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Beyond beauty : reexamining architectural proportion in the Basilicas of San Lorenzo and Santo Spirito in Florence

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4. The Construction History of the Fifteenth-Century Basilica of San Lorenzo: A Proposed Narrative

The basilica of San Lorenzo is one of the most intensively studied buildings in Florence (Figures 2-1 and 2-3). Today the fifteenth-century core of a large religious and funerary complex that embodies over half a millennium of architectural accretion, this basilica has attracted the sustained attention of chroniclers and historians beginning even before its completion in the 1480s due to its exceptional architectural and historical significance, and to the survival of extensive archival materials pertaining to its construction and patronage.[1] Most architectural historians agree that the basilica of San Lorenzo, which owes its present appearance primarily to Filippo Brunelleschi, constitutes the first fully-developed example of the Renaissance style. Questions remain, however, about the extent and chronology of Brunelleschi's contributions, and to what extent the old Romanesque basilica of San Lorenzo that the present one replaced (hereinafter referred to as "the old basilica") influenced the present design.

With the gradual takeover of control and construction of the church by the Medici family during the first half of the fifteenth century, the basilica marked a turn toward unprecedented scale in the history of private architectural patronage. It also became a representation of Medici influence, for the family's intricate web of alliances with other powerful families finds expression in the patronage histories of the private chapels that ring it.[2] Important questions remain here, too, regarding the patronage and construction chronologies of various chapels relative to both the demolition of the old basilica and the construction of the present one. The present study aims to answer these and other questions by considering new evidence of sets of proportions in this basilica, derived from direct observation of the building fabric, and by doing so in the context of a comprehensive reappraisal of all the evidence that scholars have previously brought to bear on the problem of the construction history of this basilica.

4.1 Methodology

The early historical narratives of the basilica of San Lorenzo include Antonio di Tuccio Manetti's *Vita di Brunelleschi* (composed c. 1486), and later works that elaborate upon it with assorted documentary references and anecdotal accounts, including those by Giorgio Vasari (1550 and 1568), Ferdinando Leopoldo del Migliore (1684) and Giuseppe Richa (1757).[3] Modern scholarship pertaining to the history of the church may be considered to have begun with Pier Nolasco Cianfogni's *Memorie istoriche* of 1804 and its two-volume continuation of 1816-17 by Domenico Moreni.[4] Although Cianfogni and Moreni's footnoting methods do not meet modern scholarly standards of verification, these studies distinguish themselves from previous works through

their extensive use of church and communal archives. German scholarship dominated San Lorenzo historical research from the late nineteenth to the mid-twentieth centuries, most notably in the works of Cornelius Fabriczy (1892) and Walter and Elisabeth Paatz (1940).[5] Spurred on by two anniversary celebrations—the 600th anniversary of Brunelleschi's birth in 1977 and the millennial anniversary of the foundation of the church in 1993—later twentieth-century research into the history of the fifteenth-century basilica became an energetic international enterprise, with significant new advances in documentary research and analysis contributed most notably by Howard Burns, Caroline Elam, Isabelle Hyman, Jeffrey Ruda, Pietro Ruschi, Howard Saalman; Piero Roselli and Orietta Superichi (jointly); and Franco Borsi, Gabriele Morolli and Francesco Quinterio (jointly).[6] More recently, my studies have contributed new observation-based and documentary evidence and analysis to the study of this basilica.[7]

The extensiveness of the available primary and secondary source materials pertaining to the fifteenth-century construction history of the basilica of San Lorenzo is today both an aid and a hindrance to the advancement of our understanding of this subject. These materials, while numerous and chronologically expansive, are so widely dispersed in often hard-to-find publications, and the historical problems they pertain to so complex, that mastery of them requires a time commitment that most scholars cannot afford. Furthermore, no monographic treatment of the basilica has yet provided a sufficiently comprehensive analysis of this literature to serve as a point of departure for future research.[8]

This study presents a new chronological narrative of the fifteenth-century construction history of the basilica of San Lorenzo that hews closely to the sequence of available historical documents that directly address this topic. For ease of reference, I have transcribed these documents into a *regesto*, supplemented by later documents that internally refer to relevant earlier events, such as Manetti's *Vita* (a biography composed in the late fifteenth-century that refers to the early fifteenth-century construction).[9] This historical narrative also takes into account observation-based evidence such as measurements and proportional analysis, and selected observations made by other scholars.

The historical narrative presented in this study incorporates two recent proposals of mine that have proven contentious due, I believe, to their novelty and complexity. These proposals are, first, that the old basilica was not axially aligned with the present basilica nave as most scholars believe, and that consequently the width of the former exerted no influence over the width of the latter; and second, that most of the sets of proportions and overall spatial conception of the present basilica, including the Old Sacristy, was designed by Matteo di Bartolomeo Dolfini, the prior and *capomaestro* of the church from 1417 to about 1422, before Brunelleschi took over the latter

position.[10] Since these two proposals depend on a chronologically broad range of historical data, I will address them each individually, before proceeding to the narrative. This method requires that some evidence be examined more than once in this chapter, in different contexts. The two proposals in question are quite challenging, and require a willingness on the part of the reader to devote equal attention to diagrams and measurements as to documentary evidence.

This study is based on the following three assumptions: 1) documentary evidence is accurate unless contrary evidence indicates otherwise, 2) hypothetical scenarios do not constitute historical evidence, and 3) the sets of proportions that I have identified in the basilica of San Lorenzo, though based on my interpretation of measurements and other evidence, rise to a high enough level of historical certainty to be considered genuine historical artifacts.

4.2 The Old Basilica of San Lorenzo

We know what the old basilica looked like, and its approximate location and orientation, from a detailed fifteenth-century view in the Codex Rustici of c. 1444 (Figure 4-1). This view is likely to be very accurate because it was drawn by Marco di Bartolomeo Rustici, a goldsmith, miniaturist and writer who lived in the Quartiere San Giovanni, attended San Lorenzo as his parish church, and was buried there in 1457.[11] The view depicts a small, narrow, Romanesque-style basilica with a gabled façade punctuated by a large oculus, three doors (of which only two are shown due to the angle of view) and a small arcaded portico enclosed on the sides by extensions of the basilica side walls. It had two side aisles but no physical nave chapels, and a single door in the side wall shown. Also seen in the Rustici view, in the background between the old basilica roof and the old campanile, is the dome of the Old Sacristy. Completed in 1429 (modern style), the inclusion of this dome not only provides a *terminus post quem* for the view, but an indication that the old basilica faced southeast like the present one does, and stood approximately within the site of the present nave. These observations are consistent with the way in which the old basilica is mentioned in two documents dating from 1418 and 1442. The first expresses the intention of the church prior and canons to undertake construction of a portion of the new church that would extend from the rear of the old church (*ex posteriori parte extendi*).[12] The second refers three times to an agreement by Cosimo de' Medici to begin building the new basilica behind the old one, and to continue it as far as the high altar of the old basilica (*ad altare maius antiquum*)—i.e., presumably to the back wall of the old church.[13] Thus, according to the three fifteenth-century documents consulted above (the Rustici view and the documents of 1418 and 1442), much of the new basilica was planned to rise behind the old basilica.

The Rustici view also provides essential information for recreating the floor plan of the old basilica. The careful depiction in it of seven clerestory windows—if accurate—indicates that the basilica had two arcades of six freestanding columns each, perhaps to represent the twelve apostles, much like the Romanesque-style basilicas of Ss. Apostoli (Figure 4-2a) and San Pier Scheraggio in Florence.[14] Finally, the Rustici view shows a tall, apparently *trecento* campanile rising behind the old basilica, terminating the right side aisle just like the campanile of Ss. Apostoli (Figures 4-1 and 4-3).[15] The two parallel vertical lines that separate the basilica from the campanile in the Rustici view can be interpreted in two ways: either a narrow gap separated the two structures, the north walls of which were coplanar, or the campanile touched the back wall of the basilica and was offset slightly to the north. Since the first interpretation seems impractical (what purpose would such a narrow gap have served?), I will assume that the old campanile touched the back of the old basilica, similar to the arrangement found at Ss. Apostoli (Figures 4-1, 4-2a-b and 4-3). The slight difference between these two possible interpretations of the Rustici campanile, however, has no significant bearing on the following analysis.

The evidence presented above, combined with other information, now enables us to reconstruct the old basilica footprint very precisely with respect to the present one. This reconstruction is a five-step process that consists of individually locating the old campanile, and all four walls of the old basilica.[16]

Step 1: Locate the West Wall of the Old Basilica

The former location of the west (rear) wall of the old basilica in relation to the present basilica can be determined in part from the documents of 1418 and 1442 noted above. In 1418, Prior Dolfini petitioned the signoria to cede to the church a plot of land adjacent to the existing church property in order to "remake, enlarge and beautify" (*ampliare, et pulcherrimis edificiis reformare*) the existing building.[17] Some scholars interpret the word "enlarge" (*ampliare*) in this passage as an indication that the reconstruction project was conceived as a permanent addition to the back of the old basilica.[18] Available evidence, however, indicates that both Dolfini and Brunelleschi always intended to replace the old basilica with an entirely new one, greatly enlarged and made more sumptuous with respect to the old one.

In his petition, Dolfini notes that the portion of the proposed new basilica that would exceed the length of the old basilica, including chapels and one sacristy, would "…extend from the back part [of the old basilica] in length 65 braccia, and in width 110 braccia in line with the [transept] chapels…."[19] Previous studies that correlate these specifications with existing conditions do not refer to measurements of the present basilica.[20] My new survey now enables comparison between

Dolfini's specifications and present conditions with great precision. At issue in the present discussion is Dolfini's length dimension, which I will measure within the present basilica by proceeding in an easterly direction from the back wall of the present high altar chapel (Figure 2-1), adding up the various component dimensions from my survey to arrive at a distance of exactly 65 br. (3793.3 cm), and thus, at the likely location of the former back wall of the old basilica referred to in Dolfini's petition of 1418.

The first component of this 65 br eastward measurement to consider is the thickness of the back wall of the present high altar chapel. Unfortunately, a measurement relevant to the fifteenth century cannot be recorded here, since the entire wall, with its foundation, was rebuilt in the eighteenth century.[21] In 1837 a large portion of this reconstructed wall, which separated the high altar chapel from the Cappella dei Principi was removed. Twenty years later it was largely rebuilt again to its present form that includes a central doorway, column-supported organ loft and other *pietra serena* articulations (Figure 4-4).[22] On the east side, the plinths of the nineteenth century pilasters associated with this remodeling are not only smaller than those of the fifteenth-century pilaster plinths found elsewhere in the basilica, but project from base moldings that are not found elsewhere in the basilica. On the west side of this wall the various structural components and finishes of the Cappella dei Principi add unknown thickness to the wall relative to the location of the original exterior wall surface.

Rather than incorporate a highly compromised wall thickness measurement into this analysis, I will assume that the original thickness of this wall, combined with the original projection of each pilaster plinth into the high altar chapel, measured 2 br (116.8 cm), based on observations made elsewhere in the basilica. I will conservatively assume that this estimate is accurate within 40 cm (about $\frac{2}{3}$ br.).[23] I will also assume that the eastern edges of the present nineteenth-century corner pilaster plinths today occupy the same locations as the same edges of the original fifteenth-century plinths, and I will again assume that this estimate is accurate within 40 cm (about $\frac{2}{3}$ br). As we will see, these assumed potential discrepancies have minimal bearing on the following analysis.

Starting at the northwest corner of the present high altar chapel (Figure 2-1), from the assumed original outside surface of the west wall, and proceeding to the eastern surface of the plinth of SP 39 (Fig. 2-1), the first measurement to be contributed toward our target of 65 br (3793.4 cm) is the assumed wall thickness plus the pilaster plinth projection of SP 39, 116.8 cm (2 br), as noted above. The length of the side wall of the high altar chapel, measured from the plinth of SP 39 to the plinth of CP 5 measures 1085.1 cm (18.59 br). For the plinth width of CP 5 (which is compromised)

I will enter that of CP 4, 116.8 cm (2 br). The transept depth measured plinth to plinth from CP 5 to CP 8 is 1119.7 cm (19.19 br). The plinth width of CP 8 is 116.8 cm (2 br). The plinth projection of FP 7 is 30.5 cm (0.52 br). The first nave arcade bay width measured plinth to plinth from FP 7 to Col 8 is 563.5 cm (9.66 br). The plinth width of Column 8 is 116.9 cm (2 br). The sum of the preceding measurements is: 116.8 cm + 1085.1 cm + 116.8 cm + 1119.7 cm + 116.8 cm + 30.5 cm + 563.5 cm + 116.9 cm = 3266.1 cm, or, 55.96 br. In order to arrive at 65 br, we must proceed another 527.3 cm (because 65 br = 3793.4 cm; and 3793.4 cm - 3266.1 cm = 527.3 cm, or, 9.01 br), to the location indicated by Line A_1 in Figure 4-5. This location is 38.9 cm, or about $\frac{2}{3}$ br, west of the column plinth of Column 9.

Since I have previously shown that the entire San Lorenzo set of proportions is measured plinth to plinth, a second measurement of 65 br starting from the plinth of SP 39 (as an assumed close approximation of the original fifteenth-century plinth location) is worthy of examination, even though it raises the difficult question of whether the Florentine *signoria* would have allowed the church to build the combined thickness of the high altar chapel wall and pilaster plinths outside the boundary of the land ceded in 1418. This second measurement begins and ends 116.8 cm (2 br) east of the first one, as indicated by Line A_2 in Figure 4-5. This measurement is of particular interest because it arrives just 5 cm east of the center line that passes through both Column 9 and the wall between chapels SP 66-SP 67, and SP 67-SP 68 (Figures 2-1 and 4-5).[24]

Also relevant to this analysis is the aforementioned document of 1442. It is a notarial record of the concession of the rights of patronage of the new high altar chapel and all other parts of the new basilica “up to the old high altar” (*ad altare maius antiquum*), excluding those chapels to be built by other private citizens, to Cosimo de' Medici in exchange for his commitment to build those portions of the basilica at his own expense within six years.[25] A detailed construction ledger maintained for Cosimo between 1441 and 1452 indicates that in July 1446, six nave columns were ordered, and that on 24 October 1446, excavation for the foundations of these six columns began.[26] Between 3 February 1448 (modern style) and 31 January 1450 (modern style), numerous payments are recorded for the manufacture and delivery of all six column shafts, as well as the associated bases, capitals, entablature blocks, and arches.[27] No payments for additional columns or entablature blocks are noted in the ledger, and today a sharp break in quality between the western six columns and the eastern eight columns in the nave further indicates that the nave was built in two distinct phases (Figures 2-8 to 2-13).[28] Thus we may assume that the high altar of the old basilica stood in the vicinity of Columns 5 and 10 (Fig. 2-1), indicated by Line A_3 in Figure 4-5. The space between Line A_3 and

either Lines A_1 or A_2 in Figure 4-5 can be explained by the location of the old campanile, the precise determination of which requires that we first locate the north wall of the old basilica.

Step 2: Locate the North Wall of the Old Basilica

The Rustici view shows a piazza fronting the old basilica façade and wrapping around most of the north wall (Figure 4-1). At the west end of this extended northern piazza, next to the old campanile, appears a small, irregular structure built up against the north wall of the basilica. Along the length of this wall, well above the height of this irregular structure, are four side aisle windows, perhaps indicating that additional buildings once flanked this wall, except in front of the northern side door. If so, these buildings were probably removed after the *signoria* issued a decree on 16 March 1434 (new style) ordering that an entire block of buildings in that area be demolished to create the piazza.[29] Since a public decree was required to execute the demolition, no record of the demolition has been found in the church archives, and the land to be cleared was, according to the decree, occupied by "dishonest persons" (*persone inhoneste*), we may assume that the church did not own that property.

Indeed, the north wall of the old basilica appears likely to have been built right up to the church property line (in which case either the campanile, as reconstructed in Figure 4-5, projected over the property line slightly, or the property line jogged around it). I will assume that Dolfini laid out the new basilica in such a way that the north wall of the new nave would have stood exactly where the north wall of the old nave stood, both to use church property as efficiently as possible, and to reuse the old basilica's northern foundation wall. The north wall of the *present* basilica nave, however (Figure 2-1), probably does not stand on the location that Dolfini, and Brunelleschi after him, intended it to. In order to determine the most likely location of the north wall of the old basilica, we must first reconstruct the floor plan Dolfini originally intended for the new basilica. In order to do that, we must use the footprint of the present basilica to reconstruct the floor plan that Brunelleschi originally intended, which he appears to have willingly inherited from Dolfini.

The San Lorenzo set of proportions, according to my measurements and analysis, establishes a closely approximated root-2 rectangle for the proportions of the present nave (Figure 3-4). That rectangle spans in length from the pilaster plinths attached to the two easternmost crossing piers, to those attached to the interior façade. In width it spans to the two ends of the transept, again measured plinth-to-plinth (and thus encompassing the two corner chapels, SP 12-15 and SP 60-63 in Figure 2-1). The present nave chapels are not deep enough to fill this rectangle, but they would have been had they been made approximately twice as deep as the present ones, as shown in a sketch of c. 1480 by

a follower and younger contemporary of Brunelleschi, Giuliano da Sangallo (Figure 3-5).[30] Although two prominent features in this sketch, the façade portico and the series of domes (indicated by circles), appear to be Giuliano's own inventions, the deep nave chapels appear likely to reflect his inside knowledge of Brunelleschi's intentions.

According to Manetti, after Brunelleschi had taken over the post of *capomaestro* from Dolfini and Giovanni de' Medici had assumed patron-like control over the project, Giovanni was unable to find patrons for more than eight private chapels. He thus directed Brunelleschi to remove all the nave chapels that Brunelleschi had envisioned, and Brunelleschi complied "unwillingly, because it seemed to him a miserable thing…."[31] Comparing the floor plan scheme that Brunelleschi probably intended (Figure 3-5, minus Sangallo's hypothetical portico and second sacristy) with the one he was forced to accept (Figure 3-5, minus the portico, second sacristy, and deep nave chapels), we can appreciate Brunelleschi's unhappiness. Not only did the nave become spatially constricted, but the root-2 rectangle proportional framework became irrelevant (see Figure 3-4, minus the nave chapels). Manetti, for his part, appears to have been equally unhappy with the *present* nave chapels, added after 1457 (Figure 2-1).[32] His lament that "…the body of the church, from the transept downward [i.e., the nave]…although beautiful, does not conform to the aforesaid transept," implies that he, and therefore presumably Brunelleschi, would have preferred deeper and taller nave chapels to match the transept chapels.[33]

In Chapter 6, I will argue that the geometrically rigorous, deep nave chapel scheme shown in Giuliano's sketch (Figure 3-5) represented a major architectural innovation of the late fourteenth century that originated with the basilica of Santa Maria del Carmine in Pavia, which was designed by Bernardo da Venezia and begun c. 1376. I will furthermore argue that the design of this Pavian basilica exerted a significant influence over northern Italian church architecture for well over a century, including the late fourteenth-century basilica of San Petronio in Bologna, the reconstruction of the basilica of Santa Trinita in Florence during the same period, and possibly Dolfini's design for the basilica of San Lorenzo.[34] All of this evidence strongly indicates that both Dolfini and Brunelleschi intended the present basilica to be lined with deep nave chapels such as those shown in Giuliano da Sangallo's drawing. If Dolfini wanted the north wall of his new basilica to stand on the foundation of the north wall of the old basilica, therefore, he had to place the wall that formed the backs of his planned deep nave chapels along Line B in Figure 4-5 (compare with Figure 3-5).[35] Our next task is to determine exactly where along that property line, in the east-west direction, the old campanile stood (even if it exceeded that line slightly to the north, as posited above).

Step 3: Locate the Old Campanile

Although scholars have proposed several locations for the old campanile (as discussed below), documentary evidence locates it at least partially on the site of the nave chapel adjacent to the northern side door, between SP 67 and SP 68 (Figure 2-1). That location corresponds to the space formed by the intersections of Lines A_2, B, and A_3 in Figure 4-5 (though I show the campanile trespassing slightly over Line B, for reasons noted above). A marble plaque in the west wall of this chapel, dated 1760 and today partially obscured by a wooden confessional, states that in the space now occupied by this chapel the "old church bell tower once rose" (…*hic ubi campanaria vetusti temple turris adhuc assurgebat*...).[36] The plaque bears the name of the founder of the chapel, Benedetto di Antonio di Giovenco de' Medici, and the year in which he issued a codicil, 1465, directing his descendants to build this chapel in honor of S. Bernardo.[37] In that codicil Benedetto specifies that the chapel was to be like the others in design, and located "on the site where at present stands the campanile" (*et in loco, ubi de presenti est Campanile*).[38] Whether Benedetto's eighteenth-century descendants who installed this plaque had other evidence of the campanile location, in addition to this codicil, is unknown. A document of 1690, however, at least confirms the patronage of this chapel by referring to it as "the Medici Chapel next to the side door" (*la Cappella de'Medici accanto alla porta del fianco*).[39]

Further confirming that the old campanile was located on the site of the Medici chapel next to the present northern nave side door is a record of payment, dated 30 July 1448, to the stone mason Bindo di Franco for supervising the construction of 146 br of brick wall that included the "the door of the bell tower" (*po*[*r*]*ta dal campanile*); probably a reference to the present northern side door, which, as indicated by this description, appears to have once stood next to the campanile.[40] That the campanile remained standing during construction of the nearby portions of the nave throughout 1448 and 1449, and thus did not obstruct this work, is indicated by six more records of construction payment from 1449 that use the old campanile as a point of reference, as in the passages: "the arches above the round columns near the campanile," and "the big columns on the side near the campanile."[41]

Indeed, that the campanile remained standing as late as 1463 is indicated by a *sepoltuario* of that year that mentions the campanile as a point of reference for the locations of tombs in the crypt.[42] The campanile was probably demolished in 1481, and construction of the aforementioned Medici chapel on that site, envisioned since 1465, probably followed soon thereafter.[43] Additional evidence in support of my proposed location of the old campanile is presented below (under "c. 1475—June 1481: Demolition of the Old Campanile").

Step 4: Locate the Façade Wall of the Old Basilica

I have argued above that the north wall of the old basilica appears to have been built right up to the church property line, and that the originally-intended north wall of the present basilica nave, which was intended to enclose nave chapels approximately twice as deep as the present ones, was intended to be built on the foundations of the old north wall (Line B in Figure 4-5). I now similarly propose that the front façade of the present basilica very nearly marks the former location of the front of the old basilica portico (Figure 4-1). Since the horizontal, projecting striations in the present façade indicate that a formal façade incrustation was intended (Figures 4-6 and 4-7), I have drawn Line C in Figure 4-5 parallel with and 1 br east of the present façade in order to accommodate a minimum estimated thickness of the originally-intended but never-executed formal façade. Line C thus also represents my estimated location of the front edge of the portico of the old basilica.

This 1 br gap between Line C in Figure 4-5 and the present façade accommodates documentary evidence that portions of the foundation of the old basilica portico may have survived into the early sixteenth century. In December, 1516 Bacio d'Agnolo wrote to Michelangelo, who was then planning a new façade for the basilica, with the report that the weight of the new façade would require a new foundation because an old one excavated on the site, which he describes as the "foundation of the old portico" (*fondamento del porticho vechio*), was of poor quality.[44] Although Bacio's association of this foundation with the old portico is repeated in several subsequent documents written by others, another letter to Michelangelo by Andrea Ferrucci written in July 1517 reports that work on the new foundation continues slowly "…because we are finding many old walls that must be removed."[45] Thus, it seems possible that the foundation Bacio associated with the old portico in fact belonged to some other structure. Whatever the subterrannean structure in question was, the Bacio correspondence serves as an important reminder that if we are going to take the front edge of the present façade as an estimated location of the former front edge of the old portico, we must imagine the present façade thickened with the intended formal façade incrustation, and adjust our estimated old portico location accordingly, as shown by line C in Figure 4-5.[46]

Step 5: Locate the South Wall of the Old Basilica

Although no evidence of the former location of the south wall of the old basilica has yet come to light, an estimate of its location can be made from the evidence presented above pertaining to the rest of the old basilica. Since the Rustici view indicates that the old basilica resembled the extant basilica of Ss. Apostoli, we can use the floor plan of that basilica and campanile (Figure 4-2) as a likely approximation of the old basilica floor plan. First we add to the Ss. Apostoli floor plan a

portico drawn to approximate the one shown in the Rustici view. Next we insert this modified Ss. Apostoli floor plan into the San Lorenzo site plan by placing the campanile on the location indicated in Figure 4-5. Finally, we adjust the scale of this plan, without altering its proportions, until it fits within the guidelines drawn in Figure 4-5. Note that this scalar adjustment, which gives us Line D in Figure 4-5, is a qualitative exercise involving no measurements. It simply attempts to determine approximately where the south wall of a basilica that resembled the basilica of Santo Apostoli would have been located had the other three walls fallen along lines A3, B and C.

The resultant floor plan provides approximate internal dimensions for the old basilica of $27\frac{1}{3}$ br (15.95 m) wide by $54\frac{2}{3}$ br (31.9 m) long, and thus suggests a Romanesque basilica of average size for Florence: the old basilica thus appears to have been approximately 40% larger in area than the basilica of Ss. Apostoli, and 50% smaller than that of San Miniato al Monte (Figures 4-2a-c).[47]

The Orlando Testament

The reconstruction of the old basilica shown in Figure 4-5 helps to illuminate the otherwise ambiguous architectural references in the testament of Orlando di Giovanni d'Orlandini, dated 9 October 1464. The testament provides for the maintenance of a lamp in the "church of San Lorenzo of Florence" to illuminate an image of the Virgin Mary "... situated on the second column to the right of the entrance to the said church, or at the column, which is in said church, closer by, and near the door through which one goes out and proceeds in a straight line to Via della Stufa …."[48] Athough this document does not indicate whether it refers to the old or new basilica, present site conditions indicate that it refers to the former. The present basilica does not have a door that opens "in a straight line" to Via della Stufa, but the old basilica appears to have had one.

Since according to my reconstruction the old basilica contained two arcades of six freestanding columns each, a door located at the terminus of a southerly extension of the centerline of Via della Stufa would have entered the old basilica nave between the second and third columns of the right arcade (arrow, Figure 4-8). This floor plan reconstruction is therefore consistent with the Orlando testament's description of the "second column to the right," if this passage is interpreted from the point-of-view of someone entering the old basilica through the central façade door. Other documents from 1420, 1423, 1427, 1434, 1444 and 1445 (modern style) refer to a door in the church of San Lorenzo—whether in the old or new basilica is not specified—as either opening opposite Via della Stufa, or simply as the "porta della Stufa."[49] The first four of these references could not be associated with the new basilica nave because construction of it did not begin until the 1440s.[50]

While Orlando's decision to provide for the maintenance of a lamp in a basilica that was slated for demolition might seem shortsighted, he must have had an agreement with the church to transfer the Marian image and lamp to the new basilica once it was completed. Indeed, a document of 3 August 1501 records another provision made for this image, which by then had indeed been moved to a comparable location in the new basilica. In the 1501 document the image is referred to as "Our Lady of the Column" and was located "...in the first chapel next to the porta Ambrosiana on the north side."[51] Such arrangements appear to have been common in the fifteenth century. On 21 July 1423, for example, the church granted the Rondinelli family permission to demolish its family chapel in the old basilica and to build one in a corresponding position in the new basilica, south of and adjacent to the high altar chapel.[52]

Another example of such an agreement is found in the document of 1423 noted two paragraphs above. According to it, the prior and chapter allocated to Ser Giovanni Bonaiuti a place in which to construct an altar "…in front of the door or opening that is called the door of the via della Stufa…," with a stipulation that anticipates the future construction of the new basilica on the site of the old one.[53] The stipulation provides that "…if at any time it should happen that the chapels should grow in number and it should become the case that in the said place it would be necessary that a chapel should be made similar to the others that were being made there for the ornament and enlargement of the said church…," then Buonaiuti and his heirs should be required to build such a chapel, and if they fail to do so within one year or more, the prior and canons can allocate another place in the church for this altar.[54]

The only inconsistency between: 1) my reconstruction of the old basilica presented above, 2) the various documentary references to the old basilica door that opened in line with Via della Stufa, and 3) the Rustici view, is that while the latter indeed shows a door in the north side of the old basilica, it shows it slightly too far to the west (viewer's right) for it to have both opened between the second and third columns of the north arcade, and to have been aligned with the street in question (Figures 4-1 and 4-8). I am unable to explain this discrepancy except to propose that this particular detail of the Rustici view is incorrect, and that Rustici should have drawn the door a bit farther to the east (viewer's left). With the exception of the Rustici door, this reconstruction of the old basilica location and configuration satisfies all significant constraints imposed by documentary evidence and site conditions. Although it does not address the possible differences in floor levels between the old and new basilicas, or in the street levels that originally surrounded these structures, these issues do not appear to have any significant bearing on design decisions that led to the present form of the basilica.

Previous Reconstructions of the Old Basilica

Following Saalman and Herzner, most Brunelleschi scholars over the past six decades have supported one of two configurations for the footprint of the old basilica in relation to the present one. Although the five-step reconstruction of the old basilica footprint presented above effectively refutes these proposals by identifying several historical requirements that my proposal, but no previous ones, can satisfy, the question of the location of the old basilica remains contentious.[55] Therefore, a summary of Saalman's and Herzner's positions, followed by a presentation of selected contrary evidence, is warranted.

Saalman presented his first of two proposals for the old basilica in 1958, placing the old campanile on the site of the present nave chapel adjacent to the northern side door (or, approximately where I have placed it; see Figure 4-5). In this proposal he drew the body of the old basilica as occupying the full width of the present nave, including the present nave chapels (Figure 4-9a).[56] This proposal presents a nearly square footprint for the old basilica that reflects neither the narrow proportions of the basilica shown in the Rustici view, nor of any extant Romanesque basilica in Tuscany. In 1985 Saalman revised his old basilica proposal with a partial floor plan diagram, cut off at mid-nave, showing the superimposed outlines of both the old and new basilicas. In this proposal Saalman places the old campanile in the side aisle bay immediately in front of the present northern side door, and shows the body of the old basilica occuping the width of the present nave, *excluding* the present nave chapels (Figure 4-9b).[57]

Although Saalman provides no explanation for the changes he introduced in 1985, his motivations can be inferred from information in his Brunelleschi monograph of 1993. There he reports having had a conversation in 1982 with "Professor Guglielmo Maetzke, Superintendant of Antiquities in Florence" regarding excavations made in the underchurch of San Lorenzo following the flood of 1966. During this work, Saalman claims, "the lower parts of the wall of the Romanesque campanile and perhaps a small part of the north wall of the Romanesque church were uncovered under the seventh northern (portal) chapel."[58] This wall fragment (Figure 4-10), to be discussed in detail below, lies beneath SP 66 and SP 67 (Figure 2-1). Saalman has interpreted it to be the northernmost side of a formerly square campanile foundation, as shown in his reconstruction (Figure 4-9b). Why he did not interpret it to be the *southernmost* side of such a foundation, and thus place his proposed campanile on the site of the present northern side door, is unknown.

Also unknown is why Saalman changed the width of his proposed old basilica footprint of 1958 to exclude the present nave chapels in 1985. Perhaps, after relocating his proposed old campanile as noted above (Figure 4-9b), he followed the Rustici view in making the north walls of the campanile and old basilica coplanar (Figure 4-1). Another possibility is that he followed Herzner's

1979 proposal, a source that Saalman does not cite in this context but includes in his 1993 bibliography.[59] Herzner bases his belief that the width of the old basilica matched the width of the present basilica, excluding the present nave chapels, primarily on two assumptions: first, that the new basilica project was originally conceived and executed as an addition to the back of the old basilica (based on his reading of the 1418 use of the term "enlarge" [*ampliare*] noted above); and second, that the two vertical seams in the present façade, located at the junctions of the nave chapels and side aisles (Figures 4-6 and 4-7, above the arrows), represent the outlines of the old basilica.[60] Since Herzner's complex proposal is not illustrated, it cannot be evaluated in detail. An alternative proposal for the origins of the façade seams is presented below (see "April 1465—c. 1475: Demolition of the Old Basilica…").

Subsequent scholars have repeated the proposals of Saalman and Herzner while providing little or no elaboration, but occasionally creating some confusion. In 1979 Borsi, Morolli and Quinterio presented Saalman's 1958 old basilica proposal in a series of axonometric drawings that obscure important details that might have clarified it.[61] In 1980 Roselli and Superichi presented essentially the same scheme, but reduced the width of the old basilica to exclude the present nave chapels.[62] In 1992 Elam concluded that "it is safe to assume that the old basilica corresponded in width to the present church without the side aisles…," thus aligning herself with both Herzner's proposal and Saalman's 1985 proposal; but allowed that "…in length it occupied between five and six bays of the present building," thus wavering between Saalman's 1958 and 1985 proposals.[63] In 1993 Saalman republished his partial floor plan diagrams from 1985; as did Ruschi, who also published a slightly elaborated revision of them, redrawn at full length; and Morolli reverted to Saalman's 1958 proposal.[64] In 1994, 2006 and 2007 Pacciani, Bruschi and Ruschi, respectively, again presented Saalman's 1985 proposal.[65] In 2007 Morolli republished Ruschi's 1993 floor plan drawing of Saalman's 1985 proposal, together with a cross-section drawing by Ferruccio Canali (previously published in 1993) that illustrates Saalman's 1958 proposal, even though the two proposals are incompatible with one another.[66]

Herzner's proposal of 1979 and Saalman's proposal of 1985 are supported, according to their authors, by three pieces of documentary and physical evidence, and a mass of circumstantial evidence. While counterarguments to the latter circumstantial evidence would be tedious affairs requiring far more text than the original scholars have devoted to this question, the first three pieces of evidence need to be refuted definitively here if any further progress is to be made in understanding the construction history of the basilica of San Lorenzo. Regarding these three pieces of evidence in question, first, as noted above, there is no reason to interpret the term "enlarge" (*ampliare*) used in the 1418 petition to mean that the old basilica was intended to be extended by new construction.

Second, there is no reason to interpret the present vertical façade seams as related in any way to the old basilica.[67] The third piece of evidence is the masonry fragment in the underchurch, which requires a separate discussion.

Saalman's "Foundations of Old Campanile"

Following Saalman, most San Lorenzo scholars believe that a fragment of what appears to be a medieval masonry wall containing a crudely-constructed relieving arch, located in the underchurch below the present northern side door, is a remnant of the foundation of the old basilica campanile (Figure 4-10). This theory, which Saalman has never explained in detail, evidently assumes that this old wall fragment is the northernmost of four similar walls that once formed a square directly below the aisle bay in front of the present northern side door (Figure 2-1).[68] This theory, however, is not only inconsistent with the preceding evidence regarding the location of the old campanile (see above, "Step 3: Locate the Old Campanile"), but ignores practical and structural considerations. Documents discovered by Saalman indicate that the campanile was demolished in 1481.[69] Had the campanile stood in the seventh northern aisle bay until that year, it would have obstructed circulation through both the northern side aisle and the northern side door for over three decades.[70] Furthermore, it would have impeded construction of the nave arcades and side aisle vaults. Another serious problem with Saalman's theory is that the segment of masonry wall in question does not appear to be a campanile foundation at all.

A relieving arch deflects vertical loads laterally, removing load from the ground immediately below the arch and distributing it to the sides, while adding horizontal loads. Thus, as the weight above the arch presses downward, the arch tries to spread open, pushing its feet simultaneously downward and outward. The relieving arch must therefore be buttressed on both sides either by more arches, by segments of wall of sufficient mass to counteract the lateral thrusts, or by an extensive network of piles driven into the ground beneath and to either side of the arch. It seems improbable that the builders would have found a small weak spot of earth exactly where the old campanile was to be built, surrounded by firmer earth capable of supporting a relieving arch (or perhaps four relieving arches, one in each side of the campanile foundation), and then chosen to bridge that spot with a crude relieving arch (or arches). Indeed, the irregular arch in question could have contributed instability to a tower constructed upon it by distributing the great vertical load unevenly. A relieving arch incorporated into a tower foundation thus would be more likely to have been constructed as carefully and symmetrically as any visible arches in the tower above it than to have been constructed crudely.

Dr. Rowland Mainstone, a civil and structural engineer, and a widely-respected authority on the structural behavior of historic buildings, notes with regard to the San Lorenzo arch in question: "All arches incorporated in foundations that come to mind, whether surviving built ones or ones depicted in early treatises, have circular or segmental profiles… The absence [at San Lorenzo] of any deformation of the wall consistent with that of the arch shows that the arch never had such a profile." Mainstone concludes that "…closer inspection and data on whatever else has survived…" is needed in order to determine the likelihood that "…the limited survival in the underchurch is what Howard [Saalman] identified it as being."[71] One such additional survival is another wall fragment with a similarly crude relieving arch embedded in it, a 1978 drawing of which was published in 1993 without, unfortunately, any indication of its location in the underchurch (Figure 4-11).[72] Evidently this second arch—which is clearly not the same as the first—is no longer visible. Nevertheless, its documented existence suggests the possibility that both arches, and perhaps others yet to be discovered, originally served some other function, unrelated to towers, such as water management.[73] Mainstone's provisional assessment of the masonry fragment noted by Saalman, in light of the available evidence, is that "…the masonry up to and including the arch, is indeed unlikely to have been built to serve as the base of the campanile."[74] Until some evidence comes to light indicating otherwise, I will assume that the wall fragment in question is unrelated to the old campanile.[75]

When we remove from consideration Saalman's assumption that the masonry fragment in the underchurch is a remnant of the old campanile, and Herzner's assumptions both that the façade seams are remnants of the old basilica and that in the 1418 petition "ampliare" means to build a permanent addition, we also remove any basis for the widespread scholarly assumption that the old and new basilica naves were axially aligned with one another. Liberated from these assumptions, a fresh examination of the problem of the old basilica in light of my preceding analysis favors the offset disposition for the old basilica that I have proposed (Figure 4-5 and 4-8). Another longstanding scholarly aassumption with regard to the basilica of San Lorenzo must now be relinquished if another contentious issue with regard to the basilica of San Lorenzo—the authorship question—is to be considered objectively.

4.3 The Authorship Question

Of the various unconventional results of my recent studies of the basilica of San Lorenzo, none has proven more contentious than my proposal that "…the design of the basilica of San Lorenzo, including the Old Sacristy, should hereafter be attributed equally to Matteo Dolfini *and* Filippo Brunelleschi."[76] More specifically, I have proposed that Dolfini designed most of the sets of proportions and overall three-dimensional forms of both the basilica and Old Sacristy, and that

Brunelleschi's contribution amounted to a "…grand remodeling of Dolfini's basilica design…."[77] I have simultaneously argued, however, that "…this joint attribution in no way diminishes Brunelleschi's accomplishments," because the major innovation introduced in this design, its revolutionary new Renaissance style, "…is completely of Brunelleschi's invention."[78] Some scholars have accepted my proposed joint attribution, at least as a point of departure for further discussion.[79] Others have questioned its extent, and Herzner has rejected it outright, calling Dolfini a "phantom-architect" of my own invention.[80] Although I will detail the evidence in support of my proposal below, this debate appears to be driven as much by evidence as by widespread preconceptions about the nature of Brunelleschi's design achievements. Equally important as understanding the evidence pertaining to the question of authorship, therefore, is to understand that the stakes in this debate are much lower than most scholars think.

Open virtually any textbook on art and architectural history and you will find some version of a common interpretation of the basilica of San Lorenzo, sometimes including the Old Sacristy: it is beautiful—or alternatively, "harmonious"—and strikingly different in appearance from Gothic architecture because it is based on mathematical proportions (proportion-4) that specifically include a regular floor plan grid. According to this interpretation, furthermore, the view down the nave resembles an early Renaissance perspective rendering and Brunelleschi, the inventor of scientific perspective drawing, intended this effect.[81] This interpretation originates with Rudolf Wittkower's 1953 article "Brunelleschi and 'Proportion in Perspective,'" and still represents the assumption among many scholars that stylistically-specific sets of proportions create stylistically-specific beauty in architecture, the basilica of San Lorenzo being one of the most notable examples of this purported phenomenon.[82] This assumption naturally leads many scholars to the further assumption that to attribute the San Lorenzo set of proportions to Dolfini would be effectively to credit him with the co-invention of the Renaissance style; a prospect so disturbing to many scholars that it has led them to resist any transfer of authorship of the San Lorenzo set of proportions to Dolfini from Brunelleschi. None of these assumptions are necessary, however, if we adopt the alternative assumption that sets of architectural proportions have no impact on the aesthetic quality of architectural styles.

Sets of proportions appear to have served as ubiquitous tools-of-the-trade for builders and architects of the medieval and Renaissance periods that may have undergone technical development over time but that were—and are—aesthetically and stylistically neutral.[83] Indeed, that the basilica of San Lorenzo is neither laid out on a regular floor plan grid nor based on commensurable proportions as Wittkower claims San Lorenzo and all Renaissance-style buildings are, demonstrates that such sets of proportions are not necessary for the creation of architecture that *appears* orderly and rational in a Renaissance-style way.[84] Similarly, that the floor plan of Brunelleschi's basilica of Santo Spirito

is based on the same set of floor plan proportions, and indeed, on a very similar floor plan, as that of the Gothic-style Cathedral of Milan further demonstrates that sets of proportions are stylistically neutral.[85] Since the aesthetic impact of Brunelleschi's architecture cannot logically result from the architect's use of sets of proportions, it must result from Brunelleschi's skill as a designer, like the aesthetic impact of any other art form.

Thus, the customary scholarly consensus that recognizes Brunelleschi as the initiator of the Renaissance style is not threatened by my proposal that Brunelleschi incorporated Dolfini's set of proportions into his design for the basilica of San Lorenzo. On the contrary, Brunelleschi's ability to adapt a preexisting design toward a dramatically new artistic end attests to the force of his creative vision and his skill as a designer. Similarly not threatened by my proposal is the majority scholarly opinion, as published to date, regarding Dolfini's contribution to the design of the basilica of San Lorenzo. Scholars have long pondered what lasting influence, if any, Brunelleschi's predecessor as *capomaestro* of the basilica of San Lorenzo, the aforementioned prior Dolfini, might have had on the design of the basilica, but a general lack of evidence has left this question unresolved.[86] Indeed, we would have no reason to believe that this former church prior was also an architect were it not for a brief passage in Manetti's *Vita* that states: "…when the church of San Lorenzo in Florence was begun by the parishioners, the then prior of the church, who was considered to have a knowledge equal to that of other architects of the time, was made *capomaestro*. He began it with brick piers…."[87]

Manetti goes on, however, to deny any contribution by Dolfini to the design of the basilica as executed. Manetti claims that after consulting with Brunelleschi, Giovanni "di Bicci" de' Medici determined that all of Dolfini's work should be "…abandoned and undone and the whole project begun anew according to one of Brunelleschi's designs."[88] Perhaps, as Manetti claims, all of Dolfini's work was destroyed when Brunelleschi took over the project. Logic and historical precedent would both seem to dictate, however, that expensive foundation work would not have been dug up and destroyed, only to be replaced by Brunelleschi, presumably in a different basilica configuration that could not have differed substantially from Dolfini's considering the site boundaries established in 1418. It would seem to follow that Brunelleschi erected certain portions of the present basilica on foundations and walls started by Dolfini; a position with which Migliore, Fabriczy, Folnesics, Zumkeller, Borsi, Battisti, Saalman, Gärtner; Morolli and Quinterio (together); and Morolli (separately) to varying degrees concur.[89]

Battisti and Saalman support this position with particular conviction. After noting that Dolfini had "already taken steps to begin the project," Battisti asserts: "…when Brunelleschi…was called in, the only variants possible were in the elevation. Saalman's suggestion that the plan of the transept

was in no way due to Brunelleschi is certainly correct: everything was basically fixed…"[90] Saalman later elaborates upon this position first by arguing at length that "…the idea of a priest in charge of the building of his church seems unusual only on superficial consideration." He then proposes that Dolfini probably established the San Lorenzo transept in a form similar to those of the basilicas of Santa Croce and Santa Maria Novella, and that "Brunelleschi's subsequent intervention did not and probably could not change this situation. Innovations on his part could only be of a limited nature and insoluble design problems were inherent in the plan he found in place."[91] A minority of scholars, including Ginori Conti, Walter and Elisabeth Paatz, Sanpaolesi, Herzner, Elam and Bruschi downplay, deny or ignore any possibility of a design contribution by Dolfini.[92]

My proposed Dolfini attribution is but a logical elaboration upon the majority position. Since it would seem to go without saying that preexisting foundations would lock in the key elements of both the floor plan and the set of proportions originally associated with those foundations; and since I have identified, based on a new survey, a set of proportions in the floor plan of the basilica that corresponds to the dimensions specified in Dolfini's 1418 petition; and since there is no evidence of any Dolfini-Brunelleschi collaboration at that early date, I have previously proposed (and I elaborate below) that the set of proportions found in the floor plan must have been designed by Dolfini. Since that set of proportions virtually preordains the present nave arcade bay set of proportions (Figure 4-12), I have furthermore proposed that Dolfini designed it as well.[93] Before considering these issues pertaining to the authorship of the overall basilica in more detail, the authorship of the Old Sacristy requires special consideration.

The Old Sacristy Authorship Question

Any attempt to determine the authorship of the Old Sacristy must consider four design elements: the overall spatial conception, the set of proportions in the floor plan, the interior elevation dimensions (which may contain significant sets of proportions, though this point is not clear), and the formal articulation. That the first of these elements follows the eleventh-century Baptistery of Padua is virtually indisputable based on physical evidence.[94] Since Giovanni de' Medici held an ambassadorship to Padua in 1404, and since the Baptistery of Padua not only projects very publicly from the front of the cathedral but is dedicated to San Giovanni, the patron saint of Florence, Giovanni de' Medici must have been familiar with it. Furthermore, the dual liturgical and private mausoleum functions that the Baptistery of Padua served by 1404 and the similarly dualistic functions of the Old Sacristy when completed in 1429 suggest that Giovanni may deserve partial credit for authorship of the Old Sacristy by perhaps having specified the Baptistery of Padua as its model.[95]

Dolfini, as the basilica *capomaestro*, could have had the responsibility of establishing the overall form of the sacristy based on the Paduan model, which was perhaps selected by Giovanni, and integrating it with the new basilica. Although Manetti claims that while Dolfini was *capomaestro* Giovanni hired Brunelleschi to design a sacristy and a chapel, Brunelleschi's responsibility could have been limited to the formal articulations of these two basilica appendages, perhaps including the pilsters and archivolts, and the forms of the domes, vaults and sacristy lantern, all within the outlines established by Dolfini.[96] Whatever their exact responsibilities may have been, whether Dolfini or Brunelleschi traveled to Padua to record the design of the baptistery would have had little impact on the spatial conception of the Old Sacristy.

Not only is that spatial conception prefigured in the Baptistery of Padua, but the main outlines of the set of proportions in its floor plan are as well. The domed main room of the baptistery measures very nearly 19 *braccia fiorentine* square, plinth to plinth, and the total length including the *scarsella* measures very nearly 27 *braccia fiorentine*, similar to the corresponding dimensions of the Old Sacristy.[97] If indeed the Baptistery of Padua served as the dimensional model for the Old Sacristy, therefore, the question of whether Dolfini or Brunelleschi brought these dimensions from Padua to Florence would be of little historical consequence, for neither architect would seem to have authored them.[98] Since the crossing square of the basilica of San Lorenzo also measures nearly exactly 19 br square, Dolfini might have used the floor plan dimensions of the Baptistery of Padua as the basis for the dimensions of the Old Sacristy floor plan, the basilica crossing square, and the overall basilica set of proportions in which these elements are thoroughly integrated.[99] Alternatively, he might have arrived at the basilica dimensions independently, and derived the 19 br x 27 br Old Sacristy floor plan dimensions from them, thus coincidentally reproducing, in close approximation, the Paduan baptistery dimensions. According to either of these scenarios, by the time Brunelleschi took over as *capomaestro* he appears to have had little opportunity to exert sole and decisive control over the Old Sacristy floor plan set of proportions.

Excluding the floor plan dimensions, Brunelleschi might have determined all the other major dimensions of the Old Sacristy, which are marked in the elevations by the edges and mortar joints of the *pietra serena* articulations. Pro-Brunelleschi scholars should note, however, that these remaining dimensions do not indicate the presence of any particularly interesting geometrical or numerical relationships that might in turn indicate a strong interest on the part of their designer in crafting sets of proportions. According to my survey, the overall interior height of the sacristy measures precisely 33 br, perhaps symbolizing the Trinity.[100] The heights of the three stages within this total, $12\frac{1}{2}$ br,

$10\frac{1}{4}$ br, and $10\frac{1}{4}$ br, result from the geometrical constraints imposed by the two stacked semicircles seen in the cross-section (Figure 3-29). Working in a downward direction from the internal height of 33 br, and considering the geometrical constraints imposed by a semicircle, and by the floor plan dimensions of 19 br square plinth to plinth, the heights of the two upper stages of $10\frac{1}{4}$ br were virtually predetermined. Only minor dimensional adjustments could have been accommodated by varying the thicknesses of the *pietra serena* moldings (Figure 3-29).

The three major dimensions of the *scarsella* portal: $6\frac{1}{2}$ br, $9\frac{1}{3}$ br, and $12\frac{1}{6}$ br (Figure 3-29) betray a possible interest on the part of the architect in numerical integration with the floor plan dimensions: the sum of the integers within these dimensions is 27 (because 6 + 9 + 12 = 27), the same number that expresses the total length of the Old Sacristy in *braccia*, measured plinth to plinth. Intentional proportional order within these dimensions is furthermore implied by the fractional endings, which descend in magnitude according to a 3:2:1 ratio (or, $\frac{3}{6}, \frac{2}{6}, \frac{1}{6}$), and which add up to one, or "unity" ($\frac{1}{2} + \frac{1}{3} + \frac{1}{6} = 1$).[101] If there is more to the set of proportions in the Old Sacristy, I have not found any convincing evidence of it.[102] The preceding analysis leaves the question of the authorship of the Old Sacristy set of proportions—if an intentional set can be said to exist at all—inconclusive, with the floor plan dimensions being most likely attributable to Dolfini, perhaps following the Padua baptistery, and the elevation dimensions, to Brunelleschi.

Attribution of the fourth Old Sacristy design element under consideration—the formal articulation—is not in contention. It is the work of Brunelleschi, who could have had substantial latitude for architectural innovation even while working within Dolfini's overall design outlines. The melon dome, for example, could have been entirely Brunelleschi's contribution to the design, perhaps inserted in full compliance with a specification by Dolfini (considered here as a hypothetical possibility) that the main room of the structure be covered by a dome of semi-spherical inside profile (Figure 3-29). Likewise, the pilaster strips and other *pietra serena* articulations are essentially surface treatments that have high aesthetic impact but negligible spatial impact on the experience of the Old Sacristy.

<u>The Basilica Authorship Question: The Overall Design and Floor Plan Set of Proportions</u>

The evidence in support of a substantial Dolfini contribution to the design of the basilica proper can be grouped into two categories. The first consists of primary sources including documents, measurements, and the San Lorenzo set of proportions (here treated as an historical

artifact, as noted above) that together link the present floor plan and its set of proportions to Dolfini's 1418 petition and thus, to Dolfini's tenure as *capomaestro*. The second consists of circumstantial evidence that points to Dolfini as the author of the San Lorenzo set of proportions rather than Brunelleschi. The evidence in these two categories, beginning with the primary sources, is as follows:

In the *Vita* Manetti states that Dolfini served as *capomaestro* of the basilica reconstruction project before Brunelleschi took over the post, that he began the church "with brick piers," and that all of his work was destroyed when Brunelleschi took over the post. As noted above, however, this account is most likely only partially true, for if Dolfini had erected piers he must have constructed foundations beneath them; and while some limited above-ground work might have been demolished as a concession to Brunelleschi's new aesthetic intentions, neither the church authorities nor indeed Brunelleschi, as a responsible *capomaestro*, would likely have ordered the destruction of expensive foundation work that could have been incorporated into a new design.[103] Thus, Manetti's *Vita* must be read critically if its full value as a record of historical events is to be realized.

While Manetti's claim, for example, that all of Dolfini's work was destroyed seems unlikely for the reason noted above, it can nevertheless be interpreted as lending credibility to the rest of the account. The claim seems at once an attempt to diminish Dolfini's contribution in order to enhance Brunelleschi's reputation, and an acknowledgement that Dolfini's accomplishments as *capomaestro*—a powerful word choice by Manetti to describe Dolfini's role—were too substantial to be ignored. Lending further credibility to Manetti's account, insofar as it associates the initiation of construction of the new basilica with Dolfini by name, is a deliberation of the *gonfalone del Leon d'Oro* of 1440 that notes that construction of the high altar chapel of the new church was begun in "1419, or thereabouts," by "Mattei Dolfini, then prior of the church."[104]

Indeed, the historian must remain as alert to Manetti's occasional, apparently intentional misrepresentations of historical events such as the one discussed above, as to his occasional documented errors. Thus, while Manetti confuses the names of the families that held the rights of patronage to the San Lorenzo transept chapels in his own day with those of the original holders, and confuses Cosimo de' Medici with Cosimo's father Giovanni as the initiator of construction of the basilica of San Lorenzo, such errors do not provide sufficient justification to dismiss Manetti's claim that Dolfini served as the first *capomaestro* of the new basilica, as does Herzner, for the latter claim is not contradicted by other documentary evidence.[105] A critical reading of Manetti's *Vita* strongly points to a complex joint authorship by Dolfini and Brunelleschi. Authorship, of course, is itself a concept that requires critical consideration, for we must assume that neither architect ever served in a

full-time capacity as *capomaestro* of San Lorenzo. In light of their other responsibilities, both must have delegated substantial day-to-day responsibilities to surrogates.[106]

Dolfini's petition of December 1418 contains sufficient architectural and dimensional detail (as noted above) to suggest that by that date someone had completed a design for the new basilica, including a sacristy. According to Manetti that person was Dolfini, and no other documentary evidence indicates otherwise. That the petition was successful, the land was granted, and construction began according to Dolfini's plan is indicated not only by Manetti's account, but by physical evidence. We have seen that the 65 br dimension specified in the petition, measured along the length of the basilica beginning at the back of the present high altar chapel, arrives at the most likely former location of the back wall of the old basilica campanile (Figure 4-5), consistent with other evidence. That the 110 *braccia* width dimension specified in the petition also corresponds to existing conditions within about 0.7% (or about 45 cm), as shown in Figure 4-13, further indicates that construction proceeded as Dolfini intended.[107]

Documentary evidence of construction work on the new basilica between the date of Dolfini's petition of December 1418 and his apparent death within the first three months of 1422 (modern style) is limited to three documents: 1) Manetti's retrospective comment about Dolfini's construction activity, which does not include dates, 2) a record of a ground breaking ceremony held on 10 August 1421, and 3) a record of masons having stored their tools in a nearby house during excavation for unspecified portions of the basilica foundations eight days later, on 18 August 1421.[108] Just over one year later (i.e., after Dolfini's death) a flurry of documents appears (dating from September and October 1422, and May 1423) that refers to demolition of houses along Via de' Preti (Figure 4-14) to make room for unspecified transept chapels in the new basilica, and for the Old Sacristy. For example, on 23 September 1422, one document notes that "demolition is undertaken to make the new church, that is, the chapels."[109] On 1 October 1422 a house was demolished on Via de Preti "to make the sacristy."[110] A document of 21 October 1422 records payment to masons "who are making Cosimo's foundations," thereby indicating an approximate start date of construction of either the Old Sacristy, the adjacent Medici double chapel, or more likely both, as a combined project.[111] Although these documents suggest that construction of the Old Sacristy and substantial portions of the transept commenced after Dolfini's death, and therefore under Brunelleschi's supervision, the limited construction work completed under Dolfini's previous supervision appears to have decisively influenced this and all subsequent work. In order to determine how it might have done so, we must determine where in the basilica Dolfini began construction.

Of the three aforementioned records of construction activity undertaken during Dolfini's tenure as *capomaestro*, only one specifies a location: the aforementioned document of 10 August

1421 notes that the groundbreaking ceremony was held behind the old campanile, a structure that I have argued stood adjacent to the present northern side door (Figures 4-5 and 4-8). This site may have been selected merely for the convenience of the ceremony, however, and should not be assumed to be the locus of the first permanent construction work on the new basilica. Indeed, except for this ceremonial groundbreaking, documentary evidence indicates that no work on any part of the nave began until after 1442 (see below). Thus, the subsequent document of 18 August 1421 must refer to excavation work initiated eight days later somewhere in the future transept area.[112]

A logical deduction based on available documentary evidence—made in full acknowledgement of the possibility that other, undocumented events could have taken place—proceeds as follows: since no documentary evidence of construction of either the Old Sacristy or the adjacent Medici double chapel appears until October 1422, or of the allocation of patronage of any of the private transept chapels until 1423, the most likely location of Dolfini's work of 18 August 1421 is the high altar chapel (Figure 2-1).[113] Indeed, that chapel was both the liturgical focal point of the new basilica, and the only major portion of the basilica begun during the first phase of construction (1421-1428) that fell within the financial responsibility of the prior and canons of the church (presumably with the backing of the *comune*) rather than private citizens.[114] The aforementioned "brick piers" that Manetti claims Dolfini began could have been the thickened front edges of this chapel, perhaps articulated as clusters of engaged columns or colonnettes, that Brunelleschi presumably demolished down to their foundations.[115]

In light of my preceding reconstruction of the pre-1418 site conditions, the projected basilica floor plan that Dolfini intended, and the 65 br x 110 br plot of land that Dolfini requested in 1418, must have been arranged in relation to the old basilica as shown in Figure 4-15. If my analysis is correct, therefore, once Dolfini established the foundations for the new high altar chapel, Brunelleschi would have had little opportunity to redesign either the basilica floor plan or the floor plan set of proportions. The present high altar chapel measures approximately 19 br square, plinth to plinth.[116] It thus would have implied, by logical, modular extension, a 19 br x 19 br crossing square in front of it, consistent with the Cistercian-influenced basilica planning principles that were typical of late medieval church architecture in northern Italy (Figures 3-7 to 3-10).[117] Thus, as shown in Figure 4-16, once Dolfini began construction of the high altar chapel on the west side of Via de' Preti, the eastern crossing piers would have been automatically implied, 19 br to the east. Assuming that Dolfini intended the façade of his new basilica to stand on the site of the front wall of the old basilica, right next to the church property line, then the approximately 92 br length of the nave would therefore also have been automatically implied (Figure 3-10 and 4-16).[118]

Dolfini's influence appears to have extended to the major width dimensions of the basilica as well. Although Dolfini probably did not live long enough to oversee the beginning of construction of the Old Sacristy, he appears to have established its footprint on its present site nonetheless. When he began construction of the high altar chapel foundations, he established misalignments between that future chapel, the old basilica, and the boundaries of the 1418 land allocation that only the present Old Sacristy floor plan, in its present location and configuration, could resolve. Brunelleschi, it seems, had no choice but to accept this Old Sacristy design as part of the overall basilica floor plan that he inherited.

As shown in Figure 4-16, the distance between the northern boundary of the 1418 land allocation (Line E) and the location of the north wall of the old basilica, as discussed above (Line F), was large enough to accommodate a private chapel, such as the present Ginori chapel (Figure 2-1, chapel SP 52-58), projecting from the north wall of the future transept, but not much else. Line F in Figure 4-16 also marks what I have argued is the location of the north wall of Dolfini's projected nave. That wall, I have furthermore argued, would have been, according to Dolfini's plan, the back wall of a row of deep, approximately square nave chapels (Figure 4-15). Dolfini notes in his 1418 petition that the 110 br width of the requested land was to include a sacristy. If we now draw a line symmetrically opposite Line F, relative to the longitudinal centerline of the high altar chapel, the distance between the resultant new line (Line G in Figure 4-16) and the southern boundary of the 1418 land allocation (Line H in Figure 4-16) leaves exactly enough room for the present dimensions of the Old Sacristy, including wall thicknesses.[119] These observations suggest that Dolfini specified the present sacristy dimensions and transept floor plan, and that even if Brunelleschi had wanted to change these elements of the design he probably would not have been able to.

The distance between lines F and G in Figure 4-16 establishes the future transept width of 65 br, measured between pilaster plinths SP 15 and SP 60 in Figure 2-1.[120] This dimension, together with the implied crossing piers and the various observations noted above, virtually locks in the overall basilica set of proportions. It does so because, with the 65 br transept width thus established, a closely approximated root-2 rectangle measuring 65 br x 92 br superimposed over the future nave is implied (Figures 3-4, 4-15 and 4-16). This implied rectangle, in turn, implies an eight-bay nave lined with approximately square chapels, in light of the conceptual modularity of the floor plan discussed previously (Figures 3-7 to 3-10, and 4-15). Combined with the high altar chapel and crossing square dimensions of 19 br per side, and the 19 br x 27 br Old Sacristy dimensions, all discussed above, the major elements of the overall basilica set of proportions would thus have been established. Those elements include root-2 rectangles expressed in accurate, whole number

approximations of Florentine *braccia*, and the set of whole number dimensions that I have termed the "65 Group" (19, 27, 38, 46, 65, 92).[121]

Perhaps the most compelling evidence that Brunelleschi incorporated Dolfini's foundations into his design for the basilica of San Lorenzo, however, comes from Brunelleschi himself. According to Manetti, Brunelleschi noted with satisfaction that with the basilica of Santo Spirito, "…it seemed to him that he had founded a church according to his intention, insofar as the arrangement of its parts was concerned."[122] This passage suggests that his only other church, that of San Lorenzo, was *not* founded according to his intention.

The Basilica Authorship Question: The Nave Arcade Bay Set of Proportions

If Dolfini had pre-established an approximately 92 br-long nave that logically only could have been subdivided into eight bays (Figures 3-7 to 3-10), he would seem to have virtually handed Brunelleschi the present nave arcade bay set of proportions. Simply by marking off the bays of the nave arcades with 2 br column plinths—a logical decision considering the scale of the basilica—Brunelleschi would have come to the threshold of it. By subsequently stretching each of the eight bays in each nave arcade by a mere 2.5 cm (about $\frac{1}{25}$ br), plinth to plinth, the dimensions of $9\frac{2}{3}$ and $13\frac{2}{3}$ (measured between the nearer and farther edges of adjacent column plinths, respectively) would have appeared. These dimensions would have virtually spontaneously sent up a vertical infrastructure of geometrical, numerical and arithmetical relationships that constitute the basis of the San Lorenzo nave arcade bay set of proportions (Figure 4-12).[123]

The concept of style is of no help in determining whether Dolfini or Brunelleschi was the first to extract the nave arcade bay set of proportions from the overall basilica floor plan, because the former (the nave arcade bay set of proportions) is compatible with both Brunelleschi's early Renaissance style and Dolfini's presumed preference, the late Gothic style. According to my measurements, for example, the nave arcades of the late Gothic-style basilicas of Santa Maria del Fiore (see note 85) and Santa Trinita in Florence both contain proportions that are also found in the early Renaissance-style nave arcade bays of San Lorenzo today (see Chapter 6).[124] Both styles, furthermore, are likely to contain plinths measuring 2 br-wide (or approximately so) under columns, piers or pilasters.[125] These comparisons demonstrate that Brunelleschi's change of the style of the basilica of San Lorenzo, after he replaced Dolfini as *capomaestro*, would not have prevented him from incorporating Dolfini's set of proportions into his new early Renaissance design.

While the preceding observations seem to favor Dolfini as the author of the San Lorenzo nave arcade bay set of proportions, the question remains unresolved and deserves to be, together with the vertical proportions of the Old Sacristy, the focus of the San Lorenzo authorship debate. Five additional considerations, which may be considered circumstantial evidence, favor Dolfini in this debate:

a. The missing $5\frac{2}{3}$ br dimension

The set of proportions that is tied to each bay of the San Lorenzo nave arcades is characterized by a precise interweaving of geometrical, numerical and arithmetical relationships (Figure 4-12). Equally remarkable, therefore, is a conspicuous flaw in this set of proportions: the dimension $5\frac{2}{3}$ br is missing, though the numerical logic of this set of proportions clearly seems to require it (see Chapter 2). This flaw might have been easily remedied by increasing the arch radius, currently $5\frac{1}{12}$ br (296.66 cm), by $\frac{7}{12}$ br (34 cm), or, 11.5%, through the use of slightly pointed arches (Figure 4-12). Dolfini easily could have incorporated this typical late medieval device into his design, but Brunelleschi precluded it from his because one of the defining characteristics of his new early Renaissance style was use of semi-circular arches. Brunelleschi thus demonstrates greater commitment to the semi-circular arch, an element of style, than to the nave arcade bay set of proportions, an invisible intellectual construct.

b. The Indifferent Treatment of the San Lorenzo Set of Proportions at Santo Spirito

In designing the proportions of the Santo Spirito arcade bays, Brunelleschi appears to have started with the San Lorenzo nave arcade bay set of proportions (Figure 4-12), pushed the columns closer together by $\frac{2}{3}$ br, shortened the column shafts to maintain the vertical root-2 rectangle relationship between them, reduced the semicircular arch radii accordingly, but left all other dimensions unchanged (Figure 2-50). He thereby shattered the delicate equilibrium of the San Lorenzo nave arcade bay set of proportions, and in the process showed a level of disregard for it that suggests that he did not design it. Gone are the overlapping square and root-2 rectangle (for only the root-2 rectangle remains), the dual diagon, the Boethian number progression called out by repeated fractional endings of $\frac{2}{3}$, and the number pairs that closely approximated the mathematically irrational proportions of the root-2

rectangle and dual diagon (compare Figures 4-12 and 2-50). The freedom with which Brunelleschi appears to have composed the Santo Spirito arcade bay set of proportions contrasts markedly with the meticulous attention to geometrical, numerical and arithmetical relationships evident in the San Lorenzo nave arcade bay set of proportions, and suggests that the two sets of proportions are the products of two different authors.[126]

c. The Uniqueness of the San Lorenzo Nave Arcade Bay Set of Proportions

In the Brunelleschi *oeuvre*, the San Lorenzo nave arcade bay set of proportions stands out for its high level of complexity and precision compared to other works.[127] We have seen, for example, that the arcade bays of the basilica of Santo Spirito and the cross-section of the Old Sacristy each reveal a seemingly casual attitude toward sets of proportions compared to the intellectual intensity displayed by the San Lorenzo nave arcade bay set of proportions (Figures 2-50, 3-29 and 4-12). My preliminary study of the Ospedale degli Innocenti similarly reveals apparently intentional proportional relationships that are notably less complex than those found in the San Lorenzo nave arcade bays. One logical explanation for the uniqueness of the San Lorenzo set of proportions within this *oeuvre* is a difference in authorship.

d. Time, and the Lack Thereof

The San Lorenzo nave arcade bay set of proportions appears to be an intentional product of long contemplation, rather than some geometrical and numerical accident that Dolfini unknowingly came close to creating when he laid out the overall basilica floor plan, only to leave the final discovery to Brunelleschi. Unlike Brunelleschi, Dolfini appears to have had ample time for such contemplation. When Dolfini became *capomaestro*, presumably upon his election as prior in 1417, he had been a canon of the church since 1383, a year in which a plan to reconstruct the old basilica must already have been in discussion.[128] Dolfini had previously been elected prior in 1391, though the election was promptly annulled by the Roman Curia, which appointed a replacement, Antonio del Bene.[129] Elected again in August 1417 upon the death of the subsequent Roman-appointed prior, Matteo di Cola da Rieti, Dolfini acted immediately to secure his position. In September 1417, with the papacy perhaps distracted by the Council of Constance (1414-1418), Dolfini successfully petitioned the Florentine *signoria* to place the church under comunal jurisdiction, thus severing its ancient ties to Rome.[130] In November 1417, upon Dolfini's recommendation, the Bishop of Florence approved fourteen complex new articles to the church constitution, including a provision to

encourage the canons to study "the sciences" (*le scienze*)—i.e., geometry and mathematics—perhaps reflecting his own interests.[131] In December 1418, we have seen, Dolfini petitioned the *signoria* for land to accommodate a large new basilica, the design for which he had evidently already worked out in detail.

This rapid succession of momentous decisions that would bring about the comprehensive political, spiritual and physical transformation of the church is remarkable coming so soon after Dolfini's second election, though he did have twenty-six years in which to plan it.[132] A highly motivated and politically savvy prior-architect residing in a cloistered environment, focusing much or all of his attention on a single church for over two and perhaps even three decades, would seem to be conditions conducive to the design of a large basilica that included a complex set of proportions.

Conversely, when Brunelleschi became *capomaestro* of the basilica of San Lorenzo he could hardly have afforded the luxury of long contemplation of proportional arcana, a task to which, judging from the sets of proportions of his other buildings, he does not appear to have been inclined in any case. At San Lorenzo he took over an active construction site, with workmen urgently awaiting instructions, during a time when he already had numerous other commitments, most notably the construction of the cupola of Santa Maria del Fiore. Under such circumstances the complete redesign of a major basilica, including the set of proportions, was probably as infeasible as it was unnecessary. A more manageable scope of work that would have controlled costs and promoted Brunelleschi's new Renaissance style just as effectively as a complete redesign would have been to modernize Dolfini's basilica stylistically, while changing Dolfini's set of proportions and overall spatial conception as little as possible.

e. Brunelleschi's Pragmatism and Respect for Precedent

Also consistent with the possibility that Brunelleschi incorporated a nave arcade bay set of proportions designed by Dolfini into his basilica design, rather than creating a new one, is Brunelleschi's pragmatism, as indicated in his declaration, quoted by Manetti, that "… in building, only practical experience teaches that which is to be followed."[133] If indeed his predecessor had designed a set of proportions that could have been adapted to his new design intentions, the most expedient approach available to Brunelleschi would have been to use it. That Brunelleschi willingly borrowed design ideas from other recent predecessors of his is demonstrated by his apparent use of the late Gothic-style basilica of Santa Maria del Carmine in Pavia as an important inspiration for his design of the basilica of Santo Spirito.[134]

> Furthermore, that Brunelleschi respected at least one aspect of Dolfini's San Lorenzo design, and wanted to incorporate it into his own, is indicated by his strong disapproval of Giovanni de' Medici's instructions to remove all the nave chapels that he had originally intended to build.[135] As I have argued above, Brunelleschi probably intended those chapels to have deep, approximately square footprints, and he appears to have inherited this nave chapel design from Dolfini.

From the preceding analysis I conclude that while Brunelleschi may have demolished some limited portion of masonry work that Dolfini had raised above ground level during his brief tenure as *capomaestro*, Brunelleschi willingly retained most of Dolfini's overall floor plan design, including the Old Sacristy floor plan, and would have retained more (i.e., the deep nave chapels) had Giovanni de' Medici let him. I also conclude that Brunelleschi retained Dolfini's floor plan set of proportions, and probably many parts of Dolfini's set of proportions that projected vertically from the floor plan, such as the nave and transept cross-section proportions and the nave arcade bay set of proportions.[136] Brunelleschi, for his part, may have determined some or all of the key height dimensions in the Old Sacristy cross-section, and in the process may have created a set of proportions in the elevations extruded from, but not similar to, the Old Sacristy floor plan set of proportions. The latter consists of a 19 br x 27 br approximate root-2 rectangle and was probably placed there by Dolfini. (For additional discussion of Dolfini's possible authorship, see below: "December 1418—c. April 1422: High Altar Chapel Begun under Dolfini").

4.4 Construction History of the Fifteenth-Century Basilica

In order to tie the preceding studies of the old basilica configuration and the new basilica authorship into a chronological narrative, we need to determine the site conditions in 1418, when Dolfini submitted his petition to the *signoria* for land to accommodate the new basilica. In addition to the old basilica, a cloister stood on the site that according to fourteenth-century documents housed a prior, a rector and six canons.[137] That cloister must have stood on the south side of the old basilica, since a piazza fronted the east side, another piazza was created on the north side in 1434 while the old cloister remained standing, and if the cloister had stood on the west side the *comune* would not have had to cede land to the church in 1418, measured from the west wall of the old basilica.[138] Of the five surviving fifteenth-century views of the basilica of San Lorenzo, two depict a cloister on the south side of the basilica. Whether these views variously depict the old or new cloister however, or even the old or new basilica, is uncertain due to the many problems of interpretation that they present. Since most of these views appear to be historically related to one another, and since they

have never been examined as a group for evidence pertaining to the San Lorenzo site history, I will do so now before beginning the chronological narrative.[139]

The Five Fifteenth-Century Views of the Basilica(s) of San Lorenzo

The earliest and most detailed view of the site is the aforementioned Rustici view of c. 1444, drawn as part of a pilgrim's guide to Florence (Figure 4-1).[140] It depicts the old basilica and part of the Old Sacristy, but not the cloister. The other views are much smaller illustrations found in maps of Florence appended to commercially-produced manuscripts. Of them, the next three, in chronological order of production, are found in manuscripts of Ptolemy's *Cosmografia*.

Cod. Vat. Lat. 5699, according to a note inserted by the copyist, dates to 28 November 1469 and was illustrated by the painter and miniaturist Pietro del Massaio (1424-1490).[141] It shows a small, three bay-wide basilica with no transept, and a cloister on its south flank (Figure 4-17). Due to the large size of this cloister relative to the basilica, Saalman refers to it as the present cloister, which documentary evidence indicates was built from 1457-1461.[142] If that were the case, we would have to conclude that Pietro del Massaio omitted the domed transept and the first three bays of the new basilica that stood completed and consecrated behind the old basilica by 1461.[143] Such omissions would have been possible according to the conventions of pilgrims' maps such as this one, and this possibility, combined with the minuteness of the individual illustrations of buildings and monuments highlight the irregular reliability of this map as historical evidence.

Seemingly at odds with Saalman's interpretation, internal evidence suggests that much of the map depicts Florence from a time before the new cloister was completed. The cathedral, for example, is labeled Santa Reparata ("S. reparata")—a name commonly used in both official documents and vernacular conversation until the use of the formal name, Santa Maria del Fiore (as it was dedicated in 1296), was mandated by communal decree in 1412.[144] Of course, we do not know to what extent this mandate was ever followed in common practice. The cathedral cupola and its ball finial, completed in 1436 and 1471, respectively, are both depicted, thus indicating that the map was current in at least some respects. The Palazzo Medici, however, which was built between about 1446 and 1459, is not shown, though its future site is marked by a detailed depiction of the old Medici palace on Via Larga, which was given to Pierfrancesco de' Medici upon completion of the new one next to it.[145]

Perhaps, as Boffito suggests, this map was based on a prototype from about 1404-20, but received finishing touches to the cathedral shortly after completion of the associated manuscript in 1469.[146] That scenario suggests that it depicts the old basilica and old cloister of San Lorenzo. Alternatively, this map could reflect a conglomeration of notes and sketches from various sources

and periods, perhaps of questionable accuracy.[147] Indeed, further complicating the interpretation of this map is the depiction of the San Lorenzo campanile, which differs from the one in the Rustici view both due to its tall spire and its location at the southwest rather than northwest corner of the basilica. In light of these problems, whether Cod. Vat. Lat. 5699 depicts the old or new cloister remains uncertain, and we must conclude that it cannot be used as a reliable source of historical evidence unless used in combination with other evidence independent of it. We may note, for example, that the single door in the cloister wall, which opens to a space behind the basilica and campanile depicted in this view, is consistent with the reference to an open space behind the old campanile in the aforementioned description of the groundbreaking ceremony of 10 August 1421, and thus may provide a degree of corroboration for this document.[148]

The third view, Cod. Vat. Urb. 277 (Figure 4-18), was completed in 1472 by Pietro del Massaio.[149] It depicts a church labeled San Lorenzo ("Sta. Laur.") that resembles the old basilica shown in the Rustici view due to its shed-roofed portico on the front and its flat-topped campanile at the rear, built flush with the north wall (even though Rustici appears to show it *nearly* flush). Like Cod. Vat. Lat. 5699, this view depicts a cloister flanking the south wall of the basilica, though smaller than in that view and surrounded by a wall that is crenelated. In this map the cathedral is again labeled Santa Reparata ("Sanctae reparatae"), and includes a completed cupola with ball finial. This map, however, shows the completed Palazzo Medici (labeled "P.L. cosmae medicis") next to the palace of Pierfrancesco de' Medici (labeled "D. petri francisci bernardi de medicis"), the latter closely resembling the same palace shown in Cod. Vat. Lat. 5699. In light of this conflicting internal evidence we cannot determine whether the cloister depicted in this view represents the old one, or the new one, perhaps shown anachronistically adjacent to the old basilica. This view is primarily useful as a general corroboration of Rustici's more detailed representation of the old basilica.

The fourth view, MS Lat. 4802, dates to c. 1470-1472 and is also the work of Pietro del Massaio (Figure 4-19).[150] This view differs from all the others discussed thus far in its placement of the campanile *in front of* the north wall of the basilica. It furthermore differs from the previous two views attributed to Pietro del Massaio in that it depicts a large dome at the back of the nave, and a gabled structure projecting from behind the campanile, perpendicular to the nave. While the dome illustrated by Rustici is unquestionably that of the Old Sacristy (Figure 4-1), this one contains a line resembling a vertical rib like those of the cupola of Santa Maria del Fiore. This line, if indeed a representation of an observed feature rather than some miniaturist shorthand for any dome, could indicate that this drawing depicts the dome not of the Old Sacristy, which has no ribs, but of the present basilica dome before its eighteenth-century remodeling and enclosure.

Similarly, the gabled perpendicular structure in this view is different than the flat-roofed structure in the corresponding position in the Rustici view (which is not perpendicular to the nave), and could depict the north transept arm of the new basilica. Whether or not this view depicts the nave chapels is not clear. The double horizontal line below the aisle windows could be interpreted either as a belt course or a continuous shed roof over the nave chapels. The aisle windows, furthermore, are depicted as round-headed rectangular windows rather than oculi, as at present, but whether such an error is normal for a minature drawing such as this one is unknown. Although the portico in this view would seem to suggest that the view represents the old basilica, this portico does not span the full width of the façade as do those in the Rustici view and Cod. Vat. Urb. 277 (and possibly in Cod. Vat. Lat. 5699). Thus, rather than the old basilica portico, this feature could be a temporary portico that perhaps once fronted the present basilica. In light of the numerous uncertainties discussed here, this view may not be considered a reliable source of historical evidence unless used in combination with other evidence independent of it.

The fifth view, Cod. Vat. Lat. 491, dates to about 1480, and is part of an anonymous illustrated map appended to Poggio Bracciolini's *Storia fiorentina* (Figure 4-20).[151] Consistent with its date, this map depicts the completed cathedral, though without its campanile, and the Palazzo Medici. The basilica of San Lorenzo is shown as a three bay-wide gabled structure with neither portico nor transept, and with the campanile rising in front of the north wall, as in the preceding view. This enigmatic view thus either depicts the old basilica without its portico, or the present basilica without its transept and part of its nave. If the former, then this view omits the extensive portions of the present basilica that stood behind the old basilica by the early 1460s, as noted above. This view, therefore, like MS Lat. 4802, may not be considered a reliable source of historical evidence unless used in combination with other evidence independent of it.

Of the five views analyzed here, only the Rustici view (Figure 4-1), which was drawn by a parishioner of the church and is so detailed that it even renders the clay roof tiles in red watercolor, may be considered a reliable, if not infallible, source of historical evidence pertaining to the old basilica. None of the views provide reliable information pertaining to the old cloister. In the chronological narrative that follows I will therefore refer frequently to the Rustici view, and to the others only when they show promise for providing new historical insights when combined with other evidence.

Pre-1418: The First Two Churches of San Lorenzo

Little is known about the first church of San Lorenzo, except that it was consecrated on the present site by Saint Ambrose of Milan in 393 A.D., and that it probably served as the city's first

cathedral.[152] Its memory would thus confer great prestige on all subsequent churches built over its foundations. In 1060 Pope Nicolas II consecrated the next basilica to replace it, probably the small Romanesque basilica shown in the Rustici view (Fig. 4-1). As noted above, this second basilica appears to have resembled the two contemporaneous basilicas of Ss. Apostoli and San Pier Scheraggio in Florence, both built *extra muros* like San Lorenzo (Figs. 4-2a and 4-3). By the mid-thirteenth century a cloister was built on the south side of this old basilica, hypothetically reconstructed in Figure 4-14.[153] A sacristy was added in 1300, and later in that century, a campanile (Figure 4-1).[154] From 1295 until the first decade of the fifteenth century numerous private chapels or chaplaincies were founded, which did not necessarily correspond to physical chapel spaces.[155] During this period the needs of the parish evidently began to exceed the physical limits of the basilica, for a document of 1374 refers to fundraising for the "construction of the church of San Lorenzo of Florence."[156]

In 1384 the Bishop of Florence, Angelo Acciaiuoli II, announced an indulgence to be granted to all those who made a contribution toward the "remaking in an enlarged and improved form" (*ampliare et in melius reformare*) of the church of San Lorenzo. In the same year Matteo Dolfini, the prior of the small country church of San Martino in Quona (Figure 4-21), became a canon of the church of San Lorenzo and began his rise to the positions of both prior of the church and *capomaestro* of its reconstruction project.[157]

<u>December 1418: The Land Petition</u>

Dolfini's aforementioned land petition of 1418 betrays glimmers of the political savvy that had earlier helped the architect-prior attain and secure his new positions of authority. Perhaps to evoke an aura of longstanding official approbation, he describes the proposed reconstruction project using a word structure similar to that of the aforementioned bishop's announcement of 1384. The requested land, he notes, would make possible the "remaking of the structure in an enlarged and more beautiful form" (*ampliare, et pulcherrimis edificiis reformare*). Furthermore, perhaps to reassure the *signoria* that its vote to obliterate a densely-populated urban neighborhood behind the old basilica would not stir public condemnation, Dolfini helpfully observes that the area was occupied by "…persons of the lowest class and less than commendable repute...for the most part foreigners"—this despite the name of the street that traversed the area, the "Street of the Priests" (*la via de Preti*).[158]

In perhaps another display of political acumen, in addition to sound building practice, Dolfini appears to have attempted to control costs by retaining as much of the old basilica complex as possible. I have argued above that Dolfini intended to reuse the northern foundation wall of the old

basilica to support the back wall of the deep northern nave chapels that he had planned for his new basilica, and to reuse the old portico foundation to support the projected new façade incrustation. Similarly, Frank Salman argues that the Gothic style arcades in the cloister today are remnants of the old cloister. While my reconstruction of the old basilica and cloister indicates that both structures stood on the site of the present nave (Figure 4-15) and thus, that no portion of the old cloister could have been retained *in situ* as Salman proposes, component parts of the old cloister could have been salvaged for relocation and reuse in the present cloister. My reconstruction further suggests that Dolfini may have intended to retain the old campanile permanently by locating it within one of the projected new nave chapel bays (Figure 4-15). Thus, the locations and dimensions of the old campanile, and of some of the foundations of the old basilica, appear to have constituted critical design constraints for Dolfini's new basilica. It is not difficult to imagine Dolfini adjusting a single-line diagram of the basilica floor plan, such as the one reconstructed in Figure 3-10, in relation to a site plan of the old basilica drawn to the same scale (Figure 4-14), in order to make the old campanile fall precisely within the sixth northern nave chapel bay, and to make the northern and eastern edges of the old basilica align with the walls of the projected new basilica (Figure 4-15).[159]

December 1418—c. April 1422: High Altar Chapel Begun under Dolfini

Dolfini probably served as *capomaestro* of an active San Lorenzo construction site for no more than eight months (i.e., from the groundbreaking ceremony of August 1421 to his death by April 1422). During that brief time, however, he appears to have initiated property condemnation and eviction in the newly ceded land, undertaken building demolition, hired laborers and skilled craftsmen, developed a network of materials suppliers, and most importantly for this discussion, brought the construction of the high altar chapel far enough along that portions of it began to display brick piers.[160] Although we have seen that excavation for some of the foundations of the basilica was documented on 18 August 1421, no known documents mention building demolition during this period—an indication that the documentary record of construction activity on the site is probably incomplete.

According to Manetti, Brunelleschi was largely absent from Florence during the crucial period both immediately preceding and following the petition of December 1418, when we would expect many of the details of the basilica design to have been finalized. Manetti notes that Brunelleschi briefly returned to Florence from an extended stay in Rome in 1417, 1419 and 1420, and that during these visits he conferred with the *Opera* of Santa Maria del Fiore on the design of the cupola.[161] Manetti indicates neither when Brunelleschi returned to Florence permanently, nor when Giovanni de' Medici hired him to design the Old Sacristy and adjacent double chapel (as noted

above). Both events perhaps occurred shortly after 1420, when Brunelleschi's presence at the cathedral *Opera* became essential. In carrying out Giovanni's design work at San Lorenzo during Dolfini's tenure as *capomaestro*, Brunelleschi, I have proposed, was constrained to work within the overall building outlines and dimensions established by Dolfini. Thus, he would have been responsible for the architectural articulations of the interiors and possibly for the designs of the vaults and domes of the Old Sacristy and adjacent double chapel.

Pro-Brunelleschi scholars might prefer to believe that Brunelleschi played a larger design role during Dolfini's tenure, and indeed, the available evidence does not preclude such a scenario. For example, during his return visits to Florence Brunelleschi could have conferred *both* with the cathedral *Opera* on the design of the cupola *and* with Dolfini on fundamental design decisions pertaining to the basilica of San Lorenzo, including the Old Sacristy. Simply because such a hypothetical collaboration cannot be disproven, however, does not constitute evidence that it occurred, and sound historical method requires that in formulating hypotheses we follow the available evidence. No available evidence indicates any significant Dolfini-Brunelleschi collaboration beyond the limited coordination of efforts required by Brunelleschi's design contributions to the Old Sacristy and adjacent double chapel, under Dolfini's supervision. Conversely, Manetti's *Vita*, a genuine fifteenth century primary source, explicitly notes that Dolfini initiated construction of the basilica as *capomaestro*, without Brunelleschi's involvement apart from the two Medici-financed appendages.

April 1422—November 1429: Old Sacristy Completed and Most Transept Chapels Begun under Brunelleschi

Dolfini's death between February 1422 (modern style) and April 1422 left the church both leaderless and in need of a new *capomaestro*, and Giovanni de' Medici appears to have seized the moment to assert patron-like control over the church and its reconstruction project.[162] For Giovanni, Brunelleschi was the natural choice to succeed Dolfini as *capomaestro*. He was newly famous for his work on the cathedral cupola and other projects, and he was already working on portions of the basilica (the Old Sacristy and adjacent double chapel) under Giovanni's patronage. According to Manetti, Giovanni asked Brunelleschi's opinion of the work Dolfini had completed, and Brunelleschi replied by praising it, but proposing several ways (*più modi*) in which it could be improved. Giovanni thereupon ordered Brunelleschi to proceed with one of his proposals, and to remove all of Dolfini's work—an order that in practice, we have seen, probably applied only to those above-ground portions of the work that had aesthetic implications for the new basilica. Since Brunelleschi's design would be more costly than Dolfini's, Giovanni offered to pay for the entire project if necessary, thereby

commencing the gradual transformation of this important parish church into a Medici family church and mausoleum.[163]

Consistent with Brunelleschi's praise of Dolfini's design was Brunelleschi's reaction to Giovanni's subsequent order to remove all the approximately square nave chapels which, I have argued above, Brunelleschi had retained from Dolfini's design and had hoped to build (Figures 3-5 and 4-15). Perhaps Giovanni's takeover alienated many members of the parish, for Giovanni could find only enough patrons, including himself, to build eight chapels, rather than the sixteen that the parish had planned under Dolfini. According to Manetti, Brunelleschi "complied [with Giovanni's order] unwillingly, because he thought it was a miserable thing."[164] Brunelleschi perhaps objected to the removal of the nave chapels both because it made the new basilica design spatially constricted compared to the floor plan he had inherited from Dolfini, and because it disrupted Dolfini's overall floor plan set of proportions that would have fitted a chapel-lined nave into an overall root-2 rectangle (Figure 3-4).

During Brunelleschi's tenure as *capomaestro* from 1422 to probably no later than 1429 (modern style), the high altar chapel rose to a height of approximately eight *braccia*, the Old Sacristy and adjacent double chapel rose to completion as a unified Medici project, patronage was assigned to all the remaining private transept chapels except that of Luca di Marco; and construction of the chapels of the Operai, da Fortuna, della Stufa, and probably the Rondinelli and Nelli commenced (Figures 2-1 and 4-22). In 1425 most construction work on the basilica stopped due to the high communal taxation imposed to fund ongoing wars with Lucca and Milan. Only the chapel of the Operai, and Giovanni's Old Sacristy and adjacent double chapel (Figure 2-1) continued to take shape after this date.[165] In 1428 (old style), the year inscribed into the spiraling lantern cap of the Old Sacristy, Giovanni de' Medici died and was interred in regal fashion in the middle of the domed room directly below it.[166]

Giovanni's new melon-domed, sacristy-mausoleum must have been a spectacle when completed, the novelty of its interior style perhaps matched only by the strangeness of both the grand, open-air archway next to it that opened from the Medici double chapel into the open-air future transept, and the modern ruins of the various incomplete transept chapels arrayed around it (Figure 4-22). Despite the hiatus that had stopped most construction activity in 1425, Giovanni's son Cosimo de' Medici pressed on with the interior embellishment of the Old Sacristy. Giovanni's sarcophagus was completed in about 1433 by Brunelleschi's adoptive son, Andrea di Lazzaro Cavalcanti, known as "il Buggiano," probably under the supervision of Donatello. Other significant interior additions by Dontatello and Michelozzo continued to take shape into the 1440s, famously provoking Brunelleschi's ire.[167]

The completion of the Old Sacristy and adjacent Medici double chapel before any other parts of the basilica is indicated by both documentary and physical evidence.[168] A decorative, exterior terra cotta frieze depicting Laurentian gridiron and angel motifs circumscribes these two contiguous basilica appendages, but no other parts of the basilica. More striking, however, are the pilaster capitals of the Ols Sacristy and adjacent double chapel, which display a notably higher level of refinement than any other capitals in the basilica, surpassing even the very high-quality column capitals in the western three bays of the nave (Figures 2-10 and 2-12).[169] The spiraling volutes of these Brunelleschi capitals are more complex than those of any others, making three turns rather than two, and bearing elliptically-striated rather than flat inner surfaces (Figure 2-52). Further distinguishing these capitals from all others in the basilica are the naturalistic leaf fronds, and the high polish of all surfaces to a nearly metallic sheen. Some of the details of these capitals, such as the delicate vertical ridges along the leaf stems, are suggestive of metalwork and thus perhaps reflect Brunelleschi's training as a goldsmith.[170] The Brunelleschi capitals associated with the Medici double chapel, which we may assume were installed by 1429, served as uniform templates, adhered to with varying degrees of fidelity, for all the subsequent pilaster and column capitals in the basilica.[171]

Completion of the Medici double chapel also established dimensional benchmarks that locked in key aspects of the nave arcade bay set of proportions for future *capomaestri*, making it difficult to change it, had they wanted to. The springing line of the arches and vaults in this chapel projected a horizontal datum line throughout the transept and into the nave, where it would mark the tops of the future entablature blocks. This datum thus also marked the springing line of all the future minor order nave arcade arches and side aisle vaults (Figure 2-51). Since the nave arcades are not raised up on steps like the transept chapels, this springing line thus established the heights of the future nave arcade entablature blocks of $17\frac{2}{3}$ br—a key dimension in the nave arcade bay set of proportions—more than a decade before construction of these nave arcades began (Figure 4-12).[172] Whether or not he inherited the nave arcade bay set of proportions from Dolfini, therefore, by 1429 Brunelleschi appears to have virtually assured that his followers would incorporate it into the future execution of the nave arcades.

March—June 1434: A Proposed Chapel Project and a New Piazza

A document discovered in 1978 by Jeffrey Ruda highlights the unresolved question of how Brunelleschi communicated design specifications that were not predetermined by completed work (as were the heights of the springing lines of the future nave arches and vaults noted above). In order

to see how it does so, we must consider the historical context of the document. The document reveals that on 3 June 1434, with Cosimo de' Medici in exile, a group of citizens met in the Old Sacristy to draw up a detailed design for nave chapels for the basilica. Saalman contends that "… just about every possible consideration speaks against …" attribution of this chapel project to Brunelleschi; and furthermore, that the project was promoted by "'certain people' outside the Medici circle" as a way of reasserting control over the basilica.[173] Kent counters that Saalman's "… line of speculation arises from a misunderstanding of the actual political situation obtaining in Florence three months before the Medici were recalled," since Cosimo's friends, Kent claims, tended his political affairs during his absence.[174] Gargiani, later cited by Bruschi, describes the 1434 chapel project as the work of Brunelleschi, without acknowledging Saalman's 1978 contrary view.[175] New proportional evidence now supports Saalman's view.

The 1434 document specifies that the pilaster shafts between the proposed chapels should measure $1\frac{1}{2}$ br wide, and that the spaces between them should measure $10\frac{1}{8}$ br in the clear.[176] The nave columns directly opposite them must of course have the same widths and spacings as these pilasters so that the bays of the nave arcades and side aisles would align precisely with the chapels. The column shafts today indeed measure $1\frac{1}{2}$ br wide at maximum entasis, but the spaces between them measure $10\frac{1}{6}$ br in the clear, which is the dimension produced by the nave acade bay set of proportions.[177] Had the nave chapel widths been built to the 1434 specifications ($10\frac{1}{8}$ br in the clear), and the nave arcade bays been built to their present dimensions ($10\frac{1}{6}$ br in the clear), the two would have slipped increasingly out of alignment down the length of the nave.[178]

Conversely, had both the chapels and the nave arcades been built to the $10\frac{1}{8}$ br clear dimension, as specified in the 1434 document, the plinth to plinth distances in the nave arcades would have been $9\frac{5}{8}$ br (rather than $9\frac{2}{3}$ br as at present) and the present nave arcade bay set of proportions would not exist.[179] Brunellesch appears to have intended the present nave arcade bay set of proportions to be part of his San Lorenzo design, however, because we have seen that the Medici double chapel, upon its completion in 1428 under Brunelleschi's supervision, established a horizontal datum line that determined the future nave arcade entablature block height of $17\frac{2}{3}$ br, a

dimension that is integrated into the nave arcade bay set of proportions in several ways, including the fractional ending $\frac{2}{3}$.

Although the $10\frac{1}{8}$ br chapel width specified in the 1434 document conflicts with the nave arcade dimensions Brunelleschi appears to have intended, it may represent a good-faith effort on the part of the 1434 chapel planners to honor Brunelleschi's intentions, to the extent that they understood them. One possible source for the erroneous $10\frac{1}{8}$ br dimension is the clear width of the Medici chapel portal adjacent to the Old Sacristy (Figure 2-51, right), which measures 10.07 br (587.5 cm), or, about $\frac{1}{17}$ br (3.4 cm) less than $10\frac{1}{8}$ br (Figure 2-1, SP 17-SP 23).[180] The 1434 document specifies that this Medici chapel was to be used as the model for the proposed nave chapels in many details, thus demonstrating respect for the work Brunelleschi had completed. The 1434 chapel planners may have assumed that Brunelleschi intended a clear width of $10\frac{1}{8}$ br for all arched portals in the basilica, throughout the transept and nave, including that of the Medici chapel and those of all the nave chapels and nave arcade bays. Since they apparently did not simply ask Brunelleschi what his intentions were, and Brunelleschi apparently did not volunteer the information, we may assume that the 1434 chapel scheme had the approval of neither Coismo de' Medici nor Brunelleschi.

Why Brunelleschi chose to make the Medici chapel portal width approximately $10\frac{1}{8}$ br in the clear is unknown. Since this chapel is raised up three steps higher than the floor level of the nave (Figure 2-1), however, while its pilaster capitals are level with the nave column capitals, the Medici chapel portal in question could not have contained the nave arcade bay set of proportions in any case (because its pilaster shafts are too short relative to the spaces between them), and Brunelleschi was free to choose another dimension. Evidently the 1434 chapel builders had knowledge of neither these dimensional discrepancies between the Medici chapel portal and the nave arcade bays Brunelleschi intended, nor of the nave arcade bay set of proportions. Thus, Brunelleschi appears to have been able to restrict access to design information so completely that both the 1434 chapel planners and their collaborators in the church hierarchy were kept out of the loop.[181] Had they been in the loop, the 1434 document would have specified chapel widths of $10\frac{1}{6}$ br, measured in the clear between the pilaster shafts, rather than $10\frac{1}{8}$ br.

Another San Lorenzo-related design project from 1434, which unlike the 1434 chapel scheme was indeed executed, lends a measure of support to Kent's contention that Cosimo's supporters continued to look out for his interests during his exile. Thus, Kent's and Cosimo's positions may not be entirely mutually exclusive. On 16 March 1434 (modern style)—two-and-a-half months before the unsuccessful chapel planners met in the Old Sacristy—the *signoria* issued a decree ordering the demolition of a block of buildings adjacent to the north side of the old basilica. Once executed, the demolition created much of the present Piazza San Lorenzo (Figures 4-22 and 4-23). In order to justify the displacement of residents from their homes the decree notes, similar to Dolfini's petition of 1418, that the properties to be demolished were occupied by "dishonest persons" (*persone inhoneste*).[182] Two weeks later, fourteen-year-old Ugo di Lorenzo della Stufa wrote to Cosimo's son Giovanni, then in exile with his family in Venice, with news of the "beautiful piazza" that had just been created between his family's palace and the old basilica. According to Hyman, the demolition was consistent with Cosimo's long-term plans for the area. Whether or not those plans included a grand palace facing the basilica directly across the new piazza as Hyman surmises, the new piazza would have greatly increased visibility of both the old basilica and the incomplete portions of the new one behind it, as shown in Rustici's view looking across it (Figures 4-1 and 4-23).[183]

March 1442—May 1456: Completion of the Transept, Crossing Dome and First Three Bays of the Nave, Probably Under Michelozzo and Antonio Manetti Ciaccheri, Consecutively

Upon his return to Florence from exile on 29 September 1434, Cosimo had become absolute head of state in all but appearance, and he cultivated that appearance with care. He had little incentive to fulfill immediately his father's commitment to complete the new basilica of San Lorenzo.[184] At a time when some were predicting the financial ruin of the Florentine government due to its large expenditures on the war effort an elaborate, privately-funded building project would probably have seemed to him inopportune.[185] Furthermore, Cosimo had inherited a delicate political situation. His father, we have seen, appears to have alienated many in the parish with his assertion of control over both the church of San Lorenzo and its reconstruction project, as evidenced by his inability to secure the commitments of more than six families in the parish, in addition to his own, to build eight chapels in the new basilica—a fraction of the number of chapel-holders in the old basilica.[186] With the defeat of Duke Filippo Maria of Milan in the Battle of Anghiari in 1440, and with the cupola and campanile of the Cathedral of Florence illuminated in celebration on 11 June of that year, civic pride swelled, and according to Schevill, Cosimo's popularity and political standing seemed more secure than ever.[187] Nevertheless, if Cosimo were to complete the basilica that his

father had begun, he would have to be invited to do so in a manner that would give his actions at least the appearance of public altruism.

A few months later the city's attention was directed toward the old basilica of San Lorenzo, and the fragmentary and deteriorating new basilica rising behind it, when the funeral of Cosimo's younger brother Lorenzo de' Medici was held there on 24 September 1440. The standards of the *comune* and all the guilds were on display, and Bishop di Valvi sang mass. Pope Eugenio IV, then headquartered in Florence, sent his standard and that of the church of Rome, nine of his cardinals, an unspecified number of other church representatives, and one hundred torch bearers.[188] The funeral must have caused the old basilica to virtually burst its seams, and perhaps gave new urgency to the matter of its replacement.

Just two months later, on 20 November 1440, a group of church officials and prominent citizens again gathered in the Old Sacristy to plan renewed construction of the adjacent basilica. With Cosimo again conspicuously absent, but this time under very different circumstances from those in 1434, the group drafted a deliberation that reviews the history of the building project, from Dolfini's auspicious beginnings to the then-abandoned and deteriorating state of the work, which it notes was "a source of humiliation and shame for the entire population of the parish."[189] It then exhorts the citizens of the parish to complete the high altar chapel, which had been reserved for the prior and canons to build, and thus for the public domain. The group evidently considered completion of this chapel to be the key to motivating the private patrons to finish their chapels, and thereby get the project moving again. Its public pretenses notwithstanding, however, the deliberation appears to have been carefully crafted, perhaps under Cosimo's guidance, to give Cosimo the opening he was looking for. Towards the end of the deliberation, the prior and canons declare their willingness to concede the rights of patronage of the high altar chapel to "that man or those men" in the parish who would agree to pay for its construction.[190] Cosimo was probably the only person financially capable of responding to the offer, and surely no one else would have dared try. The move had been forced upon the parish by economic necessity and now Cosimo, rather than risk the appearance of an aggressive takeover of the church as his father had done, could come to the rescue.[191]

The first documentary indication that Cosimo accepted the prior and canons' offer is found in a construction ledger maintained for him by Bartolommeo di Tommaso Sassetti between 1442 and 1453. On 24 March 1442 (modern style) Cosimo made a payment to re-open a *macigno* quarry in Trassinaia, and to begin hauling the first loads to San Lorenzo.[192] We learn more about Cosimo's agreement with the church and parish, which had soon expanded considerably from the original offer of 1440, in a notarial record of 13 August 1442. In it, the church and canons formally concede to

Cosimo, the "sole noble and respected citizen" to respond to their aforementioned offer, not only the rights of patronage to the high altar chapel, but to "the nave in the middle of the church, extending as far as the high altar of the old church." The offer was made on the condition that Cosimo complete the work within six years.[193]

The construction ledger provides a detailed record of progress made between Cosimo's reopening of the Trassinaia quarry in March 1442 (modern style), and the apparent completion of the basilica up to the high altar of the old church in 1450. Preparations began for the foundations of the two freestanding crossing piers in October and November 1442.[194] Just one month later decorative pilasters for the high altar chapel were ordered.[195] That chapel, let us recall, had already reached a height of approximately eight *braccia* before construction came to a halt in 1425, and by now had evidently reached its full height, or nearly so.[196] From April through September 1443 the freestanding crossing piers rose.[197] By 8 March 1447 construction of the roof over the high altar chapel was underway.[198] In August 1449 payment was made for parts of the large crossing arches, and in September 1451 curved stones for the crown molding at the base of the dome arrived.[199]

As for the nave, on 22 March 1446 (modern style), just twenty-four days before Brunelleschi's death, five fir timbers for models of the column shafts were ordered.[200] In July of the same year, six nave columns were ordered, and on 24 October 1446 excavation for the column foundations began.[201] Between 3 February 1448 (modern style) and 31 January 1450 (modern style), numerous payments were recorded for the manufacture and delivery of all six column shafts, as well as associated bases, capitals, entablature blocks, and arches.[202] A few of the carved entablature blocks were commissioned from the celebrated Rossellino brothers, as noted in Chapter 3.[203] As indicated in Figure 4-24, when Column 10 was erected (for column numbers, see Figure 2-1), the old basilica may have had to undergo some limited demolition and patching, and the high altar relocated within it. Similiarly, the erection of Column 5 may have necessitated some limited demolition of the old cloister. On 5 February 1450 (modern style) payment was recorded for beams, trusses, and moldings for the roof, presumably over the nave.[204] We see from the preceding documentary reconstruction that Brunelleschi, who died on 15 April 1446, could not have played any significant role in supervising the execution of the nave arcades, save for crafting the design instructions—in what form we do not know—for authorized followers to execute.[205] Indeed, Brunelleschi's involvement with the project most likely ended in 1429 (modern style) with the death of Giovanni de' Medici.

The *capomaestro* of the San Lorenzo construction project beginning in 1442 was probably Michelozzo, who Saalman describes as "Cosimo's house architect, who handled everything for Cosimo after 1434."[206] Saalman argues that the niches in the transept end walls of San Lorenzo

constitute "almost a Michelozzian trademark" (Figures 2-51 and 4-25), and suggests that their insertion resulted from a continuation of the collaboration between Donatello and Michelozzo that began in the Old Sacristy in the 1430s.[207] According to Vasari, these niches once held terra cotta statues executed by Donatello that depicted the four evangelists.[208] If Donatello and Michelozzo indeed added these transept niches, then perhaps they also added the recessed rectangular fields below them, today filled with embellishments from later centuries. Whether the four doors below them, two of them false and all crowned by shell tympana, are part of Brunelleschi's design or were added by Donatello and Michelozzo is unknown (Figures 2-51 and 4-25). Taken together, however, these niches, rectangular fields and doors create a tripartite, triumphal arch-like composition in each transept end wall that echoes the Donatello and Michelozzo-modified *scarsella* wall in the Old Sacristy (Figures 2-51, 4-24 and 4-26).[209]

To the preceding evidence pointing to Michelozzo as Brunelleschi's successor at San Lorenzo we may add Hyman's conclusion that after 1446 Michelozzo directed the San Lorenzo and Palazzo Medici construction projects as a joint operation. In the construction ledger Hyman observes shared accounting, supplies and labor between the two projects, and the presence at both construction sites of skilled craftsmen associated with Michelozzo.[210] The *Opera* of the Cathedral of Florence, for its part, considered Michelozzo to be a worthy successor to Brunelleschi, for in August 1446 they installed him as successor to the then-recently deceased Brunelleschi as *capomaestro* of the cathedral cupola.[211]

Brunelleschi's one documented contribution to the design of the basilica of San Lorenzo after 1442 was of architecturally minor import, but would signal a significant shift in the function and symbolism of the basilica. Brunelleschi had originally placed the choir in the crossing, in accordance with contemporary custom.[212] Manetti tells us that once the high altar chapel was largely complete, however, which the construction ledger indicates was toward the end of Brunelleschi's lifetime, Cosimo decided to place his tomb in the crossing instead (Figure 4-4), and to move the choir into the high altar chapel.[213] Rather than turn to Michelozzo to redesign the high altar chapel, Manetti tells us that Cosimo called upon the aging master and that "Filippo adapted it in the form it has at present."[214] These changes, long since removed, probably entailed the construction of choir stalls in the high altar chapel, such as those shown in two sixteenth century views.[215] For the transformation of the crossing area, however, Lavin suggests that Cosimo turned to Donatello, who, according to Vasari, made "the model of the high altar and the tomb of Cosimo at its foot."[216] This model, Lavin continues, created "a coherent and unified conception that included the choir, the high altar, the tomb of Cosimo, and the pair of bronze pulpits," and would have evoked the Early Christian basilicas of Rome, including "San Lorenzo's own symbolic prototype," the basilica of San Lorenzo *fuori le*

mura.[217] Thus, Lavin proposes, the model would have manifested an "Early Christian Renaissance at San Lorenzo."[218]

Cosimo perhaps had an additional symbolic program in mind for the transept, for in planning his burial arrangements he followed in but enlarged the footsteps of his father, who had placed his tomb in the middle of the Old Sacristy, directly below the dome, thus effectively converting that structure into his mausoleum. Now Cosimo would effectively convert the entire basilica into his mausoleum by placing his own tomb in the middle of the crossing square, directly below the crossing dome.[219]

Cosimo's presumed deadline for completion of the basilica as far as the high altar of the old church, 13 August 1448 (or, exactly six years after his formal agreement with the prior and canons of the church), appears to have passed without consequence.[220] The first nave column had only arrived from the quarry, probably in need of substantial finishing, just six months before the deadline, on 3 February 1448 (modern style).[221] The final piece of his commitment, the crossing dome, was not completed until 1456, probably under the direction of the man who most likely succeeded Michelozzo as *capomaestro* in about 1452, Antonio Manetti Ciaccheri.[222] Whatever the cause of the delay—perhaps simply an unrealistic construction schedule made back in 1442—Cosimo, judging from the consistently high quality of work found throughout the basilica west of Columns 4 and 11 (Figures 2-8, 2-10, 2-12 and 2-22), does not appear to have been particularly concerned about time. That would soon change.

<u>May 1457—August 1461: Construction of the Cloister under Antonio Manetti Ciaccheri</u>

Upon completion of the crossing dome, Cosimo was sixty-seven years old. He must have been well aware that two other prominent men of his time, his father Giovanni, and Brunelleschi, both lived to just sixty-nine. Although his formal commitment to the church had now been fulfilled, for he had completed the new basilica as far east as the high altar of the old one (even if, as noted above, the old high altar itself perhaps had to be relocated as a result), Cosimo pressed on with his patronage. One year after the church canons held a supper on 2 May 1456 for the workers who were about to close the crossing dome, they held another one, on 15 May 1457, to celebrate the "… beginning of the construction of the new cloister."[223] What work was accomplished during that year is unknown—perhaps roofing and other exterior work around the dome, and land acquisition south of the old cloister to accommodate the new cloister, though no records of any such activities have yet come to light.

Why would Cosimo, who must have been anxious to secure the completion of this basilica—his final resting place—within his lifetime, next proceed to the construction of the canons' residences

rather than the remaining portions of the basilica?[224] According to the fifteenth-century biographer Vespasiano da Bisticci, when Cosimo was asked virtually this very question, "… why he began first the cloister rather than the church …," he replied that if he did not build the residences no one would, "…because there would be many who would want to build the church, but not the cloister, there being [in it] much greater prestige."[225] Site conditions, however, probably provided a more practical reason. As seen in my reconstruction of the probable situation in 1457 (Figure 4-24), the old cloister and old basilica must have occupied the future site of the eastern five bays of the new basilica nave. Rather than leave the canons homeless for a decade or more while first the new nave and then the new cloister were completed, the cloister became the next logical priority (Figure 4-27).[226]

In light of this delay, Cosimo appears to have doubted whether he would live long enough to see the completion of the basilica, which he had turned into his future mausoleum, and whether his family would be able to complete the work after his passing. Cosimo had begun to contemplate his legacy, and his outlook was gloomy. "I know that after my death…" he once said, according to Vespasiano, "… my children will be in worse condition than those of any other Florentine who has died for many years past…."[227] Cosimo had good reason to worry for the future of his family's continued wealth and prominence. He must have foreseen the impending decline of the Medici bank, for by the time of his death on 1 August 1464, de Roover writes, "… his company had passed the peak of its prosperity and was going downhill. The London branch had come to grief; other branches, too, were experiencing growing difficulties; and profits were falling off."[228]

Cosimo would be succeeded as head of the Medici bank by his son Piero who, despite his lack of training in finance, would see fit to order a survey of the family assets in order to determine, in his words, "… in how many feet of water he was standing."[229] In addition to these uncertain business prospects, during the last years of Cosimo's life, Piero's succession to the position of *de facto* head-of-state was in doubt; and indeed, the two men hardly projected an image of dynastic security. Both were bedridden much of the time, leading one of Cosimo's former supporters to call them "cold fish [*huomini freddi*] … whom illness and old age have reduced to such cowardice that they avoid anything that might cause them trouble or worry."[230] Medici foes lay in wait, with Medici power apparently resting solely on the shoulders of the ailing Cosimo. When asked to join in a conspiracy against Cosimo, Palla Strozzi noted in 1460 that such a scheme would be ill-advised, for according to Rubinstein, "… as long as Cosimo was alive, it would be impossible to get rid of him; [but] once he was dead, within a few days conditions would develop according to [his enemies'] wishes."[231] Cosimo must have heard these rumblings.

Vespasiano claims to have once heard Cosimo lament "…that one of the greatest mistakes of his life was that he did not begin to spend his wealth ten years earlier, because, knowing well the

nature of his city, he was sure that within not even fifty years, no memory of himself or of his house would endure save the few monuments he might have built."[232] Might Cosimo have been thinking about San Lorenzo, which by the time the crossing dome was completed was running eight years behind schedule? Vespasiano tells us that concurrent with the church and cloister of San Lorenzo, Cosimo completed the cloister and much of the church of the Badia of Fiesole, noting: "He pushed this edifice to completion with all possible haste, always doubting that his time would be sufficient."[233] Later, according to this account, Cosimo contracted with Vespasiano himself, a noted Florentine bookseller, to create an extensive library at the Badia by arranging for the copying of manuscripts. Here too, writes Vespasiano, "… his wish was that it be completed with all possible haste, and money was no object…."[234]

Another document from this period may indicate that Cosimo was willing to explore unconventional strategies for expediting completion of the basilica. In a letter of 1 February 1459 (modern style) addressed to Giovanni di Cosimo de' Medici, the Bolognese architect Aristotile Fioravanti offers to move an unspecified campanile in Florence for a fee of 1,000 gold florins. Aristotile had earned fame in 1455 for moving a tower in Bologna over a great distance, and his assistance in Florence was solicited via a request personally delivered to him in Bologna by Pagno di Lapo Portigiani, a prominent stone carver associated with the San Lorenzo project, who will be discussed in detail below. If Aristotile's letter were indeed in reference to the old campanile of San Lorenzo, it might indicate that Cosimo considered moving the campanile as a potentially more expedient alternative to demolishing and rebuilding it. The apparent location of the campanile at that time, protruding from the northern wall of the incomplete nave (Figure 4-27) would have facilitated such a move. No such project, however, appears to have been carried out in Florence.[235]

August 1461—April 1465: The Southern Nave Arcade and Southern Nave Chapels

In August 1461 the cloister was finished, the high altar of the new basilica was consecrated, and in a solemn procession the sacred relics of four saints (including Saint Lawrence) were transferred to it from the old basilica.[236] Cosimo was now seventy-two, and had probably already lived longer than he had expected. The transept had taken about six years to complete; the dome, about five years; the first three bays of the nave, four years; and the cloister, just over four years. At this rate Cosimo could expect the remaining work to require another four to five years, but he perhaps knew that he would not live that long. With money apparently not yet lacking (in light of Vespasiano's preceding comment), Cosimo would seem to have had ample personal motive to proceed immediately with the completion of the nave, at an expedited pace. Indeed, the canonry and entire parish would seem to have had ample motive as well, for the newly-consecrated basilica must

have had a gaping hole in the end of the soaring, incomplete nave immediately east of Columns 5 and 10 (Figures 2-1 and 4-27). Since the nave was the only part of the basilica remaining to be built after the completion of the new cloister in 1461, and since the old basilica stood in the way, we might logically expect the old basilica to have been demolished soon after the consecration of the new high altar, also in 1461. Consistent with this expectation, we have seen that Vespasiano notes: "having finished the cloister [Cosimo] commenced the continuation of the church, and finished a good portion of it before he died."[237]

Cosimo died on 1 August 1464, however, and the aforementioned testament of Orlando di Giovanni d'Orlandini, which is dated 9 October 1464, clearly indicates that the old basilica was still standing at the time of writing. Thus, Cosimo did not demolish the old basilica before he died. We have seen that the testament provides for the maintenance of a lamp in the "church of San Lorenzo of Florence" to illuminate an image of the Virgin Mary "... situated on the second column to the right of the entrance to the said church, or at the column, which is in said church, closer by, and near the door through which one goes out and proceeds in a straight line to Via della Stufa …."[238] The present basilica does not have a door located as such, nor a "second column on the right" near it, but the old basilica did, according to several documentary references to such a door, and my reconstruction of the old basilica floor plan on the site (Figures 4-5 and 4-8).[239]

There would seem to be but one way to reconcile Vespasiano's above-quoted statement that Cosimo continued construction of the new basilica soon after the completion of the cloister—which according to other evidence, noted above, took place in August 1461—and the continued existence of the old basilica in October 1464: Cosimo must have proceeded only with the remaining portion of the *southern half* of the nave, *alongside* the old basilica. Finishing the southern half of the nave before the northern half would have had the practical benefit of permitting him to leave the old basilica and its numerous private chapels undisturbed until new chapels into which some of them could be transferred were ready to receive them.[240] Proceeding as such may have provided another benefit as well.

We have seen that Cosimo appears to have been free to start construction in the southern part of the nave as soon as the new cloister was finished by 12 August 1461 (Figure 4-27). Only on 6 April 1463, however, does a church ledger record the beginning of payments by five families for construction of the southern nave chapels as a joint project "… on behalf of and for the pleasure of the venerable Cosimo de' Medici."[241] A sixth chapel on this side may have been completed during this construction campaign by a member of the Medici family (Figure 2-1).[242] The reason for the approximately twenty-month delay (12 August 1461 to 6 April 1463) in the start of construction of these chapels may be that Cosimo had difficulty assembling enough patrons to build them.[243] An

indication of this difficulty is provided by a church document of April 1465 that concedes to Cosimo's son and heir, Piero de' Medici, the authority to assign patronage of the then still-unbuilt northern chapels to whomever he pleased, in order to expedite their completion. The document also notes that the southern chapels had been completed by this time (Figure 4-28).[244] Thus, by completing the southern half of the nave before the northern half, Cosimo only had the immediate challenge of finding six chapel patrons rather than twelve. As the twenty-month delay suggests, even that challenge appears to have been great.[245]

While it is possible that only the southern nave chapels were completed before Cosimo's death in Augest 1464, but none of the remaining four bays of the southern nave arcade, the limited evidence that we have pertaining to this construction phase suggests otherwise. That evidence consists of Vespasiano's claim that after completing the cloister, Cosimo "…finished a good portion of [the basilica] before he died."[246] Since construction of the southern nave chapels was not Cosimo's responsibility, and if Vespasiano's claim is correct, then the only accessible portions of the basilica that Cosimo could have proceeded with after the completion of the cloister in 1461 were the remaining bays of the southern nave arcade. For Cosimo to have seen any progress on these nave arcade bays within his lifetime, he would have to have initiated planning and construction of them soon after the completion of the cloister.

We have seen that during the construction of the first three bays of the nave in the 1440s, a year and seven months were required between the ordering of the column shafts from the quarry and the delivery of the first shafts to the construction site. Once they had arrived, furthermore, substantial work would have remained in order to finish and erect them, and to manufacture and erect the other nave arcade components such as the capitals, entablature blocks and archivolts.[247] Adding to the complexity of the undertaking were the sail vaults over the side aisles, which probably had to be erected concurrently with the archivolts of the nave arcade. Since Cosimo died exactly three years to the month after the completion of the cloister (August 1464), had he not ordered the columns and begun other preparations soon after the completion of the cloister, he would not likely have lived to see any significant work completed on the nave after the completion of the cloister, as Vespasiano claims he did. This particular detail of the nave construction chronology has important implications for our understanding of the present appearance of the basilica due to the significant differences in quality between the western three bays of the nave, which were completed in the 1440s, and the eastern five bays, which were completed in the 1460s.

We have seen that in the western three bays, the sculptural carvings that adorn the Corinthian column capitals, entablature block friezes and archivolts are executed with a high degree of naturalism and refinement (Figures 2-10 and 2-23; and 2-32, lower portion). In the eastern five bays

the corresponding sculptural carvings appear both simplified in design and substantially less refined—indeed, occasionally quite crude—by comparison (Figures 2-11 and 2-27; and 2-32, upper portion).[248] My measurements of the nave arcades, furthermore, reveal extremely precise dimensional consistency among the various parts of the western three bays, but substantial irregularity in the eastern five bays.[249]

Although Morolli attributes some of the differences in appearance between these two portions of the nave to the new aesthetic preferences of the new skilled craftsmen who he assumes arrived with the change in patronage from Cosimo to Piero de' Medici after August 1464, the preceding analysis suggests that Cosimo completed *both* the first phase *and* a substantial portion of the second phase before his death in 1464, and that Piero merely finished the second phase in the same manner in which his father had started it.[250] My analysis therefore suggests that Cosimo approved the simplified designs and reduced quality of the sculptural embellishment of the second phase of the nave construction, apparently in an attempt to expedite the work and complete as much of the basilica as possible before he died. Furthermore, while Morolli may be correct that a new set of skilled workers in the 1460s brought a new aesthetic sensibility to the carved details of the nave compared to the work completed some fifteen years earlier, my analysis suggests that these aesthetic changes were not generated from the various masons on the job site but rather, by a single master mason who supervised both phases of the nave construction. Thus we seem to have the remarkable situation in which a single patron and a single construction supervisor brought about a significant mid-construction change in the quality and style of the sculptural embellishment of a major fifteenth-century basilica.

To expedite the completion of a large-scale, ongoing construction project at the behest of an anxious patron would have required considerable construction knowledge and management savvy, and the man charged with the task appears to have been the highly accomplished stonecarver (*scarpellatore*) Pagno di Lapo Portigiani.[251] A document of July 1462 describes Pagno as "*capomaestro* at San Lorenzo," a position he probably accepted following the death of the previous *capomaestro*, Antonio di Manetto Ciaccheri, in November 1461.[252] Yet Pagno's prominent role in the basilica construction project appears to have begun nearly two decades earlier, during Michelozzo's tenure as *capomaestro*. Michelozzo, as much businessman as architect, oversaw numerous construction projects simultaneously, and almost certainly put someone else in charge of day-to-day operations at San Lorenzo after construction recommenced in 1442.[253] That person appears to have been Pagno.

Hyman notes that in the 1440s Pagno served as "Michelozzo's first surrogate," and played a particularly prominent role at SS. Annunziata in Florence, where Michelozzo "… was named *capomaestro* in 1444, and where Pagno not only completed the ornately carved Tabernacle in 1448, but was allowed to take full credit for it as well."[254] In 1448 and 1449 Pagno was paid for roughing out two column capitals in a quarry at Settignano, destined either for the basilica of San Lorenzo or the Palazzo Medici.[255] His role in the latter project was so important that according to Hyman he is "…the only *scarpellatore* with an individual debit account page [in the Medici construction ledger] filled with payments for work on the Palazzo."[256] If Pagno had taken charge of the basilica construction as Michelozzo's surrogate in the 1440s, and since he was serving as *capomaestro* in his own right by July 1462, and perhaps as early as November 1461, then we must conclude that he supervised the manufacture of *both* the high quality stone carving of the western portions of the nave arcades *and* the lower quality stone carving of the eastern portions, all while under the employ of Cosimo de' Medici.

This brief portrait of Pagno di Lapo Portigiani helps explain why the eastern portions of the nave arcades display such decisively lower quality than the western portions. Pagno understood the art and business of masonry construction as well as anyone in Florence. He had personally hewn capitals from rough stone at the quarries, carved and assembled an intricate and important tabernacle, and through his close association with Michelozzo learned the business of architectural production.[257] If stonework completed under his direction, particularly for an important commission such as the basilica of San Lorenzo, displays low quality of execution, we must assume that it does so because Pagno wanted it to. Cosimo knew his time was limited, and wanted as much of the basilica as possible completed before he departed. Pagno's charge was to make it happen. Pagno knew how to expedite construction of the nave arcades while maintaining visual continuity with the earlier work by simplifying the capitals to make them easier to carve (Figures 2-12 and 2-13), by hiring *botteghe* that would produce decorative work quickly, even if inadequately-trained craftsmen had to be pressed into service (Figure 2-27), and by specifying appropriately rough levels of finish in order to help those *botteghe* meet the deadline (Figures 2-19 and 2-21).

Cosimo and Pagno's apparent decision to sacrifice quality of execution for speed of completion, while the availability of funding presumably remained constant, implies an understanding of the construction process as a three-way equation of time, quality and money that required constant balancing. As such, it reflects what Linda Elaine Neagley describes as a "major cognitive shift" that took place during the fifteenth century that was spurred in part by "…the appearance of the mechanical clock and the impact of measured time on the productivity of masons."[258] In her studies of construction projects in Rouen contemporary with Cosimo and Pagno's

collaboration in Florence, Neagley finds not only that "late gothic documents are littered with efforts to resolve the conflict between conservation in costs and exuberance of style," but that time was a constant concern in construction management.[259]

Neagley notes, for example, that on 4 June 1469 the canons of Rouen Cathedral reproached a master mason for his tardiness in the completion of the tour Saint-Romain and asked him "…to renounce the superfluous ornament and the care with which the stones were being cut because they would be placed beyond view in the upper levels of the tower."[260] Neagley observes that consistent with this recommendation, at Saint-Maclou "…some of the upper pinnacles of the transept portals appear crudely fashioned when compared to lower-level counterparts."[261] As two examples of apparent efforts to save money and time, Neagley notes the development of the continuous molding of the Flamboyant style, which removed the need for foliate capitals; and by the early sixteenth-century at Saint-Maclou, the hiring out of masons exclusively on a piecework, per-contract basis.[262] Similar to these French examples, the stonework in the San Lorenzo nave that exhibits a notable drop in quality after 1461 is located high above the floor, where it is not readily visible to the casual observer; and in the construction ledger of 1441-1450, virtually all work is contracted out on a piecework basis.[263]

April 1465—c. 1475: Demolition of the Old Basilica, and Construction of The Northern Nave Arcade and Northern Nave Chapels

Since the above-noted document of April 1465 mentions "…the chapels that are at present built on the cloister side [of the church]…," and gives Piero de' Medici the authority to assign patronage to the northern chapels that remained to be built, I will assume (as noted above) that by this date the southern nave chapels that had been jointly begun on 6 April 1463 were completed, or nearly so.[264] The documentary evidence available from subsequent years, physical evidence, and the parameters established by the present historical narrative thus far now permit a reconstruction of the remaining progress on the nave. In September 1465 Benedetto di Antonio di Giovenco de' Medici issued a codicil directing his descendants to build a chapel on the site of the old campanile, which had not yet been demolished (Figure 4-28). In either 1475 or 1479 (scholarly descriptions of the codicil are inconsistent) a clause was added to the codicil providing for the endowment of the as yet-unbuilt chapel.[265] In September 1469 Nicolò Dante Ughi recorded a payment for the construction of a chapel in an unspecified location in the basilica that must have been in the northern side of the nave.[266]

The first record of construction work underway in the northern half of the nave is found in a testament of Francesco del fu Ubaldino Inghirami of May 1470, which provides for the

reconstruction of a nave chapel that had been "…damaged by the work being undertaken in the church."[267] Since the Inghirami chapel is the third on the left in the northern side of the nave, counting from the façade wall, the work that damaged this chapel must have been in the area of Columns 12 or 13 (Figure 2-1). Thus, Column 11 must also have been either under construction or standing by this time, and the old basilica must have been demolished. One indication that the façade wall may have been completed around this time is that the angels carved into the entablature blocks of Columns 11 and 12 appear to be the products of the same *bottega*, and to depict the same childrens' likenesses, as those of the entablature blocks of Floor Pilasters 2 and 9 mounted on the interior façade (Figures 2-1, 2-29, 2-26, 4-29 and 4-30). Since the construction ledger of 1441-1453 indicates that during the first phase of the nave construction the production of the entablature blocks kept pace with the construction of the areas of the basilica in which they were to be installed, I will assume that these entablature blocks were similarly manufactured and installed without delay, and that Columns 11 and 12, the remainder of the northern nave arcades, and the façade wall are all roughly coeval, within a few years.[268]

In light of the evidence presented above I propose that the old basilica, excluding the old campanile, was demolished in about 1465. From then until about 1475, I furthermore propose, judging both from available documentary evidence and the time that had been required to build the first three nave bays in the 1440s, much of both the northern nave arcade and side aisle were completed, and all of the northern nave chapels up to and including the Inghirami chapel, but excluding the Medici chapel that would occupy the site of the old campanile, and perhaps excluding the two easternmost northern nave chapels, were completed (Figures 4-28 and 4-31).[269] The question of whether the side aisle vaults require the nave chapels to buttress their outward thrusts will require a detailed structural analysis to resolve. Until such an analysis can be completed, I propose as a working hypothesis that the construction of those vaults could have proceeded independently of the nave chapels (though note that this possible scenario is not illustrated in Fig. 4-31). Either the vaults could have been temporarily shored up laterally until the chapels were completed, or the weight of the masonry walls above the nave chapel openings (the walls that are punctuated by oculus windows), was sufficient to counteract the vault thrusts, just as the high clerestory walls appear to counteract the lateral thrusts of the side aisle vaults toward the central nave.

By about the mid-1470s (let us say c. 1475), the main façade wall and the remaining two northern nave chapels were probably completed (Figure 4-32). As the main façade wall rose alongside the southern nave chapels, which had already been completed by 1465, the left vertical façade seam that we see today was formed (Figures 4-6 and 4-31). Since the right seam is only about

two-thirds the height of the left one (Figures 4-6 and 4-7), construction of the main part of the façade wall (which fronts the nave and both side aisles) must have begun before the narrow strip of the façade wall that fronts the adjacent northern nave chapel. Once the latter was begun, being so narrow, it must have proceeded rapidly, eventually catching up with the height of the main façade wall that was rising next to it. Once the incomplete main façade wall and the narrow northern chapel façade wall reached equal heights, the subsequent stone courses began to run continuously across both walls, unifying them into a single, integrated wall structure. Thus, the right vertical seam today continues only part-way up the façade (Figures 4-14, 4-31 and 4-32). There is thus no reason to imagine the outline of the old basilica as the cause of these façade seams as Herzner proposes. Pagno, who died in 1471, could have directed much or even all of the construction of the northern nave arcade bays, the northern nave chapels, and perhaps the façade wall including its two vertical seams, but documentary evidence from the 1470s is lacking. Pagno's successor as *capomaestro* is unknown.

c. 1475—June 1481: Demolition of the Old Campanile

Construction appears to have continued above the nave arcades for several years after Pagno's death, for in 1477 Lorenzo de' Medici was granted permission to log woods belonging to the *Opera* del Duomo for the roofs of San Lorenzo, presumably over the nave.[270] In preparation for the construction of the final piece of the fifteenth-century basilica, Benedetto's nave chapel, the old campanile had to be demolished. A document of June 1481 that refers to "the roof of the bells" (*el tetto delle champane*), in addition to repairs to the basilica roof, masonry work to fill "holes in the piazza that go under the church" (*rimurare le buche di sulla piazza che va sotto la chiesa*), and a general "cleaning up" (*spazzare*) under the church seems to indicate that the campanile had just been demolished down to its foundations.[271]

The location I have proposed for the old campanile—straddling the north wall of the nave chapel adjacent to the northern side door, and projecting from the north side of the new basilica from about 1448 (when the northern side door was probably constructed) to 1481—explains how the demolished campanile could have left "holes in the piazza that go under the church," as quoted above (Figure 4-32).[272] Indeed, this 1481 reference to holes in the piazza would seem to provide strong evidence *against* Saalman's 1985 campanile proposal, for in that proposal the campanile is fully surrounded by the basilica footprint and would not have left a hole in the piazza when demolished (Figure 4-9b). My proposed campanile location is also consistent with two of the fifteenth-century basilica views discussed previously, MS Lat. 4802 (Figure 4-19) and Cod. Vat. Lat. 491 (Figure 4-20). Problematic though these views may be in some respects, as discussed previously,

both of them show the campanile projecting from the north wall of the basilica—a substantial departure from the Rustici view (Figure 2-1) that may indicate that the two views in question (Figures 4-19 and Figure 4-20) depict the present basilica between 1448 and 1481, even if incompletely. Construction of Benedetto's chapel must have followed soon after the demolition of the campanile (Figures 2-1 and 4-32), for in 1484 the exterior revetment of the north walls of the basilica was applied (*acconcciare due murj*), and pavement was laid around the north side of the basilica.[273]

Thus the construction of the basilica ended with the old campanile as it appears to have begun, for this structure could not have survived as long as it did had Dolfini not used it as an initial point of reference for the layout of the new basilica, safely centering it between the side walls of one of the approximately square nave chapel bays that he originally intended (Figure 4-15). In locating the old campanile as such in relation to the new basilica, Dolfini may have been planning for its permanent incorporation into the new basilica in order to save costs, just as he appears to have done by laying out the new basilica in order to reuse as much of the old basilica foundation as possible, as discussed previously.

4.5 Conclusion to the Construction History of the Fifteenth-Century Basilica

The completion of the nave in about 1484 marked the end of the construction of the main body of the basilica of San Lorenzo that Dolfini had laid out in 1418, and that Brunelleschi and at least three subsequent *capomaestri* had brought to completion. Who first proposed a second sacristy symmetrically opposite the Old Sacristy, and when, is unknown, but there is no evidence that either Dolfini or Brunelleschi ever intended one.[274] Until about 1520 a small burial chapel in the form of an entrance corridor, constructed by Gino Ginori beginning as early as 1457, occupied the site of the present New Sacristy.[275] In about 1530 the basilica interior gained two Corinthian columns of *pietra serena* when Michelangelo transformed the interior façade to house the *Tribuna delle Reliquie* (Figures 2-1 and 2-3).[276] Despite his extensive preparations, however, Michelangelo's ambitious plans for a sumptuous exterior façade never came to fruition. In the eighteenth century Ferdinando and Giuseppe Ruggieri saved the transept from what they believed to be imminent collapse by reconstructing the high altar chapel walls and extensive portions of the basilica foundations. They also added a square dome enclosure and an ornate belfry to the exterior.[277]

Even after the death in 1743 of the Electress Palatine Anna Maria Louisa de' Medici, the last survivor of the Medici dynasty who had taken a personal interest in the basilica, the transformation of the basilica continued. In 1861 the basilica interior gained two more Corinthian columns of *pietra serena* when Gaetano Baccani redesigned the back wall of the high altar chapel, in general imitation

of Michelangelo's interior façade, to contain a choir and an organ loft (Figures 2-1 and 4-4).[278] In that year Baccani also embellished the nave by carving recessed panels twenty-nine cm deep into the back walls of the nave chapels and framing them with heavy, compound concentric moldings of *pietra serena*.[279] Eighty-five years later Argan interpreted these molded panels as original components of Brunelleschi's purported efforts to create effects of perspectival illusion.[280] Another seven years later, Wittkower continued Argan's perspectival reading of the basilica in his influential article "Brunelleschi and 'Proportion in Perspective,'" based in part on his belief that the present gridded pavement pattern constitutes an original Brunelleschi design element, even while acknowledging that the basilica interior was repaved in 1886.[281]

Virtually every art and architectural history textbook published since 1953 has repeated Wittkower's interpretation of the basilica as a "metrically coherent" perspectival viewing box, and as a result, today any art historical discussion of this building that does not mention the purported aesthetic influences of proportion and perspective is rare.[282] If human perception of architecture is dependent in part on the beliefs of the viewer, then Wittkower, due to his widespread influence in shaping public and scholarly perception of this building for over six decades, deserves inclusion in the list of important San Lorenzo shapers, along with Dolfini, Brunelleschi, Michelozzo, Pagno di Lapo Portigiani, Michelangelo, the Ruggieri brothers and Baccani.

The historical analysis of the basilica of San Lorenzo that concludes here is more comprehensive than any previously attempted because it reexamines, in the form of a chronological narrative, every known document pertaining to the construction history of the basilica of San Lorenzo. It also incorporates the first new historical evidence pertaining to that construction history to be discovered in many years. That new evidence consists of the set of proportions that I have identified based on observation-based and documentary research. I have argued, in turn, that that set of proportions rises to a high enough level of historical certainty to be considered a genuine historical artifact. This new proportional evidence has led me to present:

1. new distinctions between Dolfini and Brunellechi's contributions to the design of the basilica;
2. a new reconstruction of the floor plan of Dolfini's basilica design and of the location the old basilica;
3. a new interpretion of the 1434 nave chapel proposal, and a new hypothesis that Brunelleschi was able to withold design information from the unsuccessful chapel builders;

4. new observations of both Brunelleschi's design methods and his attitudes toward theory in relation to practice; and
5. new evidence that sets of proportions have no influence on architectural aesthetics (in light of the low "stakes" of the authorship question).

I present this narrative as neither definitive in its method nor its conclusions, but rather as a framework for further discussion.

[1] For descriptions of the basilica from before its completion see Antonio Manetti, *Vita di Filippo Brunelleschi*, ed. Giuliano Tanturli (Milan: Edizioni Il Polifilo, 1976), 109; and the mid-fifteenth century comments of Flavio Biondo quoted in: Howard Burns, "Quattrocento Architecture and the Antique: Some Problems," in *Classical Influences on European Culture A.D. 500-1500: Proceedings of an International Conference Held at King's College, Cambridge, April 1969*, ed. R.R. Bolgar (Cambridge: Cambridge University Press, 1971), p. 273. For later discussions of the history of the basilica, see below.

[2] Caroline Elam, "The Site and Early Building History of Michelangelo's New Sacristy," Mitteilungen des Kunsthistorischen Institutes in Florenz 23 (1979): 161-186; and Elam, "Cosimo de' Medici and San Lorenzo," in *Cosimo 'il Vecchio' de' Medici, 1389-1464: Essays in Commemoration of the 600th Anniversary of Cosimo de' Medici's Birth*, ed. Francis Ames-Lewis (Oxford: Clarendon Press, 1992), 157-180.

[3] Manetti, *Vita*; Giorgio Vasari, *Le vite de' piu' eccellenti architetti, pittori, et scultori italiani, da cimabue insino a' tempi nostri: nell'edizione per i tipi di Lorenzo Torrentino, Firenze 1550*, ed. Luciano Bellosi and Aldo Rossi (Turin: G. Einaudi, 1986); Giorgio Vasari, *Le vite de' piu eccellenti pittori scultori e architettori*, ed. Karl Frey (Munich: G. Muller, 1911), Vol. I; Ferdinando Leopoldo del Migliore, *Firenze: Città nobilissima illustrata* (Florence: della Stella, 1684), Vol. 1; and Giuseppe Richa, *Notizie Istoriche delle chiese fiorentine : divise ne' suoi quartieri* (Florence: Pietro Gaetano Viviani, 1757), Vol. 5.

[4] Pier Nolasco Cianfogni, *Memorie istoriche dell'ambrosiana real basilica di San Lorenzo di Firenze* (Florence: Domenico Ciardetti, 1804); and Domenico Moreni, *Continuazione delle memorie istoriche dell' ambrosiana imperial basilica di S. Lorenzo di Firenze*, vol. 1 (Florence: Francesco Daddi, 1816) and vol. 2 (1817).

[5] Cornel von Fabriczy, *Filippo Brunelleschi: Sein Leben und seine Werke* (Stuttgart: J. G. Cotta, 1892); and Walter and Elisabeth Paatz, *Die Kirchen von Florenz*, vol. 2 (Frankfurt am Main: V. Klostermann, 1940), 464-593.

[6] See note 1 and: Burns, "Quattrocento Architecture," 269-287; Caroline Elam, "Bricks, Mortar and Chains," Review of Battisti, *Art History* 5 (1982), 489-497; Elam, "Il palazzo nel contesto della città: strategie urbanistiche dei Medici nel gonfalone del leon d'oro, 1415-1430," in *Il palazzo Medici Riccardi di Firenze*, ed. Giovanni Cherubini and Giovanni Fanelli (Florence: Giunti, 1990), 44-57; Isabelle Hyman, "Fifteenth Century Florentine Studies: The Palazzo Medici; and a Ledger for the Church of San Lorenzo," New York University, Ph.D. diss., 1968 (Ann Arbor, Michigan: University

Microfilms, 1970); *idem*, "Notes and Speculations on S. Lorenzo, Palazzo Medici, and an Urban Project by Brunelleschi," *Journal of the Society of Architectural Historians* 34 (1975), 98-120; Isabelle Hyman, "Towards Rescuing the Lost Reputation of Antonio di Manetto Ciaccheri," in *Essays Presented to Myron P. Gilmore*, ed. Sergio Bertelli and Gloria Ramakus, vol. 2 (Florence: La Nuova Italia, 1978), 261-280; Isabelle Hyman, "The Venice Connection: Questions About Brunelleschi and the East," in *Florence and Venice: Comparisons and Relations, Florence and Venice, comparisons and relations : acts of two Conferences at Villa I Tatti in 1976-1977*, ed. Sergio Bertelli, Nicolai Rubinstein, and Craig Hugh Smyth (Florence: La nuova Italia, 1979-1980), vol. 1 (1978), 193-208; Jeffrey Ruda, "A 1434 Building Programme for San Lorenzo in Florence," *Burlington Magazine* 120 (1978), 358-361; Pietro Ruschi, "La Sagrestia Vecchia di San Lorenzo: per un disegno delle vicende costruttive" in *Donatello e la Sagrestia Vecchia di San Lorenzo: Temi, studi, proposte di un cantiere di restauro,* ed. Cristina Danti, Isabella Lapi Ballerini, Pietro Ruschi, and Carlo Sisi (Florence: Centro Di, 1986), 15-23; Ruschi, "Una collaborazione interrotta: Brunelleschi e Donatello nella Sagrestia Vecchia di San Lorenzo," in *Donatello-Studien*, ed. Monika Cämmerer (Munich: Bruckmann, 1989), 68-87; Ruschi, "San Lorenzo prima del Brunelleschi," in *San Lorenzo: 393-1993, L'architettura, Le vicende della fabbrica*, ed. Gabriele Morolli and Pietro Ruschi (Florence: Alinea Editrice, 1993), 37-46; Ruschi, "Un 'sepoltuario' quattrocentesco e il cantiere per la nuova cappella del magnifico in San Lorenzo," in *La Toscana al tempo di Lorenzo il Magnifico: Politica Economia Cultura Arte*, vol. 1 (Pisa : Pacini, 1996), 103-120; Ruschi, "La Sagrestia Nuova, metamorfosi di uno spazio," in *Michelangelo architetto a San Lorenzo: quattro problemi aperti*, ed. Pietro Ruschi (Florence: Mandragora, 2007), 15-49; Howard Saalman, "Filippo Brunelleschi: Capital Studies," *Art Bulletin* 40 (1958), 113-137; Saalman, "Tommaso Spinelli, Michelozzo, Manetti, and Rosselino," *Journal of the Society of Architectural Historians* 25 (1966), 151-164; Saalman, "San Lorenzo: the 1434 Chapel Project," *Burlington Magazine* 120 (1978), 361-364; Saalman, "The New Sacristy of San Lorenzo before Michelangelo," *Art Bulletin* 67 (1985), 199-228; Saalman, *Filippo Brunelleschi: The Buildings* (University Park, Pennsylvania: Pennsylvania State University Press, 1993), 106-209; Piero, Rosselli [sic.], "Brunelleschi in San Lorenzo, Contributi alla cronologia dell'edificazione," *Antichita' viva* 2 (1979), 36-43; Piero Roselli, and Orietta Superichi, *L'edificazione della Basilica di San Lorenzo: una vicenda di importanza urbanistica* (Florence: Cooperativa Editrice Universitaria, 1980); Franco Borsi, Gabriele Morolli, and Francesco Quinterio, *Brunelleschiani* (Rome: Officina Edizioni, 1979); Gabriele Morolli, "San Lorenzo da Piero a Lorenzo (1465-1480 circa)," in *San Lorenzo: 393-1993, L'architettura, Le vicende della fabbrica*, ed. Gabriele Morolli and Pietro Ruschi (Florence: Alinea Editrice, 1993), 73-80; and Morolli, "Non solo Brunelleschi: San Lorenzo nel Quattrocento," in *Alla*

riscoperta delle chiese di Firenze: 5. San Lorenzo, ed. Timothy Verdon (Florence: Centro Di, 2007), 58-109.

[7] Matthew A. Cohen, "Ugly Little Angels: Deliberately Uneven Construction Quality in the Basilica of San Lorenzo in Florence," *arq: Architectural Research Quarterly* 11 (2007): 276-89; Cohen, "How Much Brunelleschi? A Late Medieval Proportional System in the Basilica of San Lorenzo in Florence," *Journal of the Society of Architectural Historians* 67 (2008): 18-57; Cohen, "The Lombard Connection: Northern Influences in the Basilicas of San Lorenzo and Santo Spirito in Florence," *Annali di architettura* 21, 2009, 31-44; Cohen, "Quantification and the Medieval Mind: An Imperfect Proportional System in the Basilica of Santa Maria del Fiore in Florence," in *Some degree of happiness, Studi di storia dell'architettura in onore di Howard Burns*, ed. M. Beltramini and C. Elam (Pisa: Edizioni della Normale, 2010), 1-30; and Cohen, "Ugly Little Angels Revisited," in *Quality Out of Control: Standards for Measuring Architecture*, ed. Allison Dutoit, Juliet Odgers, and Adam Sharr (London: Routledge, 2010), 79-91. (Note that in the latter article, due to a publisher's error Figure 7.4 therein contains the correct caption but an incorrect photograph. The correct photograph should be the one shown in Figure 2-23 in the present study).

[8] Saalman's lengthy treatment of the basilica of San Lorenzo in *Brunelleschi: The Buildings* provides no new information or significant observations, exception for a few brief documentary transcriptions. Saalman, *Brunelleschi: The Buildings*, 106-209.

[9] I thank Caroline Elam for contributing *regesto* Docs 1420a, 1423f, 1427f, 1444a, 1445a and 1477a from her own archival research.

[10] Dolfini's name appears in this form in Cianfogni, *Memorie istoriche*, 183. The earliest known document in which Dolfini's name appears dates to 1422, and provides the name as *M. domino Matteo Dolfini*. Elam, "The Site and Early Building History," Doc. A, p. 184. Cianfogni cites references to Dolfini's name dating as early as 1391, but does not provide full documentary citations. Cianfogni, *Memorie istoriche*, 177–178; and *regesto* Document 1391a.

[11] Kathleen Olive, "The Codex Rustici and the Fifteenth-century Florentine Artisan," *Renaissance Studies* 23 (2009), 593, 597 and 600; and for an annotated bibliography, 595 note 2.

[12] Piero Ginori Conti, *La Basilica di S. Lorenzo di Firenze: e la famiglia Ginori* (Florence: Fondazione Ginori Conti, 1940), 235; and *regesto* Doc. 1418a.

[13] *Ibid*., 242-243; and *regesto* Doc. 1442e.

[14] The basilica of Ss. Apostoli, which is still extant, was founded in about 786 but was probably rebuilt around the eleventh century. The basilica of San Pier Scheraggio, which is today only partially preserved, was dedicated in 1068. Daniele Negri, *Chiese Romaniche in Toscana* (Pistoia: Libreria

editrice Tellini, 1978), 233; and Richard Krautheimer, "Introduction to an 'Iconography' of Mediaeval Architecture," *Journal of the Warburg and Courtauld Institutes* 5 (1942), 11.

[15] Ruschi proposes a *trecento* origin for the old campanile based on the stylistic evidence provided in the Codex Rustici view. Ruschi, "San Lorenzo prima del Brunelleschi," 38 note 14.

[16] The following argument is a refinement and an elaboration of the one I have presented in: Cohen, "Ugly Little Angels Revisited," 90 note 27. For references to directions, see "Project North" arrow in Figs. 2-1, 4-5 and subsequent site plans.

[17] Ginori Conti, *La Basilica di S. Lorenzo*, 235; and *regesto* Doc. 1418a.

[18] See, for example, Volker Herzner, "Zur Baugeschichte von San Lorenzo in Florenz," *Zeitschrift für Kunstgeschichte* 37 (1974), 93-94; and Borsi, Morolli and Quinterio, *Brunelleschiani*, 77.

[19] "Et quia ecclesie huiusmodi corpus cum cappellis, sacrestia, et aliis opportunis ex posteriori parte extendi per longitudinem debet brachiis sexaginta quinque, et per latitudinem centumdecem in ordine Cappellarum…." Ginori Conti, *La Basilica di S. Lorenzo*, 235; and *regesto* Doc. 1418a.

[20] Rosselli [sic], "Brunelleschi in San Lorenzo," 37; and Roselli and Superichi, *L'edificazione della Basilica di San Lorenzo*, 68, 133-136.

[21] See the report of 1741-1742 by the architect Ferdinando Ruggeri on the extensive restoration work he undertook on the basilica, transcribed in Roselli and Superichi, *L'edificazione della Basilica di San Lorenzo*, 54-61, 76-77; and Valerio Tesi, "La 'generosa pieta' dell'elettrice palatine: restauro e completamento della basilica laurenziana new tramonto dei Medici," in *San Lorenzo: 393-1993, L'architettura, le vicende della fabbrica*, ed. Gabriele Morolli e Pietro Ruschi (Firenze: Alinea, 1993), 26, 151-158.

[22] Valerio Tesi, "L'ottocento," in *San Lorenzo: 393-1993, L'architettura, le vicende della fabbrica*, ed. Gabriele Morolli e Pietro Ruschi (Firenze: Alinea, 1993), 163-164.

[23] For the basis of this assumption, see Chapter 3.

[24] Note that since Column 9 has a shaft diameter of 87.5 cm, and the chapel wall in question has a similar thickness, Line A2 passes through these structural elements regardless of the 40 cm (about $\frac{2}{3}$ br) assumed potential error in this measurement, as discussed above.

[25] Ginori Conti, *La Basilica di San Lorenzo*, 242-243; and *regesto* Doc. 1442e. In this document the phrase *ad altare maius antiquum* occurs three times.

[26] Hyman, "Fifteenth Century Florentine Studies," 484, 538; and *regesto* Doc. 1446f.

[27] Ibid., 496, 511, 515, 516, 538-543; Hyman, "Notes and Speculations," 117; and *regesto* Docs. 1448a-c, e, i, k, l, 1449c-i, k, l.

[28] Herzner rejects my characterization of the nave construction as having been completed in two distinct phases, but does not acknowledge the evidence of such phases provided by the construction ledger. Volker Herzner, "Letter to the Editor" and Matthew Cohen, "Matthew Cohen's Reply," *Journal of the Society of Architectural Historians* 67 (2008), 634-635. Later Herzner lists Hyman's article of 1975, "Notes and Speculations," in a footnote without ever mentioning the ledger cited by Hyman or its value as historical evidence. Volker Herzner, "How much Brunelleschi? Matthew Cohen und sein Phantom-Architekt von San Lorenzo in Florenz," (Discussion Papers) In: *Kunstgeschichte. Open Peer Reviewed Journal* (2009), note 4, < http://www.kunstgeschichte-ejournal.net/discussion/2009/herzner> 6 June 2011.

[29] Roselli and Superchi*, L'edificazione*, 50–53; and *regesto* Doc. 1434a.

[30] Giuliano da Sangallo, "Tacuino senese," fol. 21v, Biblioteca Comunale, Siena.

[31] "…malvolentieri, perchè gli pareva cosa misera." Antonio Manetti, *Vita di Filippo Brunelleschi*, ed. Giuliano Tanturli (Milan: Edizioni Il Polifilo, 1976), 108.

[32] On the construction of the present nave chapels see Ginori Conti, *La Basilica di S. Lorenzo*, 72–73; Roselli and Superchi, *L'edificazione*, 104-124 and 128-129; Saalman, *Brunelleschi: The Buildings*, 439, Document 12.1; and *regesto* Docs. 1463b, 1465a-b, 1469b, 1470a, and 1479a.

[33] "e 'l corpo della chiesa dalla croce in giù, che non è conforme alla detta croce, benché sia bella cosa, ma reca seco molti inconvenienti, e di cose necessarie allo edificio, e di mancamenti di bellezza di drento e di fuori." Manetti, *Vita di Filippo*, ed. Tanturli, 111. This comment may also imply that Manetti objected to the sculptural reliefs in the entablature block friezes in the nave, since no comparable features appear in the transept.

[34] Cohen, "The Lombard Connection," 31-44.

[35] According to this proposal I assume that both Dolfini and Brunelleschi believed that the foundation under the north wall of the old basilica was strong enough to support the originally-intended north wall of the proposed new basilica, which would have risen only as high as the backs of their originally-intended deep nave chapels.

[36] The full text of the plaque is as follows: MAGNIFICUS BERNARDUS MEDICES ANTONII FILIUS IUVENCI NEPOS ANNO MCCCCLXV HIC UBI CAMPANARIA VETUSTI TEMPLI TURRIS ADHUC ASSURGEBAT SPATIO SIBI IURE OPTIMO VINDICATO SACELLUM D BERNARDO DICATUM EXTRUENDUM ET CAPELLANIA AERE SUO AUGENDUM TESTAMENTO VOLUIT EIUSQUE HÆREDES PERSOLUTO TANTI MAIORIS VOTO PENES SE SOLOS ET SACELLI DOMINUM ET SACERDOTII COLLATIONEM SARTA TECTA SEMPER CONSERVARUNT ERA DE RE FRANCISCUS ET PETRUS MEDICES AVERARDI

FILII AC FUNDATORIS POSTERI MONUMENTUM POSUERE ANNO REPARATAE SALUTIS MDCCLX. I thank Eva Mussotter and Ursula Winkler for recording this transcription. The text of this plaque is published, with minor spelling changes, in Moreni, *Continuazione*, vol. 1, 120-21.

[37] *Ibid*.

[38] *Ibid*., 117 note 1; Roselli and Superchi, *L'edificazione*, 128; and *regesto* Doc. 1465b.

[39] Moreni, *Continuazione*, vol. 1, 118 note 1; and *regesto* Doc. 1465b.

[40] The rather large dimension noted in this document, 146 br, may be a reference to square *braccia* of surface area of the completed brick wall. Hyman, "Fifteenth Century Florentine Studies," 350-51, 497; and *regesto* Doc. 1448f.

[41] "…due archi dal campanile sopra le colonne tonde." *Ibid*., 543; and *regesto* Doc. 1449i; "…le colon[n]e grandi dallato di verso il campanile…," *Ibid*., 515, 543; and regesto Doc. 1449k. Cf. *Ibid*., 337, 359, 360, 516; and *regesto* Doc. 1449L.

[42] Roselli and Superchi, *L'edificazione*, 130; and *regesto* Doc. 1463a.

[43] Saalman, "The New Sacristy Before Michelangelo," 207; Saalman, *Brunelleschi: The Buildings*, 439, Documents 12.1 and 12.2; and *regesto* Doc. 1481a.

[44] Giovanni Poggi, *Il carteggio di Michelangelo*, ed. Paola Barocchi and Renzo Ristori (Florence: Sansoni, 1965), 236; and *regesto* Doc. 1516a. Cf. William E.Wallace, *Michelangelo at San Lorenzo: The Genius as Entrepreneur* (Cambridge: Cambridge University Press, 1994).

[45] Poggi, *Il carteggio di Michelangelo*, 238-240, and *regesto* Docs. 1517a-c; "… ttroviamo di mollti muri vechi che bissognia dissfarglli." *Ibid*., 292, and *regesto* Doc. 1517d.

[46] Additional research is required to determine the exact location of the church property line at the front façade, both at present and in the fifteenth and sixteenth centuries.

[47] The internal, wall to wall measurements of the Basilicas of Santi Apostoli and San Miniato al Monte indicated in Figures 4-2a and c were recorded by the author in 2005 using steel tape measures manufactured by S.E.B. and a Leica Disto laser measuring device. The basilica of San Miniato al Monte was founded in 1018, and construction presumably proceeded soon thereafter. Francesco Gurrieri, Luciano Berti and Claudio Leonardi, eds., *La Basilica di San Miniato al Monte*, (Florence: Cassa di Risparmio di Firenze, 1988), 15.

[48] The complete passage reads: "Reliquit amore Dei, et pro utilitate anime sue Ecclesie, et Capitulo Ecclesie S. Laurentii de Florentia dimidium urcei olei, hoc est, medietatem unius barilis, sive lagene olei quolibet et pro quolibet anno in perpetuum cum onere, quod Prior, et Capitulum dicte Ecclesie teneantur, et debeant continuo tenere unam lampadem ad Oraculum, et ante Figuram Virginis Marie pictam, et sitam in secunda columna a dextris in introitu dicte Ecclesie, sive in columna, que est in

dicta Ecclesia, propinquiori, et prope januam, per quam egreditur et itur recta linea in viam Stuphe, que lampas debeat continuo cum oleo retineri accensa: in hoc conscientiam Prioris, et dicti Capituli strictissime onerando ec." ("Out of the love of God, and for the utility of his soul, he left to the church and chapter of the church of S. Lorenzo of Florence one half pitcher of oil, that is, a half a barrel, or bottle of oil each and every year in perpetuity with the obligation that the Prior and Chapter of the said church should be held and must continually keep a light at the place of prayer and before the painted figure of the Virgin Mary, situated on the second column to the right of the entrance to the said church, or at the column, which is in said church, closer by, and near the door through which one goes out and proceeds in a straight line to Via della Stufa, which lamp should be kept continually replenished with oil: most strictly burdening the conscience of the prior and the said chapter in this matter.") Moreni, *Continuazione*, vol. 1, 133 n. 1; and *regesto* Doc. 1464a. In formulating the preceding translation I benefitted from the assistance of Caroline Elam, Caroline van Eck and Jack Wasserman. This translation corrects and supersedes my previous one in Cohen, "Ugly Little Angels," 286.

[49] I thank Caroline Elam for providing the following documentary references from her personal archival notes (underlines here and in note 53 are mine). 1420: reference to a fornaio "in sul chanto della via della stufa dirimpetto alla porta della chiesa" (ACSL 2408, 2r), *regesto* Doc. 1420a; 18 May 1423: The prior and chapter allocate to Ser Giovanni Bonaiuti a place "pro porta sive ianua que dicitur la porta della via della stufa usque ad tabernaculum nostre donne quod dicitur factum per magnificam potentiam florentinam excepto chiusuro sepulture illorum della stufa." ("in front of the door or opening which is called the door of the via della Stufa up to the tabernacle of Our Lady which [i.e. tabernacle] is said o have been made by the Florentine government, excepting the lid of the burial place of the della Stufa"), *regesto* Doc. 1423aa; 1427: Ser Giovanni Bonaiuti declares a Monte credit of 525 florins the interest on which is to be used perpetually "per uno cappellano perpetuale il quale a essere diputato a ufficiare uno altare il quale io o fatto fare nella chiesa di Sa Lorenzo alato alla porta che va nella via della stufa". (Catasto 49, 453r), *regesto* Doc. 1427aa; 1444: Reference to "l'altare di sto Antonio dalla porta alla stupha tra due pilastri a pie di Sto Gregorio" (the altar of St Anthony at the porta della Stufa between two piers at the foot of St Gregory). (ACSL 1938 36r), *regesto* Doc. 1444a; 1445: February 13. Lotteringho d'Andrea della Stufa buried "nel mezzo alla porta della Stufa" (ACSL 1938 36v), *regesto* Doc. 1445a. See also: the decree issued on 16 March 1434 by the *signoria* ordering that a block of buildings adjacent to the basilica of San Lorenzo be demolished. According to Hyman: "the area to be levelled was specified in the decree; it ran from the palace of the della Stufa family on Via della Stufa, opposite the last portal of the old church ("*contra ultimam portam dicte ecclesie*"), to the shop of spice dealer Giusaffà in Via de' Ginori…," Hyman, "Notes and Speculations on S. Lorenzo," 107; and *regesto* Doc. 1434a.

[50] See basilica construction history, below.

[51] Moreni, *Continuazione*, vol. 1, 133 note 1; and *regesto* Doc. 1464a.

[52] Moreni, *Continuazione*, vol. 2, 358-360; and *regesto* Doc. 1423d.

[53] "pro porta sive ianua que dicitur la porta della via della stufa usque ad tabernaculum nostre donne quod dicitur factum per magnificam potentiam florentinam excepto chiusuro sepulture illorum della stufa." Catasto 49, 453r, 18 May 1423, document transcription and translation provided by Caroline Elam; see also *regesto* Doc. 1423aa; and Moreni, vol. 2, 119-120.

[54] "quod si quantum aliquo tempore contigeret quod cappelle crescerent et fierent per modum quod in dicto loco foret necesse fieri cappella ad similitudinem aliarum quae ibidem fierent pro ornamento et augmentatione dicte ecclesie." Catasto 49, 453r, 18 May 1423, document transcription and translation provided by Caroline Elam. See also *regesto* Doc. 1423aa. Cf. Moreni, vol. 2, 119-120.

[55] The old basilica proposal presented here is briefly summarized, in less-developed form, in: Cohen, "Ugly Little Angels Revisited," 90 note 27. Many scholars with whom I have since spoken resist my proposal that the old basilica stood off-center in relation to the present one.

[56] Saalman, "Filippo Brunelleschi: Capital Studies," 124.

[57] Saalman, "The New Sacristy of San Lorenzo Before Michelangelo," 202-203, 207.

[58] Saalman, *Filippo Brunelleschi: The Buildings*, 116 note 35.

[59] Saalman, *Ibid.*, 455.

[60] See notes 17-18.

[61] Borsi, Morolli and Quinterio, *Brunelleschiani*, Figs. 170, 201, 202, 289 and 292.

[62] Roselli and Superichi, *L'edificazione*, 133-136.

[63] Elam, however, cites Herzner, and Roselli and Superichi, as her sources, not Saalman. Elam, "Cosimo de' Medici and San Lorenzo," 161.

[64] Saalman, *Filippo Brunelleschi: The Buildings*, 110-111; Pietro Ruschi, "La cappella medicea o sagrestia nuova," in *San Lorenzo 393-1993*, 121, Ruschi, "San Lorenzo prima del Brunelleschi" in *Ibid.*, 39; and Morolli, "La 'Croce' di Giovanni, I 'più modi' di Filippo (1422-1428)," in *San Lorenzo 393-1993*, 50.

[65] Riccardo Pacciani, "Testimonianze per l'edificazione della Basilica di San Lorenzo a Firenze, 1421—1442" *Prospettiva* 75-76 (July-Oct. 1994), 85; Arnaldo Bruschi, *Filippo Brunelleschi* (Milan: Electa, 2006), 108; and Pietro Ruschi, "La Sagrestia Nuova, metamorfosi di uno spazio," in *Michelangelo architetto a San Lorenzo: quattro problemi aperti*, Pietro Ruschi, ed. (Florence, 2007), 23, 26.

[66] Morolli, "Non solo Brunelleschi: San Lorenzo nel Quattrocento," in Timothy Verdon, ed., *Alla riscoperta delle chiese di Firenze: 5. San Lorenzo* (Florence, 2007), 58, 61, 73; and Morolli, "La 'Croce' di Giovanni, I 'più modi' di Filippo (1422-1428)," in *San Lorenzo 393-1993*, 50.

[67] Sanpaolesi was the first to make note of the facade seams and to associate them with the old basilica. However, in an argument that is not clear, he interprets them as evidence that the present basilica was constructed from east to west, around and eventually replacing the old basilica. Piero Sanpaolesi, *Brunelleschi* (Milan: Edizioni per il Club del Libro, 1962), 73-74; and notes 17-18.

[68] Saalman has never presented evidence that the wall fragment in question is indeed a remnant of the old campanile foundation. He simply describes it as such, as in his statement: "a wall fragment of the campanile was left standing under the portal-chapel." Saalman, "The New Sacristy Before Michelangelo," 207. He later provides a photograph of the wall fragment with the caption: "Foundations of old campanile in underchurch under the seventh northern side chapel." Saalman, *Brunelleschi: The Buildings*, 191, 194-195.

[69] Saalman, *Filippo Brunelleschi: The Buildings*, 439; and *regesto* Doc. 1481a.

[70] On 30 July 1448 a mason was paid for construction work that included the "door of the campanile" (*porta dal campanile*). If the campanile had stood in the seventh aisle bay in question, however, the door would have been inaccessible. Hyman, "Fifteenth Century Florentine Studies," 497; *regesto* Doc. 1448f; and note 40, above.

[71] Dr. Rowland Mainstone, letter to Matthew A. Cohen, 7 September 2010.

[72] Giuliano De Marinis, "San Lorenzo – I dati archeologici" in *San Lorenzo: 393-1993*, 33.

[73] Architect Giuseppe Ruggieri notes in his report of 1741-2 that portions of failed foundations in the basilica had been constructed with gravel from the Mugnone, a river that once passed through the site of the basilica. Roselli and Superichi, *L'edificazione*, 55. This former river, long since diverted, could have created ground water issues for the old and new basilicas.

[74] Mainstone, letter to Matthew A. Cohen, 13 October 2010.

[75] The only possible remaining evidence that the campanile might have been located on the site of the present northern side door is a document, which no scholar has ever cited in this context, is found in a notarial record of 23 May 1433. The document indicates, according to Elam, that: "The prior had already in September 1423 been given authority to allocate … [the chapel of Luca di Marco], described as 'next to the campanile of the said church and next to the chapel to be made by the heirs of Zanobi di ser Gino.'" Elam, "Cosimo de' Medici and San Lorenzo," 167; and *regesto* Interpolated Doc. 1423e and Doc. 1433a. The chapel of Luca di Marco is the corner chapel today located next to the northern side door (Figure 2-1). Therefore, if this chapel were to have been located next to the old

campanile, the old campanile would have to have been located on the site of the present northern side door. Elam has recently informed me, however (in an e-mail of 28 April 2010), that since the publication of the preceding transcription in 1992 she has changed the transcription of "nolarium," which she had translated as "campanile" above, to "navarium," which could mean "nave." Elam notes that the original document should be checked again. Barring any new evidence to support the previous reading, this document should not be interpreted as evidence that the chapel of Luca di Marco once stood next to the old campanile.

[76] Cohen "How Much Brunelleschi?," 43.

[77] *Ibid*., 42.

[78] *Ibid*., 43.

[79] See, for example, the comments of Andrew Leach: "[Cohen] concludes that responsibility for part of the design of San Lorenzo lies with Brunelleschi's predecessor, Prior Matteo di Bartolommeo Dolfini. Cohen's analysis suggests that, as much as San Lorenzo might be understood as a building heralding new beginnings, it ought also to be understood in terms of the fourteenth-century compositional and construction practices that endured into the fifteenth century, and therefore in terms of a medieval tradition that casts a long shadow over the Renaissance," *What is Architectural History?* (Cambridge: Polity Press, 2010), 86; Robert Bork: "…as Matthew Cohen has recently argued, the proportions of San Lorenzo may well have been largely established before Brunelleschi's intervention," *The Geometry of Creation: Architectural Drawing and the Dynamics of Gothic Design* (London: Ashgate Press, 2011), 421 and 427; and Marvin Trachtenberg's reference to: "...Brunelleschi's transformation of Prior Dolfini's project [at S. Lorenzo] following the new reading of Matthew Cohen…, *Building-in-Time: From Giotto to Alberti and Modern Oblivion* (New Haven and Yale: Yale University Press, 2010), 443 n. 144.

[80] Volker Herzner, "'How much Brunelleschi?' Matthew Cohen und sein Phantom-Architekt von San Lorenzo in Florenz," *Kunstgeschichte* 2010-11. < http://www.kunstgeschichte-ejournal.net/archiv/2010/herzner/> (Accessed 12 October 2010). Others have questioned the extent of my Dolfini attribution in conversations with me.

[81] See, for example, Janson: "What makes the interior of San Lorenzo seem so beautifully integrated? There is indeed a controlling principle that accounts for the harmonious, balanced character of his design: the secret of good architecture, Brunelleschi was convinced, lay in giving the 'right' proportions—that is, proportional ratios expressed in simple whole numbers—to all the significant measurements of a building." H. W. Janson, *History of Art*, 3rd ed. (New York, 1986), 410; 6th ed. (2001), 398; and with slight modification by a team of authors, 7th ed. (2007), 511; and 8th ed.

(2011) 512-514. See also Peter Murray: "[Brunelleschi's] Florentine churches became examples of proportional planning, since they took an established building type and subjected it to a mathematical discipline….the total effect is…much more harmonious than was the case in a church like Sta Croce." Peter Murray, *The Architecture of the Italian Renaissance* (New York: Schoken Books, 1963), 33-34.

[82]Rudolf Wittkower, "Brunelleschi and 'Proportion in Perspective,'" *Journal of the Warburg and Courtauld Institutes* 16 (1953), 275-291. I can report anecdotally, from my numerous recent conversations with scholars, that the views expressed in Wittkower's article cited here remain prevalent today.

[83] With this statement I articulate a position opposite to that of Wittkower, who states: "I think it is not going too far to regard commensurability of measure as the nodal point of Renaissance aesthetics." Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (New York and London: W.W. Norton & Company, 1971), Appendix II, 158.

[84] *Ibid*., and Wittkower, "Brunelleschi and 'Proportion in Perspective,'" 275-291.

[85] Cohen, "The Lombard Connection," 33-39. Another observation of similar sets of proportions in buildings of dissimilar styles may be made in the early Renaissance-style basilica of San Lorenzo and the Gothic style Basilica of Santa Maria del Fiore in Florence. In both, key width-by-height proportions of the nave arcade bays are determined by root-2 rectangles measured plinth to plinth, and dimensioned with pairs of numbers that closely approximate the ratio 1:√2. Cohen, "Quantification and the Medieval Mind," 1-30.

[86] For the belief that Dolfini's foundations were to blame for structural weaknesses in the crossing area, see the citation of Migliore's seventeenth century *Firenze illustrata* in architect Giuseppe Ruggieri's 1741 report. Roselli and Superichi, *L'edificazione*, 55; and Saalman, *Filippo Brunelleschi: The Buildings*, 179. See also Eugenio Battisti, *Brunelleschi: The Complete Work* (New York: Rizzoli, 1981), 179; Hans Folnesics, *Brunelleschi: Ein beitrag zur entwicklungsgeschichte der fruhrenaissance-architektur* (Vienna: Kunstverlag Anton Schroll & Co., 1915), 32; and Cornel von Fabriczy, *Filippo Brunelleschi: Sein Leben und seine Werke* (Stuttgart: J. G. Cotta, 1892), 154-169. Morolli, "Non solo Brunelleschi," 62; and Borsi, Morolli and Quinterio, *Brunelleschiani*, 79, 266 and 291.

[87] "… murandosi la chiesa di San Lorenzo di Firenze, principiato pe' popolani di quella e fattone capomaestro el priore della chiesa che v'era in que' tempi, che era oppenione ch'egli intendessi secondo gli altri architettori di que' tempi, e avevala cominciata di pilastri di mattoni …" Manetti, *Vita*, ed. Tanturli, 106. Note in this passage Manetti's indication that the basilica was begun by the parishioners, and therefore was, as Caroline Elam has emphasized in conversation with me, "a

corporate enterprise." For a similar assessment see Anthony Molho, "Cosimo de' Medici: Pater Patriae or Padrino?", *Stanford Italian Review* 1 (1979), 27-28.

[88] "e' fece conclusione che la fabrica vecchia s'abandonassi e disfacessesi e atendessisi al tutto a uno de' modi di Filippo." *Ibid*., 107. By this point in Manetti's narrative, the "corporate enterprise" (see preceding note.) had apparently been taken over by Giovanni de' Medici.

[89] See note 86, above, and: Migliore as quoted in: Roselli and Superichi, *L'edificazione*, 55; Luigi Zumkeller, "L'isolamento della Basilica di San Lorenzo e la questione della parete tergale della chiesa," *Firenze: Rassegna del Comune* (October, 1938), 377-381; and Peter J. Gärtner, *Filippo Brunelleschi: 1377-1446* (Cologne: Könemann, 1998), 36-40. Since a payment to Giuliano di Nanni, *scarpellatore*, for 90 br of corner pilaster strips to be placed in the high altar chapel was recorded on 22 December 1442, and other payments of that time indicate that construction of the foundations for the nearby freestanding crossing piers was only just getting underway, Hyman surmises that portions of the high altar chapel walls completed prior to a construction hiatus that began in 1425 may have been incorporated into the new work. Hyman, "Fifteenth Century Florentine Studies," 320, 326, 435 and 439.

[90] Battisti, *Filippo Brunelleschi*, 179.

[91] Saalman, *Filippo Brunelleschi: The Buildings*, 112-13.

[92] Ginori Conti, *La Basilica di S. Lorenzo*, 52-54; Paatz, *Die Kirchen von Florenz*, 465; Sanpaolesi, *Brunelleschi*, 71-77; Herzner, "Zur Baugeschichte von San Lorenzo," 106-108; Idem, "Letter to the Editor," 634; Idem, "'How much Brunelleschi?' Matthew Cohen und sein Phantom-Architekt"; and Bruschi, *Filippo Brunelleschi*, 108-109. Elam doubts the long-term influence of Dolfini's plan, noting: "… if the main part of the work began in 1421-2, and Prior Dolfin [sic] was dead by 1420, the status of his plan seems rather uncertain." Elam here seems to base her doubts, however, on Cianfogni's claim that Dolfini died in 1420, a claim that is contradicted by a document of 22 February 1422 (modern style) that Elam had previously published, which indicates that Prior Matteo Dolfini was absent (*absente*), and thus either still alive or only very recently deceased. Elam, "Cosimo de' Medici and San Lorenzo," 163-164; Cianfogni, *Memorie istoriche*, 190; Elam, "The Site and Early Building History," Doc. A, p. 184, and *regesto* Doc. 1422a.

[93] If Brunelleschi had wanted to maintain Dolfini's site boundaries and floor plan but change Dolfini's set of proportions, his only recourse would have been to alter the points of measurement at which the set of proportions meets the building fabric—for example, moving from a plinth to plinth system to an on center system—and such minor adjustments would have been large enough to have destroyed Dolfini's set of proportions, but probably not large enough to have allowed Brunelleschi

enough flexibility to create a new one. On the virtually inevitable derivation of the nave arcade bay sets of proportion from the overall basilica sets of proportion, see Chapter 3.

[94] Bruschi, *Brunelleschi*, 85; Burns, "Quattrocento Architecture and the Antique," 279; and Heinrich Klotz, *Filippo Brunelleschi: The Early Works and the Medieval Tradition* (London: Acaddemy Editions, 1990), 133-139.

[95] Burns, *Ibid*., Howard Saalman, "Carrara Burials in the Baptistery of Padua," *Art Bulletin* 69 (1987), 376-394; and Marvin Trachtenberg, "Brunelleschi, 'Giotto' and Rome" in *Renaissance Studies in Honor of Craig Hugh Smyth*, ed. A. Morrogh et. al. (Florence: Giunti Barbéra, 1985), 675-697.

[96] Note that with this scenario I propose a limited cooperation between Dolfini and Brunelleschi, under Dolfini's supervision. Also note that having his design responsibility limited to the architectural articulations in no way diminishes Brunelleschi's accomplishments, since these articulations, more than the overall spatial conception, are responsible for the profound influence of this building on the history of architecture beginning even before its completion. Cohen, "How Much Brunelleschi?," 43, note 102.

[97] According to my survey, the main room of the Baptistery of Padua measures 1101.5 cm (18.87 Florentine *braccia*) long by 1137.2 cm (19.49 Florentine *braccia*) wide, plinth to plinth. The full length of the baptistery, from the plinths of the back wall of the main room, to the back wall of the altar chapel, which has no pilaster plinths, measures 1564.1 cm (26.80 Florentine *braccia*). The above parenthetical equivalents in Florentine *braccia* indicate how the dimensions of this structure, which was presumably designed and built in Paduan *piedi*, might have been interpreted in terms of Florentine *braccia* by a late medieval Florentine architect measuring it with the intention of adapting the design to a new structure to be built in Florence.

[98] Dolfini or Brunelleschi merely needed to round off the dimensions of the Paduan baptistery, measured in Florentine *braccia*, to the nearest whole numbers to arrive at the overall Old Sacristy dimensions of 19 br x 19 br, and 19 br x 27 br. See also the preceding note.

[99] Cohen, "How Much Brunelleschi?," Appendices 4 and 7.

[100] The interior height of the Old Sacristy main room, measured with a Leica Disto measuring device from the floor to the underside of the fascia ring that frames the oculus, at four points around the ring, varies from 1921.65 cm to 1923.3 cm. An exact distance of 33 br would measure 1925.88 cm (because 33 x 58.36 = 1925.88).

[101] Note that no harmonic interpretation of this simple ratio is warranted by documentary evidence.

[102] One can, of course, continue to analyze the proportions of the sacristy by examining, for example, the pilaster height proportions in terms of various possible modules such as the pilaster shaft widths

measured at the base and middle of each shaft. According to my analysis, however, none of these modular relationships appear to be intentional, or historically significant in any way.

[103] Similar to the scenario under consideration, in 1404 Brunelleschi sat on a board of nineteen advisors to the *Opera* of Santa Maria del Fiore that determined that a buttress completed by Giovanni d'Ambrogio should be partially demolished and reconstructed because it was "at variance with the required and true measures." The new work was presumably rebuilt upon the existing foundations. Frank D. Prager and Gustina Scaglia, *Brunelleschi: Studies of His Technology and Inventions* (Cambridge, Massachusetts: MIT Press, 1970), 16.

[104] "Cum hoc sit, ut infrasciptus dominus prior asseruit, quod de anno 1419, vel circa, tempore recolende memorie domini Mattei Dolfini, tunc prioris ecclesie, et celeberrimi templi S. Laurentii predicti, et infrascripti domini Benedicti nunc prioris, et tunc canonici dicte ecclesie et templi fuisset incepta fundari cappella major ecclesie…." Ginori Conti, *La Basilica di S. Lorenzo*, 236-237; and *regesto* Doc. 1440c. As argued below, however, the more likely start date for construction is 1421.

[105] Manetti, *Vita*, ed. Tanturli, 108; Elam, "Cosimo de' Medici and San Lorenzo," 160, 164; Volker Herzner, "'How much Brunelleschi?' Matthew Cohen und sein Phantom-Architekt von San Lorenzo in Florenz," *Kunstgeschichte*, Texte zur Diskussion, 2009-26, <http://www.kunstgeschichte-ejournal.net/archiv/2010/herzner/, accessed 17 April 2011>; and Idem, "Ein Phantom ist ein Phantom ist ein Phantom - Antwort auf Jens Niebaums Versuch, in der Diskussion um die Baugeschichte von San Lorenzo die Position Matthew Cohens hinsichtlich des Phantoms Dolfini als Architekten zu untermauern," Kunstgeschichte, Texte zur Diskussion 2009-44, 2009-47 <http://www.kunstgeschichte-ejournal.net/kommentare/2009/herzner/, accessed 17 April 2011>>.

[106] Cf. Trachtenberg's argument that in the design and construction of the cupola of Santa Maria del Fiore, "…alongside Brunelleschi, Ghiberti as well as Battista d'Antonio served as capomaestri." Marvin Trachtenberg, Review of Howard Saalman, *Filippo Brunelleschi: The Cupola of Santa Maria del Fiore*, in *Journal of the Society of Architectural Historians* 42 (1983), 295-296.

[107] Note that in Figure 4-13, I include in the transept width dimension the exterior wall thicknesses to arrive at a length of very nearly 110 br, as specified in the 1418 petition. Previously, however, in the length dimension I have proposed that the exterior wall thickness of the high altar chapel should probably be *excluded* to arrive at the 65 br dimension that both Dolfini and Brunelleschi intended (Figure 4-5, measurement from the back of the high altar chapel to Line A2). In the latter case, however, I have provided measurements both including *and* excluding the wall thickness, for the reader's inspection (Figure 4-5, Lines A1 and A2). In making these judgments pertaining to the 110 br and 65 br dimensions specified in the 1418 petition, I am following the evidence provided by the

measurements. I thus assume, in the absence of evidence to the contrary, that the original architects and builders occasionally shifted points of measurement to include or exclude wall thicknesses according to construction exigencies.

[108] A document of 28 February 1422 (modern style) notes that the prior of the church, Matteo Dolfini, was absent (*absente M. domino Matteo Dolfini tunc priore dicte ecclesie*). See note 92, above; Elam, "The Site and Early Building History," Doc. A, p. 184; and *regesto* Doc. 1422a. Another document of 3 April 1422 notes that Bartolomeo da Vinci was prior. Elam, "Cosimo de' Medici and San Lorenzo," 161, n. 17 and 18; and *regesto* Doc. 1422d. For the record of the groundbreaking ceremony on the feast day of St. Lawrence, 10 August 1421, see Riccardo Pacciani, "Testimonianze per l'edificazione della Basilica di San Lorenzo a Firenze, 1421-1442," *Prospettiva* 75-76 (July-Oct. 1994), 94, Doc. 1; and *regesto* Doc. 1421a. Construction activity on the site of the new basilica is documented just eight days later, on 18 August 1422, though additional undocumented construction work could have taken place earlier. Pacciani, *ibid*., 94, Doc. 2. A document of 1440 states that construction began "in the year 1419, or thereabouts." Ginori Conti, *La basilica di San Lorenzo*, 236–240; and *regesto* Doc. 1440c. Another document of 1442 notes that it had been "twenty-three years, or thereabouts," since construction of the new church of San Lorenzo had begun. Ginori Conti, *La basilica di San Lorenzo*, 240–245; and *regesto* Doc. 1442e), thus again pointing to the year 1419. No known San Lorenzo construction documents, however, date from before 1421, and the 1419 date appears to be unreliable. The authors of the 1440 document appear to have been unaware of the 1421 groundbreaking ceremony, and perhaps derived the 1419 estimated start date by adding a few months of assumed preparation time to the date of the petition of 22 December 1418. The authors of the 1442 document perhaps simply repeated the 1419 date from the 1440 document.

[109] "…si disfecie per fare la chiesa nuova cioè le chappelle." Pacciani, "Testimonianze per l'edificazione," 95, Docs. 6 and 7; and *regesto* Doc. 1422e.

[110] "…per fare la sagrestia…." Pacciani, *ibid*., 95, Doc. 14; and *regesto* Doc. 1422f.

[111] "…che fanno i fondamenti di chosimo…." Saalman, *Brunelleschi: The Buildings*, 112 note 20; and *regesto* Doc. 1422g. This document indicates that Cosimo must have been managing the project for his father.

[112] The document notes that masons stored their tools in a nearby house during excavation of the foundations of the church ("quando chavono i fondamenti"). Pacciani, "Testimonianze per l'edificazione," 94, Doc. 2; and *regesto* Doc. 1421b.

[113] On 1 October 1422 a house on Via de' Preti was demolished to make way for the Old Sacristy ("per fare la sagrestia"). Pacciani, "Testimonianze per l'edificazione," 95, Doc. 14; and *regesto* Doc.

1422f. On 21 October 1422 workers were paid for "making Cosimo's foundations" ("i fondamenti di chosimo"). See note 111, above. Saalman, *Brunelleschi: The Buildings*, 112, note 20; and *regesto* Doc. 1422g. In a declaration dated 1447, Ugolino di Niccolò Martelli and his brothers refer to a provision in their father's will of June 1423 for the construction of a chapel "together with others." The chapel has been known as the *Cappella degli Operai* since at least 1427. G. Pudelko, "Per la datazione delle opere di Fra Filippo Lippi," *Rivista d'arte* 18 (1936), 60 note 2; Elam, "Cosimo de' Medici and San Lorenzo," 166 note 42, and 167 note 44; and *regesto* Docs. 1423c, 1427c, and 1447a. On 21 July 1423 the church granted the Rondinelli family permission to demolish its family chapel in the old basilica of San Lorenzo and to build a new one in a corresponding position in the new church. Moreni, *Continuazione*, vol. 2, 358–360; and *regesto* Doc. 1423d. The other transept chapels were allocated to their patrons between 1423 and 1433. On 24 November 1442 the Medici construction ledger records payments for excavation of the foundation holes for the two freestanding crossing piers. thus initiating construction of the nave. Hyman, "Fifteenth Century Florentine Studies," 437; and *regesto* Doc. 1442j.

[114] The other parts of the basilica originally intended to be built and paid for by the prior and canons include, presumably, the crossing square, nave, clerestory, roof and facade. Patronage of these parts and the high altar chapel were later transferred to Cosimo de' Medici. As *capomaestro*, however, Dolfini would have been responsible for overseeing all construction work on the basilica, including the private chapels.

[115] See above and Manetti, *Vita*, ed. Tanturli, 106.

[116] Measured plinth to plinth, the back (west) wall of the high altar chapel is 1113.7 cm (19.08 br) wide, the north wall is 1085.1 cm (18.59 br) long, and the south wall is 1084.2 cm (18.58 br) long. Measurements were recorded by the author with a steel tape measure manufactured by SEB in June 1992, and verified in June 2009. Note that according to my method, rounding off these dimensions in order to interpret the high altar chapel as measuring 19 br square involves an extensive process of critical examination and analysis of the measurements and other evidence, all of which is made available for the reader's evaluation. See Chapter 3. On the post-fifteenth century alterations at these locations, see notes 21-22 above.

[117] Some pre-fourteenth-century medieval basilicas in Florence, such as those of Santa Croce and Santa Maria Novella, do not display square high altar chapels with crossing squares of corresponding dimensions in front of them. By the late fourteenth and early fifteenth centuries, however, such an arrangment had become predominant. The fourth iteration shown in Figure 3-10 is an elaboration of

basic modular subdivision observed in the San Lorenzo floor plan set of proportions. See Cohen, "The Lombard Connection," 33-39; and Chapter 3.

[118] For a more detailed analysis of the overall basilica set of proportions that takes into consideration the crossing pier thicknesses and other contingencies, see Chapter 3.

[119] Note that in Figure 4-16, the near alignment of Line G with the internal wall of the hypothetically-reconstructed old cloister is coincidental. The same is true of the near alignment of the southern nave wall of Dolfini's reconstructed basilica plan with the same internal wall seen in Figure 4-15.

[120] See Chapter 3.

[121] In light of the diagrams shown in Figures 3-7 to 3-10, no other number of nave bays would be geometrically logical. On the derivation of these floor plan diagrams and their relationships to late fourteenth and early fifteenth-century church architecture, see Cohen, "How Much Brunelleschi," Appendix 7; and Idem, "The Lombard Connection," 31-44. Conceptual modularity occurs when a modular pattern is evident even though some dimensional approximations must be accomodated. Dimensional modularity occurs when such patterns correspond to the building measurements with great precision. See also Cohen, "How Much Brunelleschi,?" 37.

[122] "…che gli pareva avere posto una chiesa secondo la sua intenzione in quanto al composto dello edificio." Manetti, *Vita*, ed. Tanturli, 123-124.

[123] See Chapters 2 and 3.

[124] Cohen, "Quantification and the Medieval Mind," 1-30. In the Basilica of Santa Trinita, the lower order of piers in the nave arcades have proportions similar to those of San Lorenzo (Figure 4-12, left). However, bay-by-bay dimensional variations in Santa Trinita are too large to allow definitive analysis of the designer's proportional intentions.

[125] My surveys of the basilicas of Santa Maria del Carmine in Pavia and Santa Trinita in Florence, for example, when all measurements are expressed in fifteenth-century Florentine *braccia*, indicate plinth widths of approximately 2 *braccia*.

[126] Cohen, "How Much Brunelleschi?," 42.

[127] Questions about the degree of Brunelleschi's authorship of the basilica of San Lorenzo notwithstanding, the basilica deserves to be included in the Brunelleschi *oeuvre* because, as I have argued in the first paragraph of this chapter, the basilica "…owes its present appearance primarily to Filippo Brunelleschi."

[128] Cianfogni, *Memorie istoriche*, 183. In April, 1384 the Bishop of Florence, Angelo Acciaiuoli II, announced that an indulgence would be granted to all those who make a contribution toward the "enlargement and improvement" ("ampliare et in melius reformare") of the church of San Lorenzo.

Cianfogni, *Memorie istoriche*, 175; Ruschi, "San Lorenzo prima del Brunelleschi," 38; and *regesto* Doc. 1384a.

[129] Antonio del Bene was a member of a prominent Florentine family, was not a canon of the church, and was loyal to Rome. Cianfogni, *Memorie istoriche*, 177–178; and *regesto* Doc. 1391a.

[130] Like del Bene, Matteo di Cola da Rieti was selected from outside the ranks of the church canons. *Ibid*., 181, 226–228 and 231; and *regesto* Docs. 1404a and 1417b.

[131] Note, however, that the term "le scienze," which I quote here from Cianfogni's account, may not be a direct quotation from the document Cianfogni cited. Cianfogni, *Memorie istoriche*, 186–188; and *regesto* Doc. 1417c.

[132] Because 1417-1391 = 26. Alternatively, Dolfini had thirty-four years to plan the transformation of the church between the time he became a canon of the church in 1383 and his election in 1417. For more biographical information on Dolfini, see below.

[133] "…nel murare la pratica insegnia quello che sa a seghuire." Manetti, *Vita*, ed. Tanturli, 88.

[134] Cohen, "The Lombard Connection," 38-39.

[135] See note 31, above.

[136] The nave and transept cross sections contain closely approximated root-2 rectangles expressed very nearly with the whole-number dimensions 19 br x 27 br, just like the floor plan proportions of the Old Sacristy, measured plinth to plinth. For a detailed analysis see Cohen, "How Much Brunelleschi?," 40-41.

[137] William M.Bowsky, *La chiesa di San Lorenzo a Firenze nel medioevo*, ed. Renzo Nelli (Florence: Edizioni della Meridiana, 1999), 167 note 16. Another reference to the old cloister is provided by the chronicler Vespasiano da Bisticci, who notes that Cosimo demolished it: "Cosimo la prima cosa cominciò a gittare tutta l'abitatione de' preti per terra…." Vespasiano da Bisticci, *Le vite*, ed. Aulo Greco, vol. II (Florence: Istituto Nazionale di Studi sul Rinascimento, 1976), 181.

[138] Both Cianfogni and Saalman note that the old cloister stood to the south of the old basilica, without citing any supportive evidence or reasoning for this assertion. Cianfogni, *Memorie istoriche*, 78 note 1; and Howard Saalman, Letter to the Editor, *Journal of the Society of Architectural Historians* 50 (1991), 343.

[139] Saalman notes that "the entire group of views…" deserves further study, but only acknowledges the existence of two views, in addition to the Rustici view. *Ibid.*, 343 and 343 note 2.

[140] Olive, "The Codex Rustici," 593-594.

[141] The note reads in part: "…Petri del massaio Florentini qui me picturis decoravit. Anno domini millesimo quadrigentesimo sexagesimo nono Florentie." Giuseppe Boffito and Attilio Mori, *Piante e*

vedute di Firenze: studio storico topografico cartografico (Rome: Giuntina, 1926; rpt. Rome: Multigrafica Editrice, 1976), 8, 11; Lilian Armstrong, "Benedetto Bordon, 'Miniator,' and Cartography in Early Sixteenth-Century Venice," *Imago Mundi* 48, 1996, 74, 87 note 54; and J.M. Rogers, "Itineriaries and Town Views in Ottoman Histories" in *The History of Cartography; Volume 2, Book 1: Cartography in the Traditional Islamic and South Asian Societies*, eds. J.B. Harley and David Woodward(Chicago: The University of Chicago Press, 1992), 238.

[142] Saalman, Letter to the Editor, 343. On 15 May 1457 the church canons held a dinner to celebrate the "beginning of the construction of the new cloister" (*per dare opera, e principio a edificare el Chiostro nuovo*). Moreni, *Continuazione*, vol. 1, 14; and *regesto* Doc. 1457d. On 12 August 1461 apartments in the cloister were assigned to fourteen resident canons of the church. Roselli and Superchi, *L'edificazione*, 128; also quoted in Moreni, *Continuazione*, vol. 1, 14 note 3; and *regesto* Doc. 1461d.

[143] The high altar of the new basilica was consecrated on 9 August 1461. James Beck, "Desiderio da Settignano (and Antonio del Pollaiuolo): Problems," *Mitteilungen des Kunsthistorischen Instituts in Florenz* 28 (1984), 215 note 3; and *regesto* Doc. 1461c. A document of 9 October 1464, to be discussed in detail below, indicates that the old basilica was still standing. Moreni, *Continuazione*, vol. 1, 133 note 1; and *regesto* Doc. 1464a. Between the new high altar and the old basilica, the transept and first three bays of the nave of the new basilica had also been completed by 1461. On 29 July 1446 "6 large columns of macigno" (*6 colonne grandi di macigno*) were ordered, and on 11 October 1448 all six had been delivered to the site. Hyman, "Fifteenth Century Florentine Studies," 538-540; and *regesto* Docs. 1446e and 1448k. On 2 May 1456, a dinner was held for workers who were about to close the crossing dome. Saalman, *Filippo Brunelleschi: The Buildings*, 439, Doc. 9; and *regesto* Doc. 1456a.

[144] Mary Bergstein, "Marian Politics in Quattrocento Florence: The Renewed Dedication of Santa Maria del Fiore in 1412," *Renaissance Quarterly* 44 (1991), 675. The use of the old name by Pietro del Massaio fifty-seven years after the decree abolishing its use would seem to have three possible explanations: either the decree was roundly ignored in Florence, Pietro del Massaio used the old name to indicate that the information in Cod. Vat. Lat. 5699 represented Florence from before 1412, or he used the old name for nostalgic effect.

[145] Boffito and Mori, *Piante e vedute*, Fig. 4; Hyman, "Fifteenth Century Florentine Studies," 95, 126, 133-135; Dale Kent, *Cosimo de' Medici and the Florentine Renaissance: The Patron's Oeuvre* (Yale University Press: New Haven and London, 2000), 218, 234. On Pierfrancesco's house see also: Alison Brown, "Pierfrancesco de' Medici, 1430-1476: A Radical Alternative to Elder Medicean

Supremacy?," *Journal of the Warburg and Courtauld Institutes* 42 (1979), 84-85; and Hyman, "Fifteenth Century Florentine Studies," 70-79.

[146] Boffito and Mori, *Piante e vedute*, 12. As quoted by Scaglia, de Rossi concurs, attributing all of the so-called Ptolomaic plans by Pietro del Massaio, based on corruptions in the Latin nomenclature, to a "… prototype 'certainly some time before the diffusion of humanist learning,' perhaps as early as 1422." G.B. De Rossi, Piante iconographiche e prospettiche di Roma anteriori al secolo XVI, 1879, 91, as quoted in Gustina Scaglia, "The Origin of an Archaeological Plan of Rome by Alessandro Strozzi," *Journal of the Warburg and Courtauld Institutes* 27 (1964), 138.

[147] Scaglia concurs, noting: "Despite the fact that Piero [sic] del Massaio is credited with the illustrations in all three Ptolomeic manuscripts [i.e., Cod. Vat. Lat. 5699, Cod. Vat. Urb. 277, and MS Lat. 4802], he did no more than copy the maps and city-plans from earlier and various sources. *Ibid*., 138 note 4.

[148] See note 108, above, and *regesto* Doc. 1421a.

[149] This view was made as part of a copy of Ptolemy's *Cosmographia* that was produced in the shop of Vespasiano da Bisticci for Federigo da Montefeltro, Count of Urbino. Armstrong, "Benedetto Bordon, 'Miniator,' and Cartography, 73-74, 87 note 54; and Boffito and Mori, *Piante e vedute di Firenze*, 9-10.

[150] Like Cod. Vat. Lat. 277, this view, MS Lat. 4802, was written by the scribe Hugo de Comminelli of Mezières, but was made for Alfonso, Duke of Calabria. Armstrong, "Benedetto Bordon, 'Miniator,' and Cartography," 73-74, 87 note 54.

[151] Mediateca di Palazzo Medici Riccardi: Window on the Renaissance, "Anonimo--*Storia fiorentina dall'origine della città fino all'anno 1455*, di Poggio Bracciolini, c. 1v: Florentia (Detail)," <http://www.palazzo-medici.it/mediateca/en/immagine.php?id=188> (23 April 2011). I thank Jack Wasserman for calling this source to my attention.

[152] On the Ambrosian origins of the church, see Cianfogni, *Memorie istoriche*, 1-30 and 34. For evidence that the first church of San Lorenzo served as the city's first cathedral, see *ibid*., 42-49 and 54-56; Paatz, Die Kirchen von Florenz, vol. 2, 465; Ginori Conti, *La Basilica di S. Lorenzo*, 6-8; and Saalman, *Filippo Brunelleschi: The Buildings*, 108-109. For a contrary opinion regarding the Basilica of San Lorenzo as the city's first cathedral, see Emilio Grosso, "Santa Giuliana, fondatrice dell'Ambrosiana Basilica di S. Lorenzo in Firenze," in *La Graticola* 4 (1977), 23-24. On Santa Giuliana, purported founder of the church, see *ibid*., 7-22 and Cianfogni, *Memorie istoriche*, 2-12.

[153] For historical references to the old cloister, see notes 136 and 137, above. The approximate dimensions of the hypothetical reconstruction of the old cloister of San Lorenzo shown in Figure 4-15 are based in part on those of the early fifteenth-century Orange Cloister of the Badia of Florence.

[154] The sacristy of the old basilica was built between 1300 and 1302, and was large enough to accommodate meetings of the entire chapter of San Lorenzo. Ruschi suggests that this sacristy may be the gabled structure shown behind the campanile in the del Massaio view in MS Lat. 4802 (Figure 4-19), a structure that I have alternatively suggested may be the north transept arm of the present basilica. Ruschi proposes a *trecento* origin for the old campanile based on stylistic evidence provided by the Codex Rustici view. Ruschi, "San Lorenzo prima del Brunelleschi," 37-38.

[155] Elam documents seventeen private chapels or chaplaincies in the old basilica in 1422, which were founded as early as 1295. Elam, "Cosimo de' Medici and San Lorenzo," 161-162, 176-177.

[156] "…operi et constructioni ecclesie Sancti Laurentij de Florentia…." Ruschi, "San Lorenzo prima del Brunelleschi," 38; and *regesto* Doc. 1374a.

[157] Ruschi, "San Lorenzo prima del Brunelleschi," 38; Cianfogni, *Memorie istoriche*, 175, 183; and *regesto* Docs. 1384a, 1417a. The church of San Martino in Quona is mentioned in the documentary record as early as 1274. It received a new façade portal and perhaps other alterations in 1585, and further additions and alterations in the eighteenth century. "Popolo di S. Martino a Quona: La chiesa di S. Martino," <http://www.tuscany.name/CORNUCOPIA/popoli/pont/psmquona.htm> (23 April 2011).

[158] "…gens conditionis depresse, fame non commendabilis...& ut plurimum aliene Nationis...." Ginori Conti, *La Basilica di S. Lorenzo di Firenze*, 234–236; and *regesto* Doc. 1418a.

[159] The reconstructed site plans shown in Figures 4-14, 4-15, 4-16, 4-22, 4-23, 4-24, 4-27, 4-28, 4-31 and 4-32 include variously collaged and redrawn fragments of the 1768 Prague floor plan of the San Lorenzo cloister, modern municipal maps of Florence, and new drawings by the author. Materials have been drawn from: Pietro Ruschi, "La canonica e i chiostri," in *San Lorenzo 393-1993*, 72; and *Atlante di Firenze* (Florence, Marsilio, 1993), 63-64.

[160] See note 87, above.

[161] Manetti, *Vita*, ed. Tanturli, 77-81.

[162] A document of 28 February 1422 (modern style) notes that prior Dolfini was "absent," thus suggesting that he was either still alive or only recently deceased. Elam, "The Site and Early Building History," 184, Document A; and *regesto* Doc. 1422a. Cianfogni's assertion that Dolfini died in 1420 is probably in error, as is almost certainly his claim that Benedetto Schiattesi succeeded Dolfini as prior. Cianfogni, *Memorie istoriche*, 190. By 3 April 1422, Bartolomeo da Vinci was prior. Elam,

"Cosimo de' Medici and San Lorenzo," 161 notes 17 and 18; and *regesto* Doc. 1422d. By 12 November 1422, Benedetto di Matteo Schiattesi was prior. Elam, *ibid*., 161 note 18; and Moreni, *Continuazione*, vol. 2, 355 (Elam, citing Moreni, notes the date as 11 November 1422; however, Moreni notes it as 12 November 1422). On Giovanni's ascendancy, see Manetti, *Vita*, ed. Tanturli, 106-107. On the basilica reconstruction project as a "corporate enterprise," according to Elam, before Giovanni exerted control see notes 87 and 88, above.

[163] Manetti, *Vita*, ed. Tanturli, 107.

[164] See note 31, above.

[165] On the high altar chapel wall height of "about eight braccia" ("b[raccia] otto o circa") see: "Regesto dei documenti," in *Donatello e la Sagrestia Vecchia*, 103, and *regesto* Doc. 1442f; Old Sacristy: Pacciani, "Testimonianze per l'edificazione," 95, Doc. 14; and *regesto* Doc. 1422f; Saalman, *Filippo Brunelleschi: The Buildings*, 134, Pl. 72; and *regesto* Doc. 1428b; Moreni, *Continuazione*, vol. 2, 361–368; and *regesto* Doc. 1428b; Cappella degli Operai: Pudelko, "Per la datazione," 60, note 2; and *regesto* Docs. 1423c and 1427c; Cappella da Fortuna: Pacciani, "Testimonianze per l'edificazione," 95, Doc. 16; and *regesto* Docs. 1422b and 1424a; Saalman, *Filippo Brunelleschi: The Buildings*, 437, Docs. 2.1 and 2.2; and *regesto* Doc. 1427d; Cappella della Stufa: Saalman, , *Filippo Brunelleschi: The Buildings*, 441, Doc. 22; and *regesto* Doc. 1427b; Cappella dei Rondinelli: Moreni, *Continuazione*, vol. 2, 358–360; and *regesto* Doc. 1423d; Cappella degli Nelli: Elam, "The Site and Early Building History," 184, Doc. A; and *regesto* Doc. 1421b; and the construction hiatus in 1425 due to war: Ginori Conti, *La Basilica di S. Lorenzo*, 236–240; and regesto Doc. 1440c; and Gene Brucker, *The Civic World of Early Renaissance Florence* (Princeton, New Jersey: Princeton University Press, 1977), 466-467. The patronage of the Cappella di Luca di Marco was only allocated in 1433: Elam, "Cosimo de' Medici and San Lorenzo," 167, note 46; and *regesto* Doc. 1433a.

[166] Giovanni died on 28 February 1428 old style, or February 1429 modern style. Ruschi, "Una collaborazione interrotta," 76, note 39.

[167] Regarding sonnets composed by Brunelleschi to Donatello in protest of the latter's interventions, see: Manetti, *Vita*, ed. Tanturli, 110. By 1428 Donatello appears to have completed the four circular stucco reliefs set into the pendentives beneath the dome. Ruschi, "Una collaborazione interrotta," 72. Within the first half of the 1430s, Donatello and assistants appear to have completed the other four roundels, which depict the four evangelists, set into the four broad tympana below the dome. By 1443 Donatello appears to have collaborated with the sculptor and architect Michelozzo di Bartolomeo in the completion of the *scarsella* wall of the sacristy, which according to Manetti had been left incomplete. Although Manetti attributes the niches and the doors to Donatello, Ruschi argues that

stylistic evidence suggests the involvement of Michelozzo. Donatello and Michelozzo also appear to have jointly conceived the composition of the two Ionic, pedimented door surrounds of *pietra serena* that project from the *scarsella* wall, each surmounted by a large sculptural niche, and to have divided their execution between them: the stucco relief in the left niche, which depicts Saints Stefano and Lorenzo, to Donatello, and the relief in the right niche, which depicts Saints Cosmas and Damiano, as well as the two pedimented door surrounds, to Michelozzo. Ruschi, "Una collaborazione interrotta," 76; and Manetti, *Vita*, ed. Tanturli, 109-110.

[168] Moreni, *Continuazione*, Vol. 2, 361–368, and *regesto* Doc. 1428b; Ruschi, "Una collaborazione interrotta," 85 note 7, and *regesto* Doc. 1429a; and Carlo Sisi, "Due interventi di restauro sulle decorazioni in terracotta della Sagrestia Vecchia," in *Donatello e la Sagrestia Vecchia*, 86-90.

[169] On the variable quality of the nave capitals, see Cohen, "Ugly Little Angels," 276-289.

[170] See Cohen, "How Much Brunelleschi?," 35-36.

[171] A document of 1434 indicates that these Medici Chapel pilasters, complete with bases and capitals, must have been installed immediately after their manufacture. The document refers to "…pilasters made ready and erected on the upper side [i.e. in the transept], in other chapels in this church…", and later, to the "bases and capitals" thereof ("…secundum formam et qualitatem aliorum pilastrorum positorum et hedificatorum ex latere superiori in aliis capellis dicte ecclesie …cum basis et capitellis iusta formam predictam…"). Ruda, "A 1434 Building Programme," 358-361, and *regesto* Doc. 1434c. These Medici capitals belong to a distinct group distributed not only *inside* Giovanni's sacristy and chapel, but on the sides of these walls that are shared with adjacent chapels, thus indicating that Brunelleschi intended all capitals in this basilica to be uniform. As part of Giovanni's commission, therefore, Brunelleschi provided pilaster capitals that are today found not only inside the Old Sacristy and Medici double chapel, but inside the Cappella da Fortuna, and the Cappella degli Operai (Figure 2-1, SP 14-26). Whether the patrons of these two chapels later reimbursed the Medici for these capitals (Figure 2-1, SP 14, 15, 25 and 26) is unknown. Reflecting a similar situation, in 1423 an arbitrator resolved a dispute over shared funding for the wall that separates the da Fortuna and Rondinelli chapels. Moreni, *Continuazione*, vol. 2, 358–360; and *regesto* Doc. 1423b.

[172] Cohen, "How Much Brunelleschi?," 33-37.

[173] Ruda, "A 1434 Building Programme," 358-361, and *regesto* Doc. 1434c; Howard Saalman "San Lorenzo: the 1434 Chapel Project," *Burlington Magazine* 120, no. 903 (June 1978), 363. For Saalman's reconstruction of the proposed 1434 chapels, see *ibid*., 362-364; and Saalman, *Filippo Brunelleschi: The Buildings*, 147-152. In the latter work Saalman juxtaposes his axomometric drawing of his proposed chapel reconstruction opposite a photograph of the virtually identical

Cappella Carnesecchi of the church of Santa Maria Maggiore in Florence, without any verbal elaboration of the comparison. For Battisti's alternative reconstruction of the 1434 chapel project see Battisti, *Filippo Brunelleschi*, 186.

[174] Dale Kent, *Cosimo de' Medici and the Florentine Renaissance: The Patron's Oeuvre* (New Haven and London, 2000), 182

[175] Roberto Gargiani, *Principi e construzione nell'architettura italiana del quattrocento* (Roma-Bari, 2003), 42-43; and Arnaldo Bruschi, *Filippo Brunelleschi* (Milan, 2006), 110 (cites Gargiani).

[176] Ruda, "A 1434 Building Programme," 361; Saalman, "San Lorenzo: the 1434 Chapel Project," 361-364; and *regesto* Doc. 1434c.

[177] Calculated as follows: Since the present column plinths measure 2 br wide, and the present column diameters measure $1\frac{1}{2}$ br, the clear bay width is calculated as: $9\frac{2}{3}$ br (plinth to plinth) + 2 br (plinth width) = $11\frac{2}{3}$ br on center; $11\frac{2}{3}$ br on center - $1\frac{1}{2}$ (column diameter at widest entasis) = $10\frac{1}{6}$ br in the clear.

[178] The difference between $10\frac{1}{6}$ br and $10\frac{1}{8}$ br is about $\frac{1}{25}$ br (2.43 cm).

[179] Calculated as follows: If the distances between adjacent pairs of nave chapel pilasters and nave arcade columns had been $10\frac{1}{8}$ br in the clear, we would add one pilaster or column shaft width, 1 ½ br, to derive the on center distance, $11\frac{5}{8}$ br. We would then subtract one pilaster or column plinth width, 2 br, to derive the plinth to plinth distance, $9\frac{5}{8}$ br.

[180] Errors of similar magnitude are found elsewhere in the portions of the basilica completed under Brunelleschi's supervision for Giovanni de' Medici—i.e. in the double chapel under consideration and the adjacent Old Sacristy. The main room of the Old Sacristy, for example, measures very nearly 19 br square (1108.84 cm) with errors of 2.4 cm in width and 1.7 cm in length; and the total length of the sacristy, including the *scarsella*, measures very nearly 27 br (1575.72 cm) with an error of 3.4 cm. Cohen, "How Much Brunelleschi?," 40. I assume here that the length of the error itself, rather than the error calculated as a percentage of the total distance under consideration, is the significant figure to consider when comparing the construction accuracy in various parts of the basilica.

[181] According to Manetti, Brunelleschi, who was ever fearful that others would "discover his every secret" ("intendessi ogni suo segreto"), was notoriously ambiguous when documenting his designs in drawings and models, preferring instead to give verbal instructions directly to the masons as they

worked ("a bocca di mano in mano"). Indeed, Manetti specifically notes that "…he worked in this way at San Lorenzo…." Manetti, *Vita*, ed. Tanturli, 117.

[182] Hyman, "Fifteenth Century Florentine Studies," 113-117; and *regesto* Doc. 1434a.

[183] Isabelle Hyman, "Notes and Speculations on S. Lorenzo, Palazzo Medici, and an Urban Project by Brunelleschi," *Journal of the Society of Architectural Historians* 34 (1975), 98-120. Another possibility, which does not preclude the first, is that the piazza was intentionally created to open a view of the new basilica, a practice that Trachtenberg argues was well-established in late medieval Florence. Marvin Trachtenberg, *Dominion of the Eye: Urbanism, Art, and Power in Early Modern Florence* (Cambridge: Cambridge University Press, 1997).

[184] Ferdinand Schevill, *History of Florence: from the Founding of the City through the Renaissance* (New York: Harcourt, Brace and Company, 1936), 354-357; and A.D. Fraser Jenkins, "Cosimo de' Medici's Patronage of Architecture and the Theory of Magnificence," *Journal of the Warburg and Courtauld Institutes* 33 (1970), 165.

[185] Gene Brucker, *The Civic World of Early Renaissance Florence* (Princeton, New Jersey: Princeton University Press, 1977), 466.

[186] Manetti, *Vita*, ed. Tanturli, 108; and Elam, "Cosimo 'il Vecchio' de' Medici," 164.

[187] Schevill, *History of Florence*, Schevill, 359.

[188] Moreni, *Contnuazione*, vol. 1, 41–43; and *regesto* Doc. 1440b; Jonathan Davies, *Florence and its University During the Early Renaissance* (Boston: Brill Academic Publishers, 1998), 86; Hyman, "Fifteenth Century Florentine Studies," 94.

[189] "…vilipendium, et ignominiam totius dicti populi…." Ginori Conti, *La Basilica di S. Lorenzo*, 240–245; and *regesto* Doc. 1440c.

[190] "…hominibus, et personis, et dicti suprascripti homines…" *Ibid*.

[191] Saalman, *Filippo Brunelleschi: The Buildings*, 159–160.

[192] "…Per fare scoprire la chava del macigno di trassinaia." Hyman, "Fifteenth Century Florentine Studies," 431 and 524; and *regesto* Doc. 1442b. On 17 May 1442, Cosimo paid for the delivery of two and a half cartloads of stone from the quarry to the San Lorenzo construction site. *Ibid*., 431; and *regesto* Doc. 1442d.

[193] "…cappellamque maiorem et navem dicte ecclesie in medio existentem fere usque ad altare maius antiquum dicte ecclesie…" Ginori Conti, *La Basilica di S. Lorenzo*, 240–245; and *regesto* Doc. 1442e.

[194] Hyman, “Fifteenth Century Florentine Studies,” 435-437 and 320-324; and *regesto* Docs. 1442h-j. Another important detail pertaining to Cosimo’s commitment—how he planned to pay for the work—emerges from the ledger entries from this year. In a record of 12 September 1442, Cosimo transfers 40,000 florins to the *Monte Comune* in the name of the prior and chapter of San Lorenzo for a period of six years, on the condition that the interest on it be used for construction of the church. Hyman, “Fifteenth Century Florentine Studies,” 526; and *regesto* Doc. 1442g.

[195] Hyman, “Fifteenth Century Florentine Studies,” 439; and *regesto* Doc. 1442k

[196] “Regesto dei documenti,” in *Donatello e la Sagrestia Vecchia*, 103; and *regesto* Doc. 1442f.

[197] Hyman, “Fifteenth Century Florentine Studies,” 323-324, 332, 389, 447 and 464; and *regesto* Docs. 1443b-c.

[198] *Ibid*., 340, 544; and *regesto* Doc. 1447b.

[199] *Ibid*., 359, 362–363, 514, 520; and *regesto* Docs. 1449j and 1451a.

[200] *Ibid*., 337, 475; and *regesto* Doc. 1446c. Why five timbers were ordered rather than six, when six nave columns would soon be erected (see below), is not clear. Perhaps the scribe entered the wrong number, or perhaps the old basilica blocked the site of the sixth column, as shown in Figure 4-5 (Column 10 in Figure 2-1), and no decision had yet been made to partially demolish the old basilica in order to make room for it.

[201] *Ibid*., 337, 484, 538; and *regesto* Docs. 1446e-f.

[202] *Ibid*., 337, 344-45, 349, 358, 496, 511, 515-16, 538-43, 359-60; Hyman, "Notes and Speculations,” 117 Doc. 42; and *regesto* Docs. 1448a-c, e, i, k, l; and 1449c-i, k, l.

[203] Cohen, “Ugly Lilttle Angels,” 281; Hyman, “Fifteenth Century Florentine Studies,” 496 and 349; and *regesto* Doc. 1448e.

[204] Hyman, “Fifteenth Century Florentine Studies,” 361, 546; and *regesto* Doc. 1450b.

[205] Nevertheless, even if executed under Micelozzo’s supervision, the evidence presented above indicates that the nave arcades were built essentially as Brunelleschi intended them. We have seen that a key dimension in the nave arcade bay set of proportions, the springing height of the minor order arches and vaults, $17\frac{2}{3}$ br, appears to have been locked in upon completion of the Medici double chapel by 1429 (modern style) under Brunelleschi’s supervision. Cohen, “How Much Brunelleschi?,” 33-37. All the formal elements of the design, furthermore, are consistent with Brunelleschi’s other works, with the possible exception of the sculptural frieze reliefs in the entablature blocks, which could be additions by Michelozzo and Donatello. On the date of Brunelleschi’s death see Ugo

Procacci, "Chi era Filippo di ser Brunellesco?," in *Filippo Brunelleschi: la sua opera e il suo tempo* (Florence: Centro Di, 1980), 55 note 30.

[206] Howard Saalman, "Tommaso Spinelli, Michelozzo, Manetti, and Rosselino," *Journal of the Society of Architectural Historians* 25 (1966), 156. Scholarly opinion on the question of Brunelleschi's involvement in the San Lorenzo project between 1442 (the re-commencement of construction under Cosimo de' Medici) and 1446 (Brunelleschi's death) varies. Roselli and Superchi, and Hyman leave open the possibility of Brunelleschi's involvement, while Saalman favors his absence after 1429. Roselli and Superchi, *L'edificazione*, 23; Hyman, "Notes and Speculations," 101-102; Idem, "Fifteenth Century Florentine Studies," 136-37; Saalman, "San Lorenzo: the 1434 Chapel Project," 363; and Idem, 156, 175.

[207] Saalman, "Tommaso Spinelli," 156-157; and Saalman, *Filippo Brunelleschi: The Buildings*, 175.

[208] Giorgio Vasari in *Ragionamenti*, as quoted in Irving Lavin, "Donatello's Bronze Pulpits in San Lorenzo and the Early Christian Revival" in *Past-Present* (Berkeley: University of California Press, 1993), 265 note 30.

[209] Cf. Burns's comparison of the *scarsella* wall of the Old Sacristy with that of the Arena Chapel in Padua. Burns, "Quattrocento Architecture and the Antique," 279.

[210] Hyman, "Notes and Speculations," 101-105.

[211] Howard Saalman, *Filippo Brunelleschi: The Cupola of Santa Maria del Fiore* (London: A. Zwemmer Ltd., 1980), 284, Doc. 323.1.

[212] Lavin, "Donatello's Bronze Pulpits," 6; Howard Saalman in: Antonio di Tuccio Manetti, *The Life of Brunelleschi*, ed. Howard Saalman (University Park, Pennsylvania: Pennsylvania State University Press, 1970), 147 note 143; and Cohen, "How Much Brunelleschi?," 37 note 62.

[213] Manetti, *Vita*, ed. Tanturli, 109; Hyman, "Fifteenth Century Florentine Studies," 340, 474, 544; and *regesto* Docs. 1446b, 1446d, and 1447b.

[214] "Filippo l'adattò nella forma che la sta al presente." Manetti, *Vita*, ed. Tanturli, 109.

[215] See Bernardo Talenti's floor plan sketch of the San Lorenzo transept and an anonymous view of the transept decorated for the 1598 funeral of Filippo II, both reproduced in Pietro Ruschi, "Gli antichi altari maggiori di San Lorenzo," *San Lorenzo, 393-1993, l'architettura, le vicende della fabbrica* (Florence: Alinea Editrice, 1993), 180 lower left. The 1598 view is reproduced more completely in Raffaella Corti, "Pontormo a San Lorenzo: Un episodio figurativo dello 'spiritualismo' italiano," *Ricerche di storia dell'arte* 6 (1977), Fig. 1.

[216] Vasari, *Ragionamenti*, as quoted in Lavin, "Donatello's Bronze Pulpits," 13 and 13 note 30. Lavin suggests that as part of this comprehensive scheme, Donatello designed both Cosimo's tomb, later

executed by Verrocchio; and the high altar, later executed by Desiderio da Settignano, although he allows that the latter two artists may have exerted their own influences on the final designs.

[217] Lavin, "Donatello's Bronze Pulpits," 15. Lavin's interpretation of the basilica of San Lorenzo as a deliberate evocation of the Roman basilica of San Lorenzo Fuori le Mura is consistent with the following assertion by the sixteenth-century chronicler Vincenzio Borghini: "There can be no doubt about this, and no hindrance to this opinion, that it [the Florentine church of San Lorenzo] stands outside the walls, indeed there is no need to consider it a fable, that the first Christians, when they were able to, endeavored deliberately to imitate in this area the things of Rome, which has the Church of San Lorenzo, and it is also called 'outside the walls.'" ("Non ci sarebbe questo dubio, ne s'impedirebbe questa opinione, che ella restasse fuor delle mura, anzi a un bisogno l'aiuterebbe; ne si creda favola, che que' primi cristiani, quando commodamente potevano, andavan volentieri imitando in questa parte, le cose di Roma, che havea la Chiesa di San Lorenzo, e così si chiama ancora extra Muros."). Vincenzio Borghini*, Discorsi di Don Vincenzio Borghini*, vol. 1 (Florence: Filippo e Iacopo Giunti, e fratelli, 1584), 299.

[218] Lavin continues: "The picture has another dimension as well. One must add to it the dome over the crossing, with the [two] pulpits placed at the corners, Donatello's four gigantic stucco sculptures of the evangelists, now lost, that stood in niches at the transept ends, and the coffered ceilings. The emphasis on plastic decoration and the powerfully centralized focus would have been downright Pantheon-like." Lavin, *ibid*., 15. For his description of the evangelist stuccos, Lavin cites Vasari's *Ragionamenti*. Lavin, *ibid*., 265 note 30. Lavin provides a drawing of his proposed reconstruction of the crossing square as Donatello intended it, with the curious omissions of the evangelist stuccos and the choir stalls—critically important features that Lavin notes elsewhere. Lavin, *ibid*. 7, Fig. 12. Lavin's crossing square reconstruction is in any case preferable to Saalman's, which depicts problematic configurations for the choir stalls, altar, and tabernacle; and two highly unlikely detached square fluted columns on the eastern side of the transept. Saalman, *Filippo Brunelleschi: The Buildings*, 161, Fig. 11. Neither Lavin nor Saalman acknowledge Clearfield's contentions that the three bronze gratings that surround Cosimo's tomb today "…are almost certainly not part of the original project," and probably date to 1738 (Figure 4-4). Janis Clearfield, "The Tomb of Cosimo de' Medici in San Lorenzo," *Rutgers Art Review* 2 (January 1981), 16 note 11. Both Lavin and Saalman include the gratings in their reconstructions, even reinstating the fourth (westernmost) one that no longer exists today, presumably removed when the present baroque altar steps were installed. Consistent with Lavin's overall proposal is Trachtenberg's observation of Early Christian revivalism inherent in Brunelleschi's San Lorenzo design. Marvin Trachtenberg, "On Brunelleschi's Choice:

Speculations on Medieval Rome and the Origins of Renaissance Architecture," in *Architectural Studies in Memory of Richard Krautheimer*, ed. Cecil L. Striker (Mainz: P. von Zabern, 1996), 169-173.

[219] The tomb slab in the floor of the crossing has been securely attributed to Verrocchio, and the subterranean tomb, tentatively so. Clearfield, *ibid*., 16 notes 11, 17, 20-22.

[220] The agreement was recorded on 13 August 1442. Ginori Conti, *La Basilica di S. Lorenzo*, 240–245; and *regesto* Doc. 1442e.

[221] Hyman, "Fifteenth Century Florentine Studies," 344, 538; and *regesto* Doc. 1448a.

[222] Saalman, *Filippo Brunelleschi: The Buildings*, 439 Doc. 9; Giovanni Gaye, *Carteggio inedito d'artisti dei secoli XIV, XV, XVI*, 3 vols, (Florence: Giuseppe Molini, 1839-1840),vol. 1 (1839), 167–169; and *regesto* Docs. 1456a, 1457b. Antonio di Manetto Ciaccheri (no relation to Brunelleschi's biographer, Antonio di Tuccio Manetti) is first referred to as "Antonio di Manetto, woodworker" ("antonio di manetto legnaiuolo") in a letter by Giovanni di Domenico da Gaiole to Giovanni de' Medici, dated 1 May 1457, or, immediately after the completion of the crossing dome (Gaye, *Carteggio inedito*, 167-169; and *regesto* Doc. 1457b). He is next referred to, but not named, by Antonio di Tuccio Manetti. Manetti, *Vita*, ed. Tanturli, 110-114. He had presumably replaced Michelozzo prior to 1457, perhaps at the beginning of work on the dome in 1451 or 1452. Hyman, "Fifteenth Century Florentine Studies," 362–363, 520; and *regesto* Doc. 1451a. Michelozzo's dismissal from work on the San Lorenzo dome perhaps coincided with his dismissal from the post of *capomaestro* of the cathedral cupola in 1452, where he was replaced by the same Antonio di Manetto Ciaccheri. Saalman, *Filippo Brunelleschi: The Cupola of Santa Maria del Fiore*, 143, 208-209, 286, Doc. 323.10. On Manetto Ciaccheri see Isabelle Hyman, "Towards Rescuing the Lost Reputation of Antonio di Manetto Ciaccheri," in *Essays Presented to Myron P. Gilmore*, ed. Sergio Bertelli and Gloria Ramakus, vol. 2 (Florence: La Nuova Italia, 1978), 261-280; Saalman, "Tommaso Spinelli," 155-158; and Hyman, "Fifteenth Century Florentine Studies," 362–363, 520.

[223] "...principio a edificare el Chiostro nuovo…" Saalman, *Filippo Brunelleschi: The Buildings* 439, Doc. 9; Moreni, *Continuazione*, vol. 1, 14; and *regesto* Docs. 1456a and 1457d.

[224] On the basilica of San Lorenzo as Cosimo's mausoleum see discussion above and Kent, *Cosimo de' Medici*, 377-384.

[225] The complete passage is as follows: "Domandato perché egli cominciava prima la casa che la chiesa, rispondeva che non sarebbe chi lo facessi, perché in molti sarebbono che farebono fare la chiesa, che non farebono fare la casa, sendo di magiore riputatione. Finita la casa, comincio a seguitare la chiesa, e fenne una buona parte inanzi che morissi." ("Asked why he began first the

cloister rather than the church, he replied that there would be no one who would do it, because there would be many who would want to build the church, but not the cloister, there being [in it] much greater prestige. Having finished the cloister, he commenced the continuation of the church, and he finished a good portion of it before he died.") Vespasiano da Bisticci, *Le vite*, vol. 2, 182.

[226] Elam interprets the passage in question, quoted in the preceding note, as a claim by Vespasiano that Cosimo began the cloister and canons' quarters as "his initial act," before building any other part of the basilica complex. Elam, "Cosimo de' Medici," 174. I prefer a more contextual reading of this passage, however. In 1457 virtually everyone in Florence must have known that Cosimo had just completed about half of the new basilica, which dwarfed the old one (then still standing in front of it) in size and magnificence. For these observers, Cosimo's decision to halt construction of the basilica and begin construction of the cloister (since both structures apparently could not be built simultaneously) must have been puzzling. Thus the question put to Cosimo that Vespasiano records would seem to have been both logical and justified. Vespasiano's note that after completing the cloister Cosimo "commenced the continuation" (*comincio a seguitare*) of the church, seems to support my interpretation, since only a church that had already been commenced could have a "continuation" (see note 225 above). Elam has advised me that Vespasiano's biographical account must be interpreted as a "moralizing story," though one that can perhaps be reconciled with actual events. Indeed, Cosimo's purported answer to the above question, as reported by Vespasiano, may be an elaboration upon Cosimo's actual reply, calculated to make Cosimo's decision appear driven more by philanthropic than pragmatic considerations.

[227] Vespasiano da Bisticci, *Le vite*, vol. 2, 192.

[228] Raymond de Roover, *The Rise and Decline of the Medici Bank: 1397-1494* (New York: W. W. Norton, 1966), 358.

[229] de Roover, *ibid*., 358-359.

[230] Nicolai Rubinstein, *The Government of Florence Under the Medici (1434 to 1494)*, 2nd ed. (Oxford: Oxford University Press, 1997), 155; and Alison Brown, 'Piero's Infirmity and Political Power,' in *Piero de' Medici 'il Gottoso': Art in the Service of the Medici*, ed. Andreas Beyer and Bruce Boucher (Berlin: Akademie Verlag, 1993), 9.

[231] Rubinstein, *ibid*., 155.

[232] "…disse che de' magiori erori avessi fatti mai, si era di non avere cominciato a spendere prima dieci anni; non aveva perché, conosciuta la natura della sua città, egli non sarebono anni cinquanta, che del suo né della casa sua non si truoverebbe nulla, se non quelle poche reliquie ch'egli aveva murate…." Vespasiano da Bisticci, *Le vite*, vol. 2, pp. 191-192.

[233] "Sollecitava questo edifitio con quanta celerità poteva, et sempre dubitava non essere a tempo." *Ibid*., 183.

[234] "Cominciata la libraria perché la sua volontà era ch'ella si facessi con ogni celerità possibile, e per danari non mancassi...." *Ibid*., 183. Vespasiano's comments quoted here suggest an alternative interpretation of a quotation presented by Kent, who writes: "Piero's note that as Cosimo lay dying he 'reminded me [Piero] of his often expressed desire to be buried in San Lorenzo' seems somewhat superfluous, in view of his father's previous arrangements, and was presumably rhetorical"; for in light of this discussion it seems that Cosimo may have had serious doubts as to whether his burial wishes would indeed be fulfilled. Kent, *Cosimo de' Medici*, 377.

[235] Aristotile notes that his stated fee would earn him little or no profit, but that he offers it for the opportunity to work in so notable a city for a family as illustrious as the Medici. Others who had considered hiring Aristotele for his expertise in moving or righting towers include Ludovico II Gonzaga, marquis of Mantua, and Pope Nicolas V. Michelangelo Gualandi, "Aristotele [sic] Fioravanti: meccanico ed ingegnere del secolo xv, memoria," *Atti e memorie della regia deputazione di storia patria per le privincie di Romagna* 9, 1870, 58-60; Luca Beltrami, *Vita di Aristotile da Bologna* (Bologna: Libreria Luigi Beltramini, 1912), 39-40; M. Eugène Müntz, *Les artes a la cour des papes pendant le xv et le xvi siècle: recueil de documents inèdits* (Paris: Ernest Thorin, 1878), vol. 1, p. 83; Howard Burns, "Leon Battista Alberti," in *Storia dell'architettura italiana: il quattrocento*, ed. Francesco Paolo Fiore (Milan: Electa, 1998), 164 n. 190; and *regesto* Doc. 1459b.

[236] Moreni, *Continuazione*, vol. 1, 14-16 and 14 note 3; Roselli and Superchi*, L'edificazione*, 128; *Donatello e la Sagrestia Vecchia*, 104; and Beck, 'Desiderio da Settignano," 215 note 3; and regesto Docs. 1461b-c.

[237] Vespasiano da Bisticci, *Le vite*, vol. 2, 182. See note 225, above. It is not likely that this passage refers only to the southern nave chapels, which were under construction in 1463, since these chapels were constructed by private individuals, not Cosimo. Roselli and Superchi*, L'edificazione*..., 104-124; and *regesto* Doc. 1463b.

[238] The complete passage reads: "Reliquit amore Dei, et pro utilitate anime sue Ecclesie, et Capitulo Ecclesie S. Laurentii de Florentia dimidium urcei olei, hoc est, medietatem unius barilis, sive lagene olei quolibet et pro quolibet anno in perpetuum cum onere, quod Prior, et Capitulum dicte Ecclesie teneantur, et debeant continuo tenere unam lampadem ad Oraculum, et ante Figuram Virginis Marie pictam, et sitam in secunda columna a dextris in introitu dicte Ecclesie, sive in columna, que est in dicta Ecclesia, propinquiori, et prope januam, per quam egreditur et itur recta linea in viam Stuphe, que lampas debeat continuo cum oleo retineri accensa: in hoc conscientiam Prioris, et dicti Capituli

strictissime onerando ec." ("Out of the love of God, and for the utility of his soul, he left to the church and chapter of the church of S. Lorenzo of Florence one half pitcher of oil, that is, a half a barrel, or bottle of oil each and every year in perpetuity with the obligation that the Prior and chapter of the said church should be held and must continually keep a light at the place of prayer and before the painted figure of the Virgin Mary, situated on the second column to the right of the entrance to the said church, or at the column, which is in said church, closer by, and near the door through which one goes out and proceeds in a straight line to Via della Stufa, which lamp should be kept continually replenished with oil: most strictly burdening the conscience of the prior and the said chapter in this matter.") Moreni, *Continuazione*, vol. 1, 133 note 1, and *regesto* Doc. 1464a. In formulating the preceding translation I benefitted from the assistance of Caroline Elam, Caroline van Eck and Jack Wasserman. This translation corrects and supersedes my previous translation in Cohen, "Ugly Little Angels," 286.

[239] In addition to the Orlando testament of 1464 (*regesto* Doc. 1464a) quoted in the preceding note, and the document of 1423 quoted in note 54 above (*regesto* Doc. 1423f), the following documents provided to me by Caroline Elam refer to a door in the old basilica located opposite Via della Stufa: a reference of 1420 to a *fornaio* (bakery) "in sul chanto della via della stufa dirimpetto alla porta della chiesa" (ACSL 1938, 36r; and *regesto* Doc. 1420a); a catasto of 1427 that refers to a chapel of Ser Giovanni Bonaiuti located "…by the door that goes into Via della Stufa" ("alato alla porta che va nella via della stufa"; Catasto 49, 453r; and *regesto* Doc. 1427f); and a decree by the signoria issued on 16 March 1434 ordering that a block of buildings adjacent to the basilica of San Lorenzo be demolished. According to Hyman, "the area to be levelled…ran from the palace of the della Stufa family on Via della Stufa, opposite the last portal of the old church ("contra ultimam portam dicte ecclesie"), to the shop of spice dealer Giusaffà in Via de' Ginori…." Hyman, "Notes and Speculations," 107; and *regesto* Doc. 1434a. Elam has also found a 1444 reference to "…the altar of St. Anthony at the porta della Stufa between two piers at the foot of St Gregory" ("l'altare di sto Antonio dalla porta alla stupha tra due pilastri a pie di Sto Gregorio"; ACSL 1938 36r; and *regesto* Doc. 1444a); and a note of 13 February 1445 (modern style) indicating that Lotteringho d'Andrea della Stufa was buried "…in the middle of the door of Via della Stufa" ("…nel mezzo alla porta della Stufa"; ACSL 1938 36v; and *regesto* Doc. 1445a).

[240] Elam documents twenty private chapels or chaplaincies in the old basilica, which, she notes, did not necessarily correspond to physical chapel spaces. Elam, "Cosimo de' Medici," 161-162 and Appendix A. For examples of agreements whereby families with chapels in the old basilica were permitted to build chapels in corresponding locations in the new basilica, see Moreni, *Continuazione*,

vol. 2, 358–360, and *regesto* Doc. 1423d; and the document of 18 May 1423 noted above (see note 54 above), and *regesto* Doc. 1423f. See also note 113 above.

[241] "...The chapels are newly under construction on the side by various citizens by diverse and various citizens on behalf of and at the pleasure of the venerable Cosimo de' Medici..." ("…le cappelle di nuovo simurono dallato dapiù e diversi cittadini e vari poplani in detta chiesa per chommessione e piacimento del venerabile chosimo de Medici...."). Roselli and Superchi*, L'edificazione…*, 104; and *regesto* Doc. 1463b. The familes taking part in the construction were the Aldobrandini, Taddei, Cambini, Neroni, and Maringnoli.

[242] A *sepoltuario* of 1653-55 lists chapel SP 3-SP 4 (Figure 2-1) as belonging to the heirs of Francesco di Niccolò de' Medici. Ginori Conti, *La Basilica di S. Lorenzo*, 79; and *regesto* Doc. 1653a.

[243] Evidently, not all the chapel holders in the old basilica could be counted on to build chapels in the new one. Cosimo's father, Giovanni de' Medici, also had difficulty assembling a sufficient number of chapel patrons to surround the nave with chapels, and thus ordered Brunelleschi to design the basilica without nave chapels. Manetti, *Vita*, ed. Tanturli, 108.

[244] Ginori Conti, *La Basilica di S. Lorenzo*, 72–73; and *regesto* Doc. 1465a.

[245] This hypothesis that Cosimo had trouble assembling chapel patrons is consistent with Saalman's interpretation of the 1434 chapel project as an attempt by a rebellious group of families to wrest control of the church from the Medici, who were then in exile. Saalman, *Filippo Brunelleschi: The Buildings*, 147; and Saalman, "San Lorenzo: the 1434 Chapel Project," *Burlington Magazine* 120 (1978), 363.

[246] See note 222 above.

[247] On 29 July 1446, payment was recorded in the Medici construction ledger for "…6 large columns of macigno which must be made" ("…6 colonne grandi di macigno ci debono fare"). On 3 February 1448 (modern style), the first nave column shaft was delivered to the construction site from the quarry. Hyman, "Fifteenth Century Florentine Studies," 337, 344, 538; and *regesto* Docs. 1446e and 1448a.

[248] For detailed descriptions of these carved details see Cohen, "Ugly Little Angels," 276-285.

[249] In the western three bays, for example, column heights vary by no more than 1.6 cm from one to the next. In the eastern five bays these heights vary by as much as 14 cm. Cohen, 'How Much Brunelleschi?," 22, Fig 4, and Appendices 2 and 4; and Cohen, "Ugly Little Angels," 279, Fig. 4.

[250] Morolli attributes what he perceives to be a progressive decline in sculptural quality during the course of the second phase to a "growing disinterest" on the part of Piero de' Medici, and later

Piero's son Lorenzo, in the early *quattrocento* style of the basilica. Morolli, however, does not illustrate his observations, and I am unable to discern any such progressive decline in quality within the eastern five nave bays. Gabriele Morolli, "L'ordine Brunelleschiano: morfologia e proporzioni," in *San Lorenzo, 393-1993, l'architettura, le vicende della fabbrica*, eds. Gabriele Morolli and Pietro Ruschi (Florence: Alinea Editrice, 1993), 85-89; and Morolli, "Non solo Brunelleschi," 102.

[251] On Pagno see: H. W. Janson, 'Two Problems in Florentine Renaissance Sculpture,' *Art Bulletin* 24 (1942), 326-329; Saalman, *Filippo Brunelleschi: The Buildings*, 194; Hyman, "Fifteenth Century Florentine Studies ...," 139-144, 394-397; and Hyman, "Notes and Speculations," 111, and 117 Docs. 41-44.

[252] Franco Borsi, Gabriele Morolli, and Francesco Quinterio, *Brunelleschiani* (Rome: Officina Edizioni, 1979), 275; Eugenio Casalini, *La SS. Annunziata di Firenze* (Firenze: Convento della SS. Annunziata, 1971), vol. 1, 32 note 13, and 29 note 7; and *regesto* Docs. 1461f, 1462a.

[253] Howard Saalman, "The Palazzo Comunale in Montepulciano: An Unknown Work by Michelozzo," *Zeitschrift für Kunstgeschichte* 28 Bd., H. 1/2 (1965), Appendix II, 44-46; and Hyman, "Fifteenth Century Florentine Studies," 431, 524.

[254] An inscription on the tabernacle identifies Pagno as the master of the work. Hyman, *ibid*., 142; and Janson, "Two Problems," 327.

[255] At least one of the capitals was probably made for the basilica. Hyman, "Notes and Speculations," 101-105, 111, and 117 Doc. 41.

[256] Hyman, "Notes and Speculations," 111 and 117, Docs. 41-44.

[257] On the latter point see Saalman, "The Palazzo Comunale in Montepulciano," 6-10.

[258] Linda Elaine Neagley, *Disciplined Exuberance: The Parish Church of Saint-Maclou and Late Gothic Architecture in Rouen* (University Park, Pennsylvania: Pennsylvania State University Press, 1998), 107.

[259] *Ibid*., 111.

[260] *Ibid*.

[261] *Ibid*.

[262] *Ibid*., 112-113

[263] Hyman, "Fifteenth Century Florentine Studies," 297-547. The most egregious examples of low-quality stonecarving in the nave of the Basilica of San Lorenzo are found in the dark northern side of the north arcade, where the sun never illuminates them. Cohen, "Ugly Little Angels," 279-283. The concerns of the fifteenth-century church builders in France and Italy with the careful balancing of time, quality and money, as discussed here, reflect a broader cognitive shift in western European

thought. That broader shift, according to Alfred W. Crosby, was characterized by an increasing emphasis on precision, quantification and mathematics after about 1250, a shift that he describes in terms of a "Venerable Model" and a "New Model." Alfred W. Crosby, *The Measure of Reality: Quantaification and Western Society, 1250—1600* (Cambridge: Cambridge University Press, 1997), 21-47, 227-240; and Cohen, "Quantification and the Medieval Mind," 23-30.

[264] "…le cappelle che al presente sono murate dalla parte del chiostro…." Roselli and Superchi, *L'edificazione*, 104-124; Ginori Conti, *La Basilica di S. Lorenzo*, 72–73; and *regesto* Docs. 1463b, 1465a

[265] Moreni, *Continuazione*, vol. 1, 117 note 1 (provides a date for the codicil of 8 July, 1479); Roselli and Superchi, *L'edificazione*, 128 (provide a date for the codicil of 8 July, 1475); and *regesto* Doc. 1479a.

[266] Roselli and Superchi, *L'edificazione*, 128; and *regesto* Doc. 1469b. Note that Ughi's name does not appear in a *sepoltuario* of 1653-55 that lists the patronage of all chapels in the church at that time, and which forms the basis for many of the patronage labels in Figure 2-1. Ginori Conti, *La Basilica di S. Lorenzo*, 76-79; and *regesto* Doc. 1653a. Whether the Ughi family ever succeeded in building a chapel in the church is unknown.

[267] "…danneggiata dai lavori eseguiti nella chiesa." Roselli and Superchi, *L'edificazione*, 129; and *regesto* Doc. 1470a.

[268] Hyman, "Fifteenth Century Florentine Studies," 325-365, 534-547.

[269] I do not find Saalman's theory of a "gradual demolition of the old basilica to make way for the building of the projected nave" to be plausible. Saalman, *Filippo Brunelleschi: The Buildings*, 188. Although I have proposed above that the high altar chapel and perhaps other limited portions of the west end of the old basilica were demolished in the 1440s to accomodate the construction of Column 10, according to my proposal the old basilica would have been patched and repaired just once, and then remained in service for at least another two decades. According to Saalman's proposal, the old basilica would have to have been partially demolished, patched and repaired several times in rapid succession as the new nave progressed. Thus, the old basilica would have become ever smaller, less functional and more inconvenient to the workers as the construction site continued to shrink. All that work on a building that would soon be demolished also would have consitituted a substantial expense with no long-term benefit. A total, rapid demolition in about 1465 is more likely.

[270] Reference provided by Caroline Elam, from Peggy Haines. See *regesto* Doc. 1477a.

[271] Saalman, *Filippo Brunelleschi: The Buildings*, 439, Docs. 12.1, 12.2; and regesto Doc. 1481a.

[272] On the date of the northern side door, see Hyman, “Fifteenth Century Florentine Studies,” 350–351, 497; and *regesto* Doc. 1448f.

[273] Saalman, *Filippo Brunelleschi: The Buildings*, 439, Docs. 13.1, 13.2, 14.1; and *regesto* Docs. 1484a-c.

[274] Elam, "The Site and Early Building History,” 162.

[275] Gino Corti, “Una ricordanza di Giovan Battista Figiovanni,” *Paragone* 15, No. 1175 (1964), 28; Sheryl E. Reiss, “The Ginori Corridor of San Lorenzo and the Building History of the New Sacristy,” *Journal of the Society of Architectural Historians* 52 (1993), 339 note 3; Elam, "The Site and Early Building History,” 174, note 24, and 185, Doc. E; Ginori Conti, *La Basilica of S. Lorenzo*, 82–83; and *regesto* Docs. 1519a, 1520a, 1457e.

[276] The pilasters behind them, however, FP 11 and 12 (Figure 2-1), can be securely dated to the fifteenth century based on stylistic evidence. On the *Tribuna*, see: Federica Salvi, “Michelangelo Buonarroti e la Tribuna delle Reliquie,” in *San Lorenzo, 393-1993, l’architettura, le vicende della fabbrica* (Florence: Alinea Editrice, 1993), 115-118; and Mauro Mussolin, “La tribuna delle Reliquie di Michelangelo e la controfacciata di San Lorenzo a Firenze,” in *Michelangelo architetto a San Lorenzo*, ed. Pietro Ruschi (Florence: Mandragora, 2007), 183-199.

[277] The belfry was completed in 1741. Valerio Tesi, “Il nuovo campanile,” in *San Lorenzo, 393-1993, l’architettura, le vicende della fabbrica* (Florence: Alinea Editrice, 1993), 156.

[278] Valerio Tesi, “I restauri di Gaetano Baccani,” in *San Lorenzo, 393-1993, l’architettura, le vicende della fabbrica* (Florence: Alinea Editrice, 1993), 163-164.

[279] *Ibid*., 164.

[280] Giulio Carlo Argan, “The Architecture of Brunelleschi and the Origins of Perspective Theory in the Fifteenth Century,” *Journal of the Warburg and Courtauld Institutes* 9 (1946), 112-113; and Argan, *Brunelleschi* (Verona: Mondadori, 1955), 79.

[281] Rudolf Wittkower, “Brunelleschi and ‘Proportion in Perspective,’” *Journal of the Warburg and Courtauld Institutes* 16 (1953), 289; and Paatz, *Die kirchen*, 478.

[282] See note 81. For the term “metrical coherence” and variations thereof in relation to the work of Brunelleschi, see *ibid*., 132-133, 275-291.