–6. Moreover, the subject of this miracle did not lend itself well to the printed medium, since blood and milk are not easily differentiated in uncolored prints. None of the known works of art portraying Catherine without her head appears to have functioned as a possible source for the Missouri painting. Indeed, this painted image is unlike any other known rendition of the subject. The majority of scenes with the decapitated Catherine tend to be narrative in their approach, showing a distinct moment of the story and providing details about the execution and the characters involved (Figs. 7–9).<sup>43</sup>



**Fig. 4.** Antonio Tempesta (Italian, 1555–1630). *Martyrdom of St. Catherine*, etching, from the book *Imagini di molte SS Vergini Rom.e nel martirio*, Rome: Giovanni Antonio de Paoli, n.d. (before 1591).



**Fig. 5.** Bernardino Passeri (Italian, active ca. 1577–1585). *Martyrdom of St. Catherine*, engraving, from the book *Rerum sacrarum liber*, Antwerp: Ex Off. C. Plantini, 1577.



**Fig. 6.** Augustin Braun (German, ca. 1570–1639). Detail of *Martyrdom of St. Catherine*, ca. 1609, etching.



**Fig. 7.** Anonymous. Folio 273v, *Regensburg Lectionary of Heilig Kreuz*, 1270–1276. Keble College Library, Oxford (MS 49). By kind permission of the Warden and Fellows of Keble College, Oxford.



**Fig. 8.** Hans von Kulmbach (German, ca. 1485–1522). *Execution of St. Catherine of Alexandria*, oil on panel, 1514–1515. (Location unknown. The altarpiece to which this panel belonged was removed from Poland by the German Occupation authorities between 1939–1945.)





**Fig. 9.** Master of the Legend of St. Lucy (Flemish, active ca. 1475–1505). Predella panel from *St. Catherine Altarpiece*, 1490s, oil on panel. National Museum of Saint Matthew, Pisa.

In contrast to this, the Missouri painting is devotional in character. There is no sign of the participants or observers present at the execution; only the executioner's bloody sword remains. While charged with the eventual transportation of the saint's body to Mount Sinai, the angels concentrate their attentions on the dead saint's remains. This rendition of the miracle of St. Catherine, shown in the still of night and freed from extraneous narrative detail, presents a touching moment that encourages reflection on the miracle

of milk, a truly momentous event. Only one other painting shows angels alone with the body of the saint: a panel of an altarpiece painted by the Master of the Prenzlauer Hochaltars that was formerly in St. Mary's Church of Prenzlau in Germany.<sup>44</sup> This scene, however, shows the actual interment on Mount Sinai, unlike the other images.

Although there might still be an as yet unidentified source for the work showing St. Catherine or another decapitated saint, the Missouri painting possesses a notable subtlety and sense of compassion that point to an original composition, perhaps coming from Stella's workshop. In the Missouri painting, the musculature of the figures, color selection, abrupt transition between the foreground and distant background, balanced asymmetry, subtle communication of emotion through gesture, and adoption of an uncommon stone all point in the direction of Stella. Unusual stones and complex veining are notable in his oeuvre during 1630–1631, and the grotto-like setting in the Missouri painting brings to mind several of these works.<sup>45</sup> Stella's integration of composition with the patterns inherent in the various stones is inspired and unique to each work of art, with the stone patterning sometimes assuming an intellectually significant role or at other times functioning as exotic scenery.<sup>46</sup> Yet, while the sensitive and innovative composition of the Missouri painting is characteristic of Stella, the simplification found throughout the painted areas suggests a collaborator. The painting lacks the refinement associated with Stella's work, and the two hands and one foot visible in the Missouri painting lack the complexity and detail, as well as ease of pose, typical of Stella's own work. It still, however, demonstrates a level of sophistication that points in the direction of the master artist. It exhibits the influence of Stella, merged with an interest in the art of Caravaggio, as manifested by an artist working in the circle, if not workshop, of Stella and accords well with the output of Jacques Stella's studio around 1630.<sup>47</sup>

The number of paintings that Stella produced in the first half of the 1630s indicates a very busy studio,<sup>48</sup> and it is likely that he had help. Little is known about Stella's workshop. His younger brother François (ca. 1603–1647) was an artist and lived with his older brother in Rome at various times beginning in 1624.<sup>49</sup> Moreover, in 1633, François was again living with his brother in Rome. In all likelihood, François or some other still unidentified studio assistant would have helped Stella with the commissions that were pouring into his studio as his popularity grew and demand for paintings on stone increased. Baptized in

1603 and about seven years younger than Jacques, François would have learned the craft of painting on stone from his brother. While there is little information about François' activity in Rome, on his return to France, he was known as *maître peintre à Paris*.<sup>50</sup>

## The Stone

The stone on which the artist painted the *The Martyrdom of St. Catherine of Alexandria and the Miracle of Milk* is highly unusual in the genre of stone paintings. At the time of purchase, the stone was said to be a polished piece of Sicilian jasper, which is no longer quarried,<sup>51</sup> but a recent x-ray fluorescence analysis has revealed that the stone is actually obsidian, which because of the reddish inclusions, is often identified today as mahogany obsidian.<sup>52</sup> In comparing the calculated concentration data and the spectra to sources in the eastern Mediterranean and in Mexico that had similar concentrations, a close match resulted with a sample from central Mexico. It, therefore, seems quite likely that the stone for the museum's painting originates from Ucareo in the region of Michoacán de Ocampo, Mexico.<sup>53</sup> The Ucareo source has been in use since the Early Formative period (1600–850 B.C.E.); mahogany varieties occur there, too. The table below details the elemental comparison between the obsidian of the Missouri painting and the Ucareo source material:

Element (ppm)	Results for Obsidian Painting	Ucareo (n=34)		
		mean	std. dev.	
K	36987	36961	±	671
Mn	327	283	±	58
Fe	8286	8402	±	337
Rb	140	152	±	6
Sr	13	11	±	2
Y	22	21	±	2
Zr	111	113	±	6
Nb	10	12	±	2

Obsidian is a natural glass generated in relation to volcanic activity.<sup>54</sup> Like man-made glass, it breaks with a characteristic conchoidal fracture, which the back of the museum's piece exhibits. The smoothness of the fractures comes from obsidian's lack of mineral crystals. These fractures can be worked to form razor-sharp surfaces. Thus, obsidian was used extensively for arrowheads, knife blades, and other working tools, as well as for ornaments, decorative objects, and polished mirrors. It was a widely valued trade commodity in Mexico before and after the arrival of the Spanish.

That the stone used for the Missouri painting traveled across the ocean is feasible since objects began to flow from the New World following Columbus' (1451–1506) voyages in the 1490s and the conquest of Mexico by Hernán Cortés (1485–1547) between 1519 and 1530. Artifacts from the New World were collected immediately. Margaret of Austria (1480–1530) had one of the earliest collections of objects from the new lands. She displayed “treasures, rarities, and wonders” in a room of the Palace of Savoy.<sup>55</sup> By 1524, she had about 170 New World artifacts.<sup>56</sup>

During the seventeenth century, the Spanish artist Bartolomé Esteban Murillo (1617–1682) was painting on obsidian. Known examples include three works—two in the Louvre Museum, Paris, and one in the Museum of Fine Arts, Houston.<sup>57</sup> For a painter working in Seville, the most likely source for obsidian would have been Central America. In 2007, the two paintings in the Louvre underwent Proton Induced X-ray Emission (PIXE) analysis.<sup>58</sup> Results showed that they are comparable to sources in Ucareo and Zinapécuaro (an XRF analysis would likely isolate the source further).

The obsidian was also compared to that of six Mesoamerican “smoking mirrors” in Paris, five rectangular ones in the Musée de l'Homme and one circular example in the Musée National d'Histoire Naturelle. Four of the mirrors are very close in composition to the two Louvre Murillo paintings. Mesoamerican obsidian “smoking mirrors” were instruments of divination used by healers and seers.<sup>59</sup> These mirrors can be round, rectangular, and roughly square, with the round being the most common. The pieces of obsidian used by Murillo for paintings have been thought to be reused Aztec “smoking mirrors.”<sup>60</sup> Known seventeenth-century inventories, however, make no reference to previous use of these stones. In any case, the mahogany obsidian of Missouri's painting on stone with its rich patterning would not have been of use for divination and thus would not have had such an earlier sacred function.

Mesoamerican craftsmen presumably manufactured it for European use. Missouri's piece of obsidian is smaller than the stones used by Murillo and all but one of the examined rectangular obsidian mirrors in Paris.<sup>61</sup>

The Missouri painting indicates that worked obsidian was traveling beyond Spain before the third quarter of the seventeenth century. It also suggests that paintings on New World obsidian may have been more common than current evidence reveals. Exotic stone examples were at the heart of numerous collections, and beautiful and relatively large stones were also incorporated into elaborately decorated book covers. Hard-stone objects and examples of semiprecious stones moved throughout Europe in the late sixteenth and seventeenth centuries and occupied a significant role in the cabinets of curiosities, spurred on by the growing interest in exotica and in furnishings adorned with inlays of hard stones (*pietre dure*) or semiprecious stones (*commessi*).

Other examples of the Missouri stone's deep black with orange web-like pattern have not been located even in relation to the Medici workshops in Florence, where stones from around the world were assembled for the production of luxurious furnishings. Attempting to find an analogous stone inserted in a mosaic via the use of color reproductions is fraught with error because of degradation of color in older photographs and color manipulation in newer ones, not to mention color alterations that take place in the printing process. Nonetheless, a similar stone may have been inserted in a panel produced for a Medici altar frontal (*paoliotto*) designed by Bernardino Poccetti (1548–1612) and produced in the Cristofano Gaffurri (d. 1626) workshop between 1603–1610 and thus under the patronage of Cosimo II (r. 1609–1621).<sup>62</sup>

## The Frame

The deeply carved wood-and-gilt frame surrounding Missouri's painting was probably made specifically for it soon after its creation. Measuring 41 x 42 cm and with a depth of 6.5 cm, the frame consists of four decorative courses (Figs. 10a and b). The innermost section bears a shallow and schematic foliate design. Surrounding this, a sizable concavity, or cove, separates the innermost section from the most prominent one, a torus, or half-round molding, deeply carved with foliate and floral ornaments. A flower head occupies the center of



**Fig. 10a and b.** Anonymous (French). Details of Louis XIII frame, second or third quarter of the seventeenth century.

each side, and an oak leaf and acorn pattern surrounds each flower and runs outward toward other oak leaves placed at right angles to the central motif. The decoration then smoothly transitions to abbreviated acanthus leaves at the corners. Openwork ribbons surround the central flowers.<sup>63</sup> Finally, a very narrow ogee outer edge finishes off the frame with a row of bead and reel ornament (Fig. 10b).

While showing some relationship to earlier Italian frames, from which French frames in part derived, this frame also acknowledges the vibrant Baroque details and more organized foliate ornamentation found in French

design in the seventeenth century. More specifically, this frame belongs to the French Louis XIII type, which was popular through most of the seventeenth century.<sup>64</sup> Louis XIII frames are broadly characterized by a rich sculptural ornamentation with continuous carvings of foliate material applied to a range of profiles.<sup>65</sup> The stylistic form of the Missouri frame flourished in the middle third of the seventeenth century.<sup>66</sup> Frames are difficult to date because of the continued use and reuse of various styles. Moreover, versions of the French Louis XIII style were made all over Europe, but the oak leaf and acorn motif, the refinement of the design, and the complex symmetrical composition of the deeply carved, half-round molding also seem to indicate a manufacture in the second or third quarter of the seventeenth century.<sup>67</sup> The reddish bole showing through the gold is also typical of French Louis XIII frames, which are often made of oak.

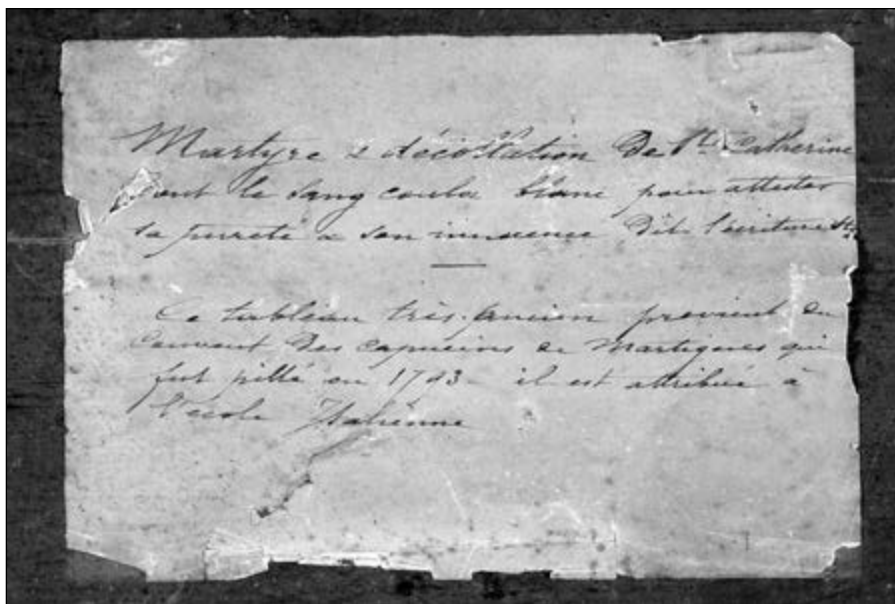
At least some of the frame is certainly made of oak.<sup>68</sup> A visual analysis of the back of the frame's four sections reveals that the proper right section is ring porous and possesses the ray structure appropriate to oak. Continuing counterclockwise, the upper section, which has a knot, does not have the medullary rays typical of oak. (Medullary rays connect the center of the tree with the outside and are perpendicular to the growth rings. These rays are quite prominent in oak.) The wood in this top section belongs to a diffuse porous species. The proper left side lacks a prominent ray structure, and because of the way the wood is cut it is difficult to determine if the wood is ring porous. Lastly, the bottom section is mostly covered by paint, preventing an adequate investigation. The above analysis, the heavy weight of the frame, and the wood's ability to retain its complex openwork carving indicates that oak and probably at least one other hardwood were used in its manufacture. Part of the difficulty in analyzing the wood derives from the application of a red color on a wooden backing piece that covers the inserted stone. This backing piece appears to be a datable fragment of spruce with more than one hundred rings and much variance in the transitions.

Each side of the frame is carved from a single piece of wood. These are secured by means of four tenons connecting horizontally through the mitered joints.<sup>69</sup> The precise fit of the frame with the stone panel, no sign of cutting down of the frame, the carefully designed and centered foliate ornament, the use of only four pieces of wood, and a possible seventeenth-century dating all suggest that the frame was specifically created for the painting it now encloses.

## Provenance

The back of the Missouri painting provides one additional clue as to the possible French origin of the frame as well as suggesting the provenance of the work of art. Adhered to the wooden backing board is an old piece of paper bearing a French inscription probably written in the second half of the nineteenth century or very early 1900s (Fig. 11). The inscription reads “Martyre e décollation de Ste. Catherine dont le sang coulor blanc pour attester sa pureté e son innocence dit l’écriture Ste./Ce tableau très ancien provient du Couvent des Capucins de Martigues qui fut pillé en 1793–il est attribué à l’école Italienne.” Translated the inscription reads “The martyrdom and beheading of St. Catherine whose white-colored blood attests to her purity and innocence according to the accounts [about the] saint. This very old painting comes from the Capuchin Monastery in Martigues, which was looted in 1793—the painting is attributed to the Italian school.”

The dealer from whom the work was purchased evidently misinterpreted the label and gave as the painting’s earliest known provenance a “Convent [sic]



**Fig. 11.** Label on backing board of the painting *The Martyrdom of St. Catherine of Alexandria and the Miracle of Milk*.



des Capucines [sic] de Martigues, Rome,” further stating that the painting was pillaged by Napoleon in 1793 and returned to Rome in 1821.<sup>70</sup> No monastery called the Couvent des Capucins de Martigues ever existed in Rome, however, and the Capuchin brothers did not settle there following their displacement from France after the 1790 French dissolution of religious orders.<sup>71</sup>

The Italianate style of the painting probably contributed to the assumption that it came from an Italian church. Nonetheless, the decidedly French seventeenth-century style of the frame and the French note on the back may indicate where the painting might have hung in the late eighteenth century, if not earlier. While there was never a Capuchin monastery of Martigues in Rome, there was one in southern France in the commune of Martigues about 40 km northwest of Marseille. The Capuchin order was disbanded there in 1791, and with the nationalization of church property, the lands, buildings, and associated contents were sold at auction in that year.<sup>72</sup> The balances for both properties were paid in 1793, the date on the label attached to the back of the Missouri painting. The approximate date of the government’s seizure of church property might have remained with the painting, and the painting could have been one of the objects that were alienated at that time. It would, however, have been sold separately, following sale of the real estate. Inventories of the objects belonging to the Capuchins were compiled in 1790. The state was particularly interested in precious stones, embroidered and fine fabrics, and gold and silver objects. Other metals were also collected and destined for military use. Perhaps it is not surprising that no trace of a small painting exists in the documents associated with the Capuchins in the French archives.<sup>73</sup>

Following the “supposed” restitution of the Missouri painting to Italy in 1821, it disappeared until the late twentieth century when it reappeared with Walter Padovani in Milan.<sup>74</sup> A private Swiss collector is said then to have purchased the work in 2003. On December 8, 2006, the painting was offered for auction at Christie’s in London by a “European collector.”<sup>75</sup> Remaining unsold, the painting was probably acquired soon after by Finch and Company of London, from where the Museum of Art and Archaeology purchased it in 2009.

## **Final Interpretation and Conclusion**

Early female martyrologies frequently focused on the heroine’s determination to maintain her virginity, her reluctance to marry, her refusal to renounce

Christianity and worship pagan gods, her inevitable torture followed by death, and the conversion of unbelievers. Among the female martyrs, Catherine was the most highly educated and most eloquent. While she exerted an independent spirit and possessed a remarkable intellect, her purity remained exceedingly important, as seen in the Missouri painting and others that show the flow of milk and in texts that interpret the miracle. She functioned as a model for young women and nuns to preserve their virginity.<sup>76</sup> Moreover, with her preaching, an honor rarely granted to women, she instructed those around her. Converting common people, queens, and princes, as well as rhetoricians and philosophers, she ranked higher than other virgin martyrs.

The Missouri painting reveals a continuing and profound interest in this saint during the seventeenth century. Details of her life continued to be published, and some of these accounts received complex poetic embellishment. In 1631, and thus probably about the time when the painting was created, the Italian friar and jurisconsult Girolamo Zonca composed a spiritual panegyric *Il pomogranato* (the pomegranate), dedicated to the virgin and martyr St. Catherine of Alexandria.<sup>77</sup> The text, which interweaves moments from the saint's life with a poetic paean inspired by the Song of Songs from the Old Testament, uses metaphors recalling those of the Song of Songs.<sup>78</sup> St. Catherine of Alexandria regarded herself as a "bride of Christ." Thus the imagery from the Song of Songs with its references to bride and bridegroom was particularly pertinent and fertile for animating the endlessly repeated details of the saint's life.

The imagery, smells, sounds, tastes, and qualities described by Zonca's pen give new life to the principal qualities associated with St. Catherine, including her beauty, virginity, scholarship, and nobility. Using the features of a pomegranate, Zonca elucidates these qualities and the events of her life. The blood of martyrdom that would have "embroidered the incorrupt body with vermillion little rubies of her blood" was "miraculously transformed into pure white milk" to "indicate the pearls that were supposed to form her crown in Paradise."<sup>79</sup> Although the milk itself symbolizes purity, the pearl was also the Christian symbol of chastity and purity of spirit. This precious gem was a traditional gift for Italian brides signifying virginity and was a part of the bridal wardrobe.<sup>80</sup> The milk so carefully depicted and emphasized in the painting was an extremely potent miracle that emphasized Catherine's continuing role as proclaimer of the faith, proselytizer, and preacher.<sup>81</sup> Just as "the pomegranate genially gathers all of its grains and lovingly nourishes them, as if a dear mother,

likewise, this glorious bride of Christ will welcome all who turn to her, and nourish them with the milk of her intercession.”<sup>82</sup>

Zonca’s exegesis of the life of St. Catherine of Alexandria successfully elucidates the multidimensionality and depth of the seventeenth-century understanding of this beloved saint. In relation to this, the significance and momentous nature of the quiet scene represented in the Missouri painting opens up in all of its richness. For her uncorrupted virginity, faith, and numerous virtues, St. Catherine held a special place in the pantheon of saints, and as stated by Zonca, “thousands of students and scholars lived under the protection of this saint, who ought to be chosen as the protector of every creature endowed with reason.”<sup>83</sup>

## NOTES

\*Multidisciplinary articles like this one, often involve the help of numerous individuals. Aside from those mentioned in the text, I would like to thank the scholar Roberto Degano for his great help and unending intellectual rigor. Jeffrey Wilcox at the Museum of Art and Archaeology also provided sound advice, splendid photographs, and a meticulous reading of the text. Nicholas Penny of the National Gallery in London afforded his great connoisseurial, curatorial, and scholarly expertise. Jane Biers also deserves thanks for her thorough and thoughtful substantive editing of the text.

1. The etymology of the name Catherine is unknown. The name seems to appear for the first time in relation to St. Catherine. The earliest sources are Greek, and they spell her name Ἀκατερίνη or Ἑκατερίνα. The name appears to be associated at an early moment with the Greek adjective καθαρὸς, *katharos*, which means pure. Patrick Hanks, Kate Hardcastle, and Flavia Hodges, *A Dictionary of First Names* (Oxford, 2006) p. 154. See also Christine Walsh, *The Cult of St. Katherine of Alexandria in Early Medieval Europe* (Hampshire, 2007) p. 1. The Latin transliteration of the Greek form of her name is Aekaterina or Ekaterina, from which the western European Katherine or Catherine derives. According to Hermann Knust, *Geschichte der Legenden der h. Katharina von Alexandrien und der h. Maria Aegyptiaca* (Halle a. S., 1890) p. 175, both K and C were used as the initial letter for her name in medieval manuscripts. As there is no uniformity of usage and Catherine is the preferred form in the United States, this article uses Catherine.

According to Jacobus de Voragine, “Catherine comes from *catha*, which means total, and *ruina*, ruin, hence total ruin. The devil’s building was totally demolished in Saint Catherine.” William G. Ryan, trans. and ed., *The Golden Legend*, by Jacobus de Voragine, vol. 2 (Princeton, 1993) p. 334.

2. Museum of Art and Archaeology, Columbia, Missouri, acc. no. 2009.126, oil on obsidian, Gilbreath-McLorn Museum Fund. Stone support: H. 18.5, W. 20 cm.

3. For an expanded version of this article, see <http://maa.missouri.edu>.
4. Walsh, *Cult*, p. 19. The most likely ultimate source for her life was probably an oral tradition that arose from the Roman persecutions of Christians during the third and fourth centuries. The miraculous emission of milk from the neck appears to have been part of the legend early on and is included in the early texts. I thank Dr. Christine Walsh for this information. Anne Wilson Tordi, *La festa et storia di Sancta [sic] Caterina: A Medieval Italian Religious Drama*, Studies in the Humanities, vol. 25 (New York, 1997), also provides a useful discussion of the history of the legend of St. Catherine.
5. Founded in the period 548–565 by the emperor Justinian (r. 527–565), the monastery of Mount Sinai was first dedicated to the Virgin Mary. The first known Western reference linking the monastery to St. Catherine dates to 1328. Walsh, *Cult*, pp. 39–42.
6. Pierre Delooz, “Towards a Sociological Study of Canonized Sainthood in the Catholic Church” in *Saints and Their Cults: Studies in Religious Sociology, Folklore, and History*, Stephen Wilson, ed. (Cambridge, 1983) p. 196.
7. The earliest surviving manuscripts state that Athanasius wrote the original life of Catherine (Walsh, *Cult*, p. 12). The reference to St. Athanasius of Alexandria, a notable theologian and Patriarch of Alexandria ca. 296–373, who would have been alive at the time of Catherine’s execution, gives the tale a known historical reference and credibility.
8. Walsh, *Cult*, p. 3. The life of Christ was the paradigm for modeling a saint’s life.
9. After its creation around 1260, the *Golden Legend* was disseminated in innumerable manuscripts. More than 800 extant manuscripts containing part or all of the Latin text have been identified, and with the advent of the printing press, more than 150 editions in various languages appeared between 1470 and 1500. Sherry L. Reames, *The Legenda Aurea: A Reexamination of Its Paradoxical History* (Madison, 1985) p. 4. More than a hundred sources went into the composition of the work, for details of which see Roze’s translation, Jacobus de Voragine, *La légende dorée*, Baptiste Marie Roze, trans., vol. 1 (Paris, 1902) pp. xiv–xvii. Early female martyr stories including that of Catherine frequently focused on the following plot elements: the heroine’s determination to maintain her virginity, her reluctance to marry, her refusal to renounce Christianity for the worship of pagan gods, the conversion of unbelievers, and the inevitable torture followed by death.
10. Ryan, *Golden Legend*, vol. 2, p. 338.
11. *Ibid.*, p. 339.
12. The saints who emitted milk include Saints Acacius, Aemilianus, Antiochus, Anub, Barula, Cantianus, Cantianilla, Cantius, Christina, Corona, Cyprilla, Epime, Eupychius, Faith, Godeleva, Isaac, Martina, Menignus, Pantaleon, Paul, Pompeius, Quintinus, Romanus, Sarapamon, Secundina, Sofia (patron saint of Sortino), Victor, and the seven holy women who followed St. Blaise. For more information on saints linked with milk, see Phillips Barry, “Martyrs’ Milk (*Miraculum: Lac Pro Sanguine*)” in *The Open Court*, 28, 9 (1914) pp. 560–573; Ebenezer Cobham Brewer, *A Dictionary of Miracles Imitative, Realistic, and Dogmatic* (Philadelphia, 1894); Société des Bollandistes, *Acta Sanctorum*, 68 volumes (Antwerp and Brussels, 1643–1940); Benedictine Monks of St. Augustine’s Abbey, Ramsgate, *The Book of Saints: A Dictionary of Servants of God Canonized by the Catholic Church: Extracted from the Roman & Other Martyrologies* (New York, 1947); and Ryan, *Golden Legend*, vols. 1 & 2. In addition to the miraculous effusion of milk, miracles of healing and conversion are frequently associated with the milk shed by martyrs.

13. The miracle of milk appears at an early moment in the development of the legend of St. Paul forming part of the *Martyrium Pauli* of the *Acta Pauli*, which was composed in the third quarter of the second century. While not canonical and considered apocryphal, the *Acta Pauli* is the earliest and most extensive version of the Pauline narrative and thus quite influential. It serves as a documentable beginning for the miraculous spewing of milk in relation to Christian martyrs. See Harry W. Tajra, *The Martyrdom of St. Paul: Historical and Judicial Context, Traditions, and Legends*: 2, *Wissenschaftliche Untersuchungen zum Neuen Testament* (Tübingen, 1994) no. 67. Tajra's book includes summaries of surviving copies of the *Acta Pauli* and provides a useful introduction to the early versions of the Acts of Paul and an extensive bibliography of the related scholarship.
14. Ryan, *Golden Legend*, p. 373. The Life of St. Pelagius contains a reference to a river of milk in Paradise, and the Qu'ran 47:15 also mentions rivers of milk.
15. Denise Kimber Buell, *Making Christians: Clement of Alexandria and the Rhetoric of Legitimacy* (Princeton, 1999) p. 125.
16. The word "galaxy" derives from the Greek word γάλα (gala), meaning milk.
17. Barry, "Martyrs' Milk," p. 560–573. Moreover, "the belief that milk from the divine breast gives life, longevity, salvation, and divinity" existed in ancient Egypt and could be seen in the imagery used by the Pharaohs. Buell, *Making Christians*, p. 125.
18. The notion of Church as mother appears for the first time in Latin Christian literature in Tertullian, *Disciplinary, Moral and Ascetical Works*, Rudolph Arbesmann, Emily Joseph Daly, and Edwin A. Quain, trans. (Washington, D.C., 1959) p. 17.
19. Since breast milk was interpreted as processed blood in medieval medical theory, the mother was viewed as feeding her child with her own blood. Caroline Walker Bynum, *Jesus as Mother: Studies in the Spirituality of the High Middle Ages* (Berkeley and Los Angeles, 1982) p. 132.
20. The popularity of the *Golden Legend* cannot be emphasized enough. See n. 9.
21. For example, *Der Heiligen Leben* was a collection of 258 lives of saints appearing in some twenty-four editions between 1471 and 1500. See Bruce A. Beatie, "Saint Katharine of Alexandria: Traditional Themes and the Development of a Medieval German Hagiographic Narrative," *Speculum: A Journal of Medieval Studies* 52, 4 (1977) p. 785; Alison Frazier, "Katherine's Place in a Renaissance Collection: Evidence from Antonio degli Agli (ca. 1400–1477), *De vitis et gestis sanctorum*," in *St. Katherine of Alexandria: Texts and Contexts in Western Medieval Europe*, Jacqueline Jenkins and Katherine J. Lewis, eds. (Turnhout, 2003) pp. 221–240. See also Alison Frazier, *Possible Lives: Authors and Saints in Renaissance Italy* (New York, 2005) for information on other compilations of the saints in Renaissance Italy.
22. Beatie, "Saint Katharine," pp. 785–800. Walsh, *Cult*, 193–213, contains a useful bibliography of manuscripts and printed primary sources of texts relating to St. Catherine.
23. Reames, *Legenda Aurea*, p. 107.
24. Jacopo Filippo Foresti da Bergamo, *De plurimis claris selectisque mulieribus* (Ferrara, 1497).
25. See Leone Allacci, *Drammaturgia di Lione Allacci accresciuta e continuata fino all'anno MDCCCLV* (Venice, 1755) pp. 179–180; Giovanni Salvioli, *I teatri musicali di Venezia nel secolo XVII* (Bologna, 1969) p. 165; Claudio Sartori, *I libretti italiani a stampa dalle origini al 1800*, vol. 4 (Cuneo, 1994) p. 86; Antonio Spezzani, *Rappresentazione di santa*

- Catherina di Antonio Spezzani, recitata in Bologna, l'anno 1537 e poi in Verona nella Chiefa di Santa Maria della Scala* (Venice, 1605); and Pamela M. Jones, "Female Saints in Early Modern Italian Chapbooks, ca. 1570–1670: Saint Catherine of Alexandria and Saint Catherine of Siena," in *From Rome to Eternity: Catholicism and the Arts in Italy, ca. 1550–1650*, Pamela M. Jones and Thomas Worcester, eds. (Leiden, 2002) pp. 89–120.
26. Foresti, *De plurimis*, fol. 91r. Translation from Frazier, "Katherine's Place," p. 221.
  27. Giovanni Pietro Besozzi, *Lettere spirituali: Sopra alcune feste, et sacri tempi dell'anno* (Milan, 1758) pp. 390v–391r.
  28. Catherine, Margaret of Antioch, and Juliana of Nicomedia were the women included in a thirteenth-century manuscript designed to encourage the nuns at Wigmore Abbey in Herefordshire, England, to preserve their virginity. Ms. Bodley 34 (also known as the Katherine Group), Bodleian Library, University of Oxford.
  29. Described in the mid-fifteenth-century illuminated life of St. Catherine by the French author, illuminator, and scribe Jean Mielot (ca. 1400–1472) (Jean Mielot, *Vie de Sainte Catherine*, Marius Sepet, ed. [Nantes, 2007] p. 95), and indicated in Marco Marulo's (1450–1524) book on how to live well according to the examples of the saints, published and reprinted numerous times in the sixteenth and seventeenth centuries (Marco Marulo, *Opera di Marco Marvlo da Spalato circa l'institvione del bvono, e beato vivere, secondo l'effempio de'santi, del Vecchio e Nvovo Teftamento* [Venice, 1580] fol. 170r).
  30. Marco Filippi, *Vita di Santa Caterina vergine e martire: Composta in ottava rima da Marco Filippi* (Venice, 1592). This book was published in a number of editions beginning in 1580.
  31. *Ibid.*, fol. 151v.
  32. Jacobus de Voragine, *Legendario delle vite de' Santi* (Venice, 1588) p. 812.
  33. Pietro Aretino, *Le vite dei santi: Santa Caterina vergine, San Tommaso d'Aquino, 1540–1543* (Rome, 1977) p. 171.
  34. Known images showing milk include mss, Anon., *Regensburg Lectionary of Heilig Greuz*, 1270–1276, Keble College Library, Oxford; fresco, Bartolo, ca. 1368, Basilica of St. Francis of Assisi, Assisi (w/blood); fresco, Lucchese, 1696, Premonstratensian Monastery Church, Speinshart; fresco, Wannenmacher, 1753, St. Catherine Chapel, Schwäbisch Gmünd; altarpiece panel, Nadal and García, 1456, Cathedral of Barcelona; predella panel, Master of the Legend of St. Lucy, 1490s, National Museum of St. Matthew, Pisa; lost altarpiece panel, Suess von Kulmbach, 1514–1515; painting, Cesare, 1608, formerly in Oratory of St. Catherine, Assisi; painting, Studio of Stella, ca. 1630, Columbia, Missouri; painting, Vásquez, seventeenth century, Bogotá; painting, Wolff, 1702, Cathedral of St. Mary and St. Corbinian, Freising; etching, Braun, ca. 1609 (w/blood); drawing for etching, Braun, 1609, Wallraf-Richartz-Museum, Cologne (w/blood). There are other frescoes and paintings depicting the Martyrdom of St. Catherine where the fluid depicted is no longer visible, and in prints by Passeri and Tempesta, it remains impossible to determine the nature of the fluid. See <http://maa.missouri.edu> for a more complete listing of works.
  35. By strategically tucking Catherine's forearms underneath her body, rather than placing them above her severed neck as was done more frequently, the artist concentrated attention on the miraculous flow of milk.

36. André Félibien, *Entretiens sur les vies et sur les ouvrages des plus excellens peintres anciens et modernes*, vol. 4 (Trevoux, 1725, first published 1666–1668) pp. 652–653.
37. Stella was most likely in Rome in 1622. See Sylvain Laveissière and Léna Widerkehr, *Jacques Stella, 1596–1657*, Musée des Beaux-Arts, Lyon, and Musée des Augustins, Toulouse (Paris, 2006) p. 43; Jacques Thuillier, *Jacques Stella, 1596–1657* (Metz, 2006) p. 18. See also Anne-Laure Collomb, “La peinture sur pierre en Italie, 1530–1630,” Ph.D. diss., Université Lumière Lyon 2, 2006.
38. Poelenburgh was present in Italy from 1617 until around 1626–1627, and it is fairly certain that he worked for Cosimo II, who appreciated northern painters. Stella would also have been aware of stone paintings by Antonio Tempesta, who was known to have worked in Rome. Tempesta carefully selected his stone supports and skillfully integrated the natural patterns of the stone to enhance his compositions. See Marco Chiarini and Cristina Acidini Luchinat, *Bizzarrie di pietre dipinte: Dalle collezioni dei Medici* (Milan, 2000) p. 86.
39. Giorgio Vasari, *Le vite*, vol. 5 (*Vita di Sebastiano del Piombo*) (Florence, 1550) pp. 97–99.
40. Ibid., vol. 1 (*Del dipingere in pietra e olio, e che pietre siano buone*) (Florence, 1550) chap 24, pp. 137–139.
41. This masterful and elegant painting may have gained Stella an invitation to work at the Spanish court (Félibien, *Entretiens*, vol. 4, p. 408). Félibien is not precise on the date of this invitation from the royal court.
42. Callot’s image of St. Catherine of Alexandria shows the miraculous transport of the martyr’s body by two angels to Mount Sinai. He worked on the series from 1632 to 1635 and died with the plates still in his possession. They were first published in Paris in 1636, one year after the artist’s death, in *Les images de tous les saints et saintes de l’année suivant le martyrologe romain* (Paris, 1636).
43. The only images that come close in conveying a similar quiet scene encouraging reflection are those by Sebastián de Llanos y Valdés, *Head of St. Catherine of Alexandria*, 1652, Goya Museum, Castres, France (no visible liquid), and a painting in the style of Caravaggio, *Head of St. Catherine*, seventeenth century, Recanati, Italy (fluid not determined). Both show only St. Catherine’s head. See <http://spanishbaroqueart.tumblr.com/post/33447322072/sebastian-de-llanos-valdes-head-of-saint> (Valdés) and <http://caravaggio.com/preview/database/index.php?id=001243> (style of Caravaggio).
44. St. Mary’s Church was destroyed by fire in 1945. The painting is known from a 1940 photograph in the Bildarchiv Foto Marburg.
45. In Stella’s 1630 image of *St. Magdalene Meditating* (Munich, Alte Pinakothek), he formed a grotto out of the veins of a piece of marble or agate (Thuillier, *Jacques Stella*, pp. 70–71). In 1631 he adopted a piece of lapis lazuli for a depiction of *The Annunciation* (Civic Museum, Visconti Castle, Pavia) (Laveissière and Widerkehr, *Jacques Stella*, p. 62, cat. no. 39) and two jasper stones for the pendant pieces *Joseph and the Wife of Potiphar* and *Susanna and the Elders* (private collection) (Laveissière and Widerkehr, *Jacques Stella*, p. 98, figs. IV, 3 and 4).
46. Paintings on variegated stone are the ultimate exegesis of the exploitation of the element of chance in the artistic process. See Leon Battista Alberti, *Della pittura e della statua di Leonbatista Alberti*, Cosimo Bartoli, trans. (1503–1572) (Milan, 1804) pp. 107–108; Leonardo da Vinci, Codice urbinato lat. 1270, fol. 35v, Vatican Apostolic

- Library, *Trattato della pittura di Lionardo* [sic] *da Vinci tratto da un codice della biblioteca Vatican*, Guglielmo Manzi and Giovanni Gherardo de Rossi, eds. (Rome, 1817) pp. 59–60; and *Leonardo on Painting*, Martin Kemp, ed. (New Haven, 1989) p. 290. With stones “painted” by nature, the artist was challenged to move between the imitation of nature (*mimesis*) and invention (*fantasia*) to complete the design embedded in the stone. For more on *mimesis* and *fantasia*, see Kemp, “From *Mimesis* to *Fantasia*: The Quattrocento Vocabulary of Creation, Inspiration and Genius in the Visual Arts,” *Viator* 8 (1977) pp. 347–398.
47. Laveissière and Widerkehr, *Jacques Stella*, p. 44. It is highly doubtful that such a Roman/Caravaggesque painting can be associated with Jacques Stella’s studio in France. As Jacques Stella’s oeuvre becomes more secure, and as images of paintings on stone are more available for study electronically, the analysis of paintings on stone influenced by Stella should be more feasible. The Barberini inventories reveal that images showing St. Catherine were commonly painted on stone. An inventory of May 22, 1627, includes a painting of her on yellow jasper (Marilyn Aronberg Lavin, *Seventeenth-Century Barberini Documents and Inventories of Art* [New York, 1975] p. 11). While it is tempting to associate this painting on yellow jasper with the Missouri painting, originally thought to have been on jasper, the inventory entry describes the subject as the beheading of St. Catherine, and there is no mention of milk.
  48. For works created by Stella, see Laveissière and Widerkehr, *Jacques Stella*; Collomb, “Peinture sur pierre;” and Thuillier, *Jacques Stella*.
  49. Laveissière and Widerkehr, *Jacques Stella*, pp. 43–48, include a chronology based on archival sources, which contain some information about François. He joined his elder brother after Jacques’ departure from Florence in 1621 (Thuillier, *Jacques Stella*, p. 18).
  50. Laveissière and Widerkehr, *Jacques Stella*, p. 46. Moreover, Jacques’ niece, Claudine Bouzonnet, and nephew, Antoine Bouzonnet, both painted on stone. For the 1693/1697 inventory of the property of Claudine Bouzonnet, see Jules Joseph Guiffrey, “Testament et inventaire des biens, dessins, planches de cuivre, bijoux, etc. de Claudine Bouzonnet Stella, rédigés et écrits par elle-meme. 1693–1697,” *Nouvelles archives de l’art français* (1877) pp. 1–117. See also Mickaël Szanto, “Inventaire de Claudine Bouzonnet Stella (1693): Tableaux, dessins, estampes et livres,” in Laveissière and Widerkehr, *Jacques Stella*, pp. 246–257.
  51. The name for jasper comes from the Latin *iaspis*, which derives from the Greek word ἱάσπις meaning spotted stone. The Greek word derives from the Hebrew word for jasper, *yashpeh*. A member of the quartz family, jasper comes in many different colors and patterns, thanks to the mixture of microcrystalline quartz with various mineral impurities. The stone of the Missouri painting appears silica rich, is very fine grain in nature, and present on its back are conchoidal or curving fractures, all of which are consistent with jasper.
  52. I thank Jeffrey R. Ferguson and Michael D. Glascock of the Archaeometry Laboratory of the University of Missouri for the scientific examination of the stone, the subsequent comparison of the sample with an extensive database of obsidian samples, and the table detailing the concentration comparison between the obsidian painting and the Ucareo source. I would also like to thank Ralf T. Schmitt of the Museum für Naturkunde in Berlin for guiding me toward mahogany obsidian and away from jasper.



53. Ucareo is about 106 miles west and north of Mexico City. When archaeologists began using XRF to study obsidian artifacts from Mexico in the 1960s, they attributed obsidian that came from the Zinapécuaro–Ucareo area as Zinapécuaro. More recent research by Michael D. Glascock using XRF analysis and the XRF database now distinguishes between the three sources of Ucareo, Zinapécuaro, and Cruz Negra. According to Glascock, of the thousands of artifacts from Mesoamerica he has analyzed, several hundred came from Ucareo and only two have originated from either Zinapécuaro or Cruz Negra.
54. It mostly consists of about 70 or 75 percent non-crystallized silica (silicon dioxide) mixed with various impurities. The notable reddish veining of mahogany obsidian typically derives from inclusions of iron oxide. An extrusive igneous rock, obsidian forms on the surface of the earth from lava. Because of this, it cools more quickly than magma (which cools beneath the earth's surface) and thus has little or no crystallization. The term obsidian comes from Latin *obsidianus lapis*, which according to Pliny, was named after Obsidius who discovered the stone in Ethiopia (Pliny, *Natural History*, 37.67).
55. Deanna MacDonald, "Collecting a New World: The Ethnographic Collections of Margaret of Austria," *Sixteenth Century Journal* 33, 3 (2002) p. 653. Margaret's collection grew quickly as seen in inventories of 1516 and 1523.
56. *Ibid.*, p. 659.
57. Louvre Museum inv. no. 931 and 932. It is interesting to note that Murillo's paintings on obsidian in the Louvre were described as being on black jasper (*jaspe negro*) in the 1690 inventory of the picture collection of the Flemish merchant Don Nicolas Omazur (ca. 1630–1698). In the 1685 inventory of the previous owner, Justino de Neve, the material was listed simply as stone (*piedra*). See Duncan Kinkead, "The Picture Collection of Don Nicolas Omazur," *The Burlington Magazine* 128, 995 (1986) pp. 132–144.
58. Thomas Calligaro et al., "PIXE Analysis of the Obsidian Support to Two Paintings from the Louvre by Murillo," *Revista mexicana de física* s53 [sic], 3 (2007) pp. 43–48. A very similar version of this article first appeared in 2005: Thomas Calligaro et al., "PIXE Reveals that Two Murillo's Masterpieces Were Painted on Mexican Obsidian Slabs," *Nuclear Instruments and Methods in Physics Research, Section B* 240 (2005) pp. 576–582.
59. An Aztec mirror was considered a representation of the important god Tezcatlipoca. One of his attributes was a magical mirror with which he divined the future. The name Tezcatlipoca means "Smoking Mirror," and by the Aztec period, this deity was associated with conflict and change, as well as death, warfare, and the realm of darkness. Tezcatlipoca played an important role in Aztec creation mythology.
60. Olivier Meslay, "Murillo and 'Smoking Mirrors,'" *The Burlington Magazine* 143, 1175 (2001) pp. 73–79. According to Meslay (pp. 75 and 78), varying dimensions and differing degrees of finish on the obverses indicate that the artist made use of pre-existing supports. One additional painting on obsidian passed through Sotheby's in 1994; its current whereabouts is unknown. The auction house dated the work to the seventeenth or eighteenth century. Meslay, "Murillo," pp. 76 and 79 (illus.). It shows an *Agony in the Garden* of modest quality and is thought to have been painted by a Hispanic artist. Painted on a circular stone support, this work was probably painted on a "smoking mirror."

61. *The Martyrdom of St. Catherine of Alexandria and the Miracle of Milk* (Missouri), 18.5 x 20 x 1.7 cm; *Agony in the Garden* (Paris), 35.7 x 26.3 x 2.5 cm; *The Penitent St. Peter Kneeling before Christ at the Column* (Paris), 33.7 x 30.7 x 2.3 cm; and *The Nativity* (Houston), 38.2 x 33.5 cm. Mirrors: 21 x 16.4 x 5.5 cm; 24.2 x 22.6 x 2.8 cm; 26.2 x 26 x 2.8 cm; 3.24 x 20.6 x 3.8cm; and 39 x 22 x 3.4 cm (Musée de l'Homme); diameter 25.2 x 2 cm (Musée National d'Histoire Naturelle).
62. Cristina Acidini Luchinat et al., *Magnificenza alla corte dei Medici: Arte a Firenze alla fine del Cinquecento*, Museo degli Argenti, Palazzo Pitti (Milan, 1997) p. 180. The altar was dismantled in 1779, and the various panels were embedded into two tabletops in 1789. One of the tabletops, now in the Louvre (OA5237), perhaps contains some examples of mahogany obsidian. Note that the photograph on the website of the Agence Photographique de la Réunion des Musées Nationaux (RMN) is old and discolored. For a more recent photograph, see Annamaria Giusti, *Pietre Dure: The Art of Semi-precious Stonework* (Los Angeles, 2005) pp. 48–49. It still remains to be determined whether mahogany obsidian was used in the Medici workshops.
63. The only deviation in the strict symmetry of the frame occurs on the two sides, where one of the ribbons beneath the flower on the left is treated differently from that on the right. This may have occurred at the time the frame was carved, or may be the result of later damage to the openwork ribbon.
64. I would like to thank Richard Ford of the National Gallery of Art, Washington, D.C., for his assistance in the identification of the frame.
65. The duration of French frame styles does not precisely parallel the reigns of the monarchs after which they are named. Louis XIII reigned from 1610 to 1643, and Louis XIV from 1643 to 1715. The Louis XIII style thus overlapped the rule of Louis XIV.
66. Paul Mitchell and Lynn Roberts, *A History of European Picture Frames* (London, 1996) p. 37, and D. Gene Karraker, *Looking at European Frames: A Guide to Terms, Styles, and Techniques* (Los Angeles, 2009) p. 50.
67. For an earlier, less finely carved version of the type made in 1620, see Siegfried E. Fuchs, *Der Bilderrahmen* (Recklinghausen, 1985) p. 61, fig. 55. For a much more densely decorated version of this type of frame made around 1640–1650, see Timothy Newbery, *Frames in the Robert Lehman Collection* (New York, 2007) p. 332, fig. 275. See also Claus Grimm, *The Book of Picture Frames* (New York, 1981) pp. 203–205 for several examples of Louis XIII frames.
68. I thank Richard P. Guyette, research professor of forestry at the University of Missouri, for his help in analyzing the wood.
69. The tenons are approximately 6 cm. in height. I thank Barbara Smith and Jeffrey Wilcox of the Museum of Art and Archaeology for their assistance in examining the frame and in understanding its construction.
70. Correspondence dated 19 October 2009 with Finch and Company, London.
71. I thank the Reverend Father Luigi Martignani, archivist of the General Archive of the Capuchins in Rome, for his help with the history of the order.
72. Paul Moulin, *Documents relatifs à la vente des biens nationaux. Département des Bouches-du-Rhône*, vol. 3 (Marseille, 1908–1911) pp. 407 and 409.
73. I thank Cecile Grignard, archivist of the Bouches-du-Rhône departmental archives, for reviewing the relevant materials. It should be noted that in 1306 the White Penitents founded a church dedicated to St. Catherine in the village of l'Isle, Commune of

- Martigues. Alfred Saurel, *Histoire de Martigues* (Marseille, 1972) p. 83. This was sold in 1798 (Moulin, *Documents*, p. 416). Further research in the archives of the Bouches-du-Rhône (L1475; 1Q 235, 1Q738, 1Q755–757; and additional records) might help in determining whether the painting was present in France in the eighteenth century.
74. The Walter Padovani Gallery, Via Santo Spirito 26/A, 20121 Milan, found no information about the painting in the gallery archives (email 18 October 2011).
  75. Christie's Auction Catalogue, *Important Old Master Pictures*, sale no. 7290, December 8, 2006, London, p. 148.
  76. See n. 28.
  77. Girolamo Zonca, *Il pomogranato panegirico, overo discorso in lode della vergine, e martire Santa Caterina d'Alessandria Gloriosissima Spofa di Chrifto Nofro Signore* (Florence, 1631).
  78. Also known as the Song of Solomon or as the Canticle of Canticles, this collection of poems is often attributed to Solomon but was more likely assembled later. For more on the Song of Songs, see Anselm C. Hagedorn, ed., *Perspectives on the Song of Songs/ Perspektiven der Hoheliedauslegung* (Berlin, 2005).
  79. Zonca, *Pomogranato*, p. 16.
  80. Paola Tinagli, *Women in Italian Renaissance Art: Gender, Representation and Identity* (Manchester, 1997) p. 98, and Luke Syson and Dora Thornton, *Objects of Virtue: Art in Renaissance Italy* (Los Angeles, 2001) p. 56.
  81. Jacobus de Voragine credited St. Catherine with the special merit of preaching, which was generally prohibited to women (Reames, *Legenda aurea*, p. 107).
  82. Zonca, *Pomogranato*, p. 15.
  83. *Ibid.*, p. 14.

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