

4 WHAT DRAWINGS DID IN RENAISSANCE ITALY

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Drawing architecture became a commonplace activity in sixteenth-century Italy, and many of the functions and habits associated with it today had their origin in Renaissance practices. With the increasing availability of paper, it became possible for architects to use drawing as a means of both arriving at new ideas and communicating them to patrons and builders.¹ While a few medieval drawings survive, and scattered examples can be found in earlier periods and diverse cultures, it was not until the late fifteenth and early sixteenth centuries that they became a standard component of architectural practice.² Architectural drawing expanded throughout Europe during the sixteenth century, and new research on Netherlandish, German, Spanish, French and English draftsmen will allow a more inclusive picture of the diversity of graphic modes across the continent.³ However, the greatest quantity of drawings that have surfaced thus far are Italian, and they will form the focus of this chapter.

Despite the wealth of information contained in Renaissance drawings, several factors have clouded their study. First, scholars often view them through an anachronistic lens, mistaking their similar appearance to modern architectural drawings for equivalence in scope and function, and thereby misconstruing their achievements and failings. Second, drawings are often considered exclusively in relation to a completed building and are thus seen as a means to an end. In other words, their significance is often presumed to lie in the information they can yield about what is construed as the actual locus of interest – the building. The corollary to these attitudes in relation to drawings of existing buildings, principally antiquities, is the expectation that they adhere to modern standards of archaeological precision and thereby provide accurate information about the buildings they represent. A third problem within discussions of architectural drawings has been a tendency to read them through the theoretical texts that describe them. Scholars repeatedly cite a small number of key passages from a few texts as if they described practice, which in general they do not.

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In contrast to these approaches, the focus here will be on the varied functions of drawing in fifteenth- and sixteenth-century Italy. I will argue that drawings should be considered not merely documents but also agents: of education, memory, thought, communication, and transmission. Through drawing, one can often see the evolution and transformation of an architect's understanding of ancient models and his approach to design. The creation and preservation of drawings allowed architects to build up an archive of their own ideas, to be utilized as needed for a range of projects. It is thus more than an accident that architects such as Michelangelo Buonarroti (1475–1564) and Andrea Palladio (1508–80) who left a large number of drawings are also the ones who developed such a consistent lexicon of forms and solutions for their designs.

Even anonymous drawings could function as agents for the replication, variation, and circulation of ideas. Scholars have credited printed books and their illustrations with the diffusion of knowledge about ancient monuments, as well as of the principles of architecture in general. However, examination of the corpus of anonymous Renaissance architectural drawings reveals the way in which architectural ideas and forms circulated through the practice of copying both before and after the advent of the printed, illustrated book.⁴

The Materials and Surfaces of Drawing

The materials and methods of architectural drawing varied considerably over the course of the fifteenth and sixteenth centuries. Fifteenth-century drawings were often made on parchment rather than paper, with draftsmen typically using stylus lines (fine incisions) as a first layer to establish guidelines. Black chalk would sometimes be employed over it, and also as underdrawing. Pen and ink, often with wash, comprised the final layer. Colored ink washes appear occasionally, as in the drawings of Francesco di Giorgio (1439–1502) and Giuliano da Sangallo (circa 1443–1516), but for the most part the ink used was brown or black.⁵ Architectural drafting materials intersected with those employed for figurative drawings, and the choices draftsmen made often reflected their training in other media. Red chalk, for example, surfaces almost exclusively in the drawings of architects first trained as painters, such as Donato Bramante (1444–1514), Baldassare Peruzzi (1481–1536) and Michelangelo, and they are also the ones who make more extensive use of brushwork.⁶

The emergence of inexpensive paper in the late fifteenth century facilitated the practice of drawing, and more sheets survive from this period. The majority of fifteenth-century drawings on paper are executed in the traditional manner described above for parchment. The surviving record suggests that sketching, or the direct use of pen or chalk without underdrawing or other preparation, becomes more common in the early sixteenth century, with figures such as Baldassare Peruzzi and Michelangelo. Both made frequent use of red chalk, and employed wash with great freedom. Donato Bramante also employed red chalk on several studies for the church of

St. Peter's, but so few of his drawings survive that it is difficult to speculate about his practice more broadly.

The surfaces on which architectural drawings were made varied widely, reflecting the range of their uses and audiences. In many cases, they were made for purely instrumental reasons on fragile surfaces not meant for preservation. Michelangelo routinely drew on the back or sides of sheets he was using for calculations, drafts of letters, or other mundane tasks; by chance, a few examples of this practice have survived.⁷ During the transitional period from parchment to paper, in the late fifteenth century, a draftsman's decision to draw on parchment signaled a desire to create a luxurious and lasting object. The two books of drawings by Giuliano da Sangallo (the *Codex Barberini* and the *Taccuino Senese*) and the manuscript treatises of Francesco di Giorgio are prime examples.⁸ The thickness and durability of parchment permitted multiple corrections, and encouraged the reuse of sheets; in these examples it is possible to see in raking light an earlier image that has been rubbed out and replaced.⁹ By the early sixteenth century, paper had replaced parchment even for the most precious volumes. For example, the *Codex Escorialensis*, a beautifully executed book of drawings that was similar in content to the codices of Giuliano and Francesco but dates to the first decade of the sixteenth century, was drawn on paper.¹⁰

Even after the advent of paper, drawing was still subject to material limitations with regard to the size of available sheets.¹¹ To compensate for this, architects frequently assembled drawings from multiple pieces, pasting them together to build a surface large enough for their purposes. The high level of investment in the resources of both paper and time favored the creative adaptation of sheets, so that sections might be cut out and replaced with corrections rather than beginning a new sheet. Giuliano da Sangallo's façade drawings from the second decade of the sixteenth century are a prime example: although they appear coherent and whole, close inspection reveals them to be intensively reworked surfaces made up of multiple sheets, small and large, overlaid to create the appearance of a synthetic design.¹²

Unlike figurative drawing, the vast majority of architectural drawings include some type of notation, whether a scale, measurements, or written notes about the function of a room, the name or location of a monument, or other information. Mostly, the notes and measurements are scrawled, of interest primarily for the draftsman himself. In a few cases, however, such as *Codex Coner*, a volume of early-sixteenth-century drawings of Roman monuments by Bernardo della Volpaia (1475–1522), the draftsmen's annotations in capital letters indicate a didactic purpose.¹³ While Volpaia's annotations are typically limited to an identification of the name and location of the fragment, his use of a Roman font indicates his desire for legibility. Giuliano da Sangallo's annotations in the *Codex Barberini* are often more extensive, indicating the original function of the monument he depicted.

Whether noted directly in numbers or indirectly through the inclusion of a scale, measurements can pose a conundrum because of the coexistence of many different

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systems. The Roman foot, the Vicentine foot, and the Florentine braccia were all in simultaneous use, posing practical hurdles for the itinerant draftsman. As result, quite often the use of a system of measurement different from the draftsman's usual choice can indicate that a drawing has been copied from another source.

There are of course notable exceptions both to the use of annotations and of measurements. Michelangelo's drawings, for example, sometimes contain written notes, but these rarely concern the architectural drawing itself. Even his studies of ancient monuments – copied from Bernardo della Volpacia Codex Coner – omit measurements and identifications.¹⁴ His drawings of marble blocks do frequently contain notations of measurements (mostly intended for the stone cutters at the quarries), but otherwise his architectural drawings primarily concern matters of composition, detail, or ornament rather than measure.

Writing about Drawing

The varied graphic legacy of Renaissance architects makes it a challenge to generalize about drawing practice. Thus, past scholars have often turned to a select number of fifteenth- and sixteenth-century texts that refer to drawing. Although these sources are important, there is a risk of reading the drawings through the texts. The relationship between the practice of drawing and the theory of architecture has been complicated by several factors. Most fundamentally, there is the question of whether writers such as Francesco di Giorgio, Leon Battista Alberti, and Raphael, as well as their ancient source, Vitruvius, were describing practice as they observed it or hoping to reform it through their writing. The loss of drawings over time makes it impossible to answer this question definitively, but some observations may be ventured based on what does survive.

One of the most cited passages, and also most complicated to interpret, occurs in Alberti's treatise *De re aedificatoria* (1485). Here Alberti claims that perspective is the province of painters alone, and is inappropriate for architects.¹⁵ While it is difficult to know Alberti's motives for making this statement, it clearly does not describe the practices of his contemporaries, and it is strikingly at odds with abundant visual evidence of the proximity between artistic and architectural culture at this moment. It is also perplexing because although it is not certain exactly when Alberti took up his study of Vitruvius, the ancient author specifies that *scaenographia* – broadly interpreted as some form of perspective – is one of the three main forms of representation available to an architect. Considering that Alberti's statement contradicts both the practice of his contemporaries and the theories of Vitruvius, I would argue that scholars have given it undue emphasis.¹⁶

Another frequently cited passage occurs in Raphael's Letter to Pope Leo X (1514–15), in which he describes the three types of drawing appropriate for recording Roman monuments in a way that has been interpreted as corresponding to the plan, section and elevation we know today.¹⁷ Until recently, there was very little

evidence that the techniques Raphael described in his letter to Leo X corresponded to architectural practice. The rigor and consistency that he advocates appear to have little correlation to the wide range and variation of approaches to be found among surviving drawings. However, in 2005, a small volume of drawings now known as the Codex Stosch came to light, providing new insight into the relationship between Raphael's proposal and the activities of his contemporaries and followers. The book, persuasively attributed to Giovan Battista da Sangallo (1496–1548) by Ian Campbell and Arnold Nesselrath, consists of 23 folios, drawn on recto and verso, of ancient Roman temples.¹⁸ Its content is not unusual in itself – many loose-leaf drawings as well as books of drawings contain representations of the same temples – but both the coherence of the content and the consistency of the representations are striking. Each temple is represented according to a strictly orthogonal view, both from the front and side, as well as in plan, several with additional details as well. Probably part of a larger collection of lost drawings, those that remain are enough to suggest that at least one draftsman did follow Raphael's prescriptive guidelines. Despite this discovery, however, it is clear that architects in general drew in a much broader variety of ways, and with a greater range of aims, than any descriptive or theoretical text could encapsulate.

Drawings as Education

Prior to the establishment of schools of architecture, drawings functioned both as a form of auto-didacticism and of credentialing.¹⁹ The idea of drawings as agents of thought may be the most contemporary, in that it corresponds to current conceptions of sketching. Drawings functioned as a form of communication with patrons, builders, and members of the workshop. They could also facilitate the dissemination of ideas through the mechanism of copying. Although copy drawings are often dismissed for their presumed lack of originality, and also as a result of their frequent anonymity, they were an important mode through which ideas about architecture were conveyed and transformed.

From the enormous number of drawings of ancient Roman ruins that survive, one can deduce that for aspiring architects, traveling to Rome and drawing its ruins became de rigueur preparation for a professional career. It accomplished two inter-related ends: the process of making the drawings trained architects' memories in the details and compositions that would inform their designs; and the physical existence of the drawings allowed them to display their knowledge of Roman models to potential patrons. For example, in his *Lives of the Artists* (1550 and 1568) Giorgio Vasari tells us that Bramante made drawings of antiquities, and that when Cardinal Carafa saw them, he offered Bramante his first important commission in Rome (the courtyard of Santa Maria della Pace).²⁰ While the first generation of architects to travel to Rome in the fifteenth century relied on their own interests to guide them toward appropriate subjects for their drawings, later architects could

rely on a growing consensus regarding the most important models. Despite their ubiquity and importance, drawings of ancient Rome occupy a marginal place in architectural history, typically written about by a handful of specialists.²¹ Archaeologists examine the drawings for their factual value, and often see the modifications architects made to what they saw as arbitrary, distracting changes rather than as the architects themselves must have seen them – as improvements.

The subjects of these studies could be entire monuments, seen in plan, section, elevation, or perspectival view. But more often, draftsmen focused on details. Bases, columns, capitals, and architraves occupy a large number of sheets, perhaps for ease of access, since important fragments might be studied and measured while lying on the ground, or because of the predominant fascination with the architectural orders. Both painters and architects collected details assiduously, with parallel aims of putting together a set of models for reuse. Assemblages of highly ornamented capitals and bases often blur the boundary between copying and invention, demonstrating the way in which the exercise of copying allowed draftsmen to internalize a set of forms to recombine according to their own imagination (Figure 4.1).

Drawing, Memory and Design

Drawing's role in the formation of an architect's visual memory – key to developing his imagination – is not explicitly described in the texts of the period but emerges from observation of the relation between drawings of antiquities and new designs. Architects looked to Rome to acquire a formal lexicon and develop a repertoire of models that they could internalize through repetition and through the act of drawing itself. The various stages of this process, from the rendering of existing monuments to the transformation of them into novel details and typologies, are apparent in the graphic oeuvre of Baldassare Peruzzi, Antonio da Sangallo the Younger (1484–1546), Michelangelo, and Palladio, among others.²²

It has been suggested that the arrival of the printed, illustrated architectural book supplanted the need for architects to go to Rome to make their own drawings.²³ With the publication of the treatises of Sebastiano Serlio (1475–1554) beginning in 1534, the argument goes, architects – especially those living far from Rome – would have had a ready reference for classical forms without the necessity of producing one themselves. However, the evidence from the large number of drawings of Roman architecture produced throughout the sixteenth century suggests that drawing did not become redundant with the advent of print. The Scholz Album and the Goldschmidt Albums in the Metropolitan Museum of Art both demonstrate that French architects continued to draw Rome through the last decades of the sixteenth century.²⁴ Even within Rome itself, the practice remained vibrant: a prominent example is Alberto Alberti (circa 1525–98), who left an abundant record of large-scale drawings of ancient Roman ruins, all dating from the last decades of the sixteenth century.²⁵ While the size of the sheets sets them apart from earlier



Figure 4.1 Oxford Master (formerly attributed to circle of Jacopo Ripanda), six capitals and six reliefs, pen and ink wash, 33.2 × 23.4 cm., Ashmolean Museum, Oxford, KP 668, fol. 6r, 1512–17 © Ashmolean Museum, University of Oxford.

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sixteenth-century drawings, their content is remarkably similar, and indicates that architects continued to find reasons to draw monuments well beyond the arrival of the architectural treatise.

Most sixteenth-century architects left only a scattered record of their production, making all but a speculative reconstruction of their activities impossible. But for a handful, such as Peruzzi, Sangallo the Younger, and Palladio, there are enough studies both of existing buildings (mainly antiquities) and of designs to enable some understanding of the relation between them. Such examples demonstrate how these architects used drawing as a form of research, investigating the materials, ornaments, orders, and compositions of ancient buildings and in the process assembling a toolkit of reusable ideas. In making the drawings, the architects were also reinforcing their own memory of the monuments, so that they compiled both a physical and cognitive archive. The preservation of drawings of antiquities, many of which are of such a notational character as to be barely legible to non-architects, in itself indicates that they were regularly employed in the studio. The materials and modes of representation these architects used for their drawings of existing buildings and their design drawings were often indistinguishable, facilitating the transfer of ideas and information between the two realms.

Over time, architects began to adopt conventionalized modes of recording antiquities, and to arrive at a *de facto* consensus over which monuments merited special attention. A few Roman monuments, such as the Coliseum, the Theatre of Marcellus, and the Pantheon surfaced regularly in numerous loose sheets and codices, often from a limited set of favored viewpoints. Similarly, specific ornamental details were often repeated, more often for their fine aesthetic qualities than for their adherence to Vitruvian norms. Preferred modes of representing details also emerged – cornices in isometric projection, as in the *Codex Coner* (Figure 4.2); capitals shown in elevation and plan; and bases rendered in bisected elevation, grouped together according to type.

Although some studies of the antique took on a pictorial quality, their function was always more than decorative. They supplied a lexicon of details to be repeated or modified, as well as a conceptual starting point for plans of palaces, convents, and churches. The mismatched typologies of ancient and modern buildings (temple and church; *domus* and *palazzo*) nonetheless allowed for the selective adaptation of details.

By nature, design studies were more personal, and they vary in appearance and technique much more than studies after the antique do. In this arena even more than in others, the architect's background and training had an impact on how he drew. Peruzzi and Michelangelo, for example, both painters by training, often emphasized light in their drawings, typically rendering it with wash. Peruzzi's use of wash for this purpose is especially striking, because he employs it at multiple scales, both for sectional studies and for details. In a sheet of church and chapel studies, he inserts two quick perspectival sections – one almost entirely painted – alongside the plans, indicating his preoccupation with volume and light

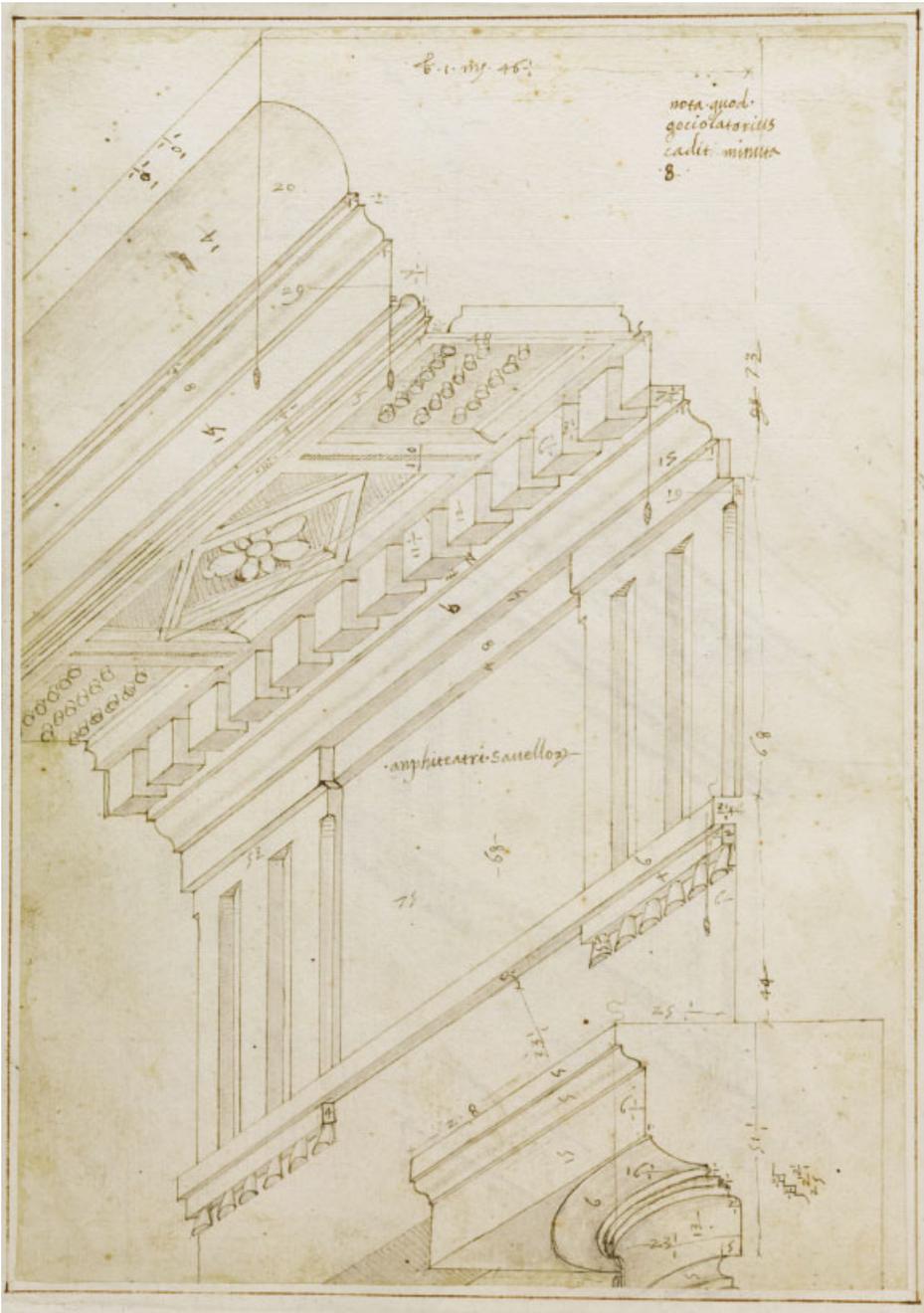


Figure 4.2 Bernardo della Volpaia, Codex Coner, trabeation of the Theatre of Marcellus, pen and ink wash, c. 23 × 17 cm., Sir John Soane's Museum, London, fol. 76, c. 1514. Courtesy of The Trustees of Sir John Soane's Museum. Credit: Ardon Bar-Hama.

(Figure 4.3). By contrast, Palladio, who was trained as a mason and thus familiar from an early age with the conventions of the section, rarely employed perspective. Instead, he often made quick sketches to work out the multiple permutations of a design either in section or plan, as seen in his study of twenty variations on a palace plan (Figure 4.4).²⁶

Peruzzi left a rich and varied graphic record, including almost equal numbers of design drawings and studies of antiquities.²⁷ The quantity and range of his surviving drawings provides insight into his interests and methods, and the many areas of overlap between his research into ancient building types and materials and his design thinking. He was an avid student of Vitruvius, and accounts by his contemporaries indicate that he was preparing a treatise.²⁸ However, his drawings make clear that he was not limited by any theoretical constraints.²⁹ Although we know of Peruzzi's treatise only indirectly, it provides a telling example of the way in which research into the antique could serve ends beyond those of self-education or building a repertoire of models.³⁰

Peruzzi employed an exceptionally broad range of representational modes for both design drawings and studies of antiquities. Among his most compelling design drawings is the representation of St. Peter's, which is at once a splayed perspective, a section showing multiple cuts, and a perspectival view of the plan (Figure 4.5).³¹ The drawing's vanishing point is so far in the distance that it also resembles an axonometric rendering – a convention not widely used until the nineteenth century – and a bird's eye view. As a section, it shows both vertical and horizontal cuts, revealing the limits of a traditional section as just one among hundreds of possible cuts in both registers. It also contains a temporal idea, in that it suggests a building in the midst of construction. It shows the design simultaneously in the phase of conception (as a plan); of construction (the view of the piers being erected); and of execution (the section of the back wall).

Peruzzi knew the rules of perspective, and of orthogonal drawing, extremely well. He was a master of scenography, a painter, and a designer of stage sets, all of which depended on and displayed his skills in this arena. He was also the author of an extremely precise and impressive section drawing of the Pantheon.³² When he chose to bend the rules, he did so not out of naiveté, but from the point of view of someone with enough mastery of the conventions to be able to see and challenge their limitations.

In general, drawings that architects made for themselves, for their patrons, for builders, or for members of their workshop can be distinguished from one another by their appearance. Drawings for patrons, sometimes called presentation drawings, are typically referred to in documents and texts as "modelli," which can indicate either a finished drawing or a three-dimensional model. The term "presentation drawing" can be misleading, because it implies a level of finish and completeness that is rarely evident in the drawings themselves.³³

The drawings used to communicate with patrons varied depending on the nature of that relationship. Among the best-documented examples are the drawings



Figure 4.3 Baldassarre Peruzzi, studies for the Cathedral of Carpi, pen and ink wash, 29.8 × 19.8 cm., *Gabinetto Disegni e Stampe Degli Uffizi*, Florence, 529 Ar, 1514–1515. By permission of the Ministry of Heritage and Cultural Activities and Tourism.

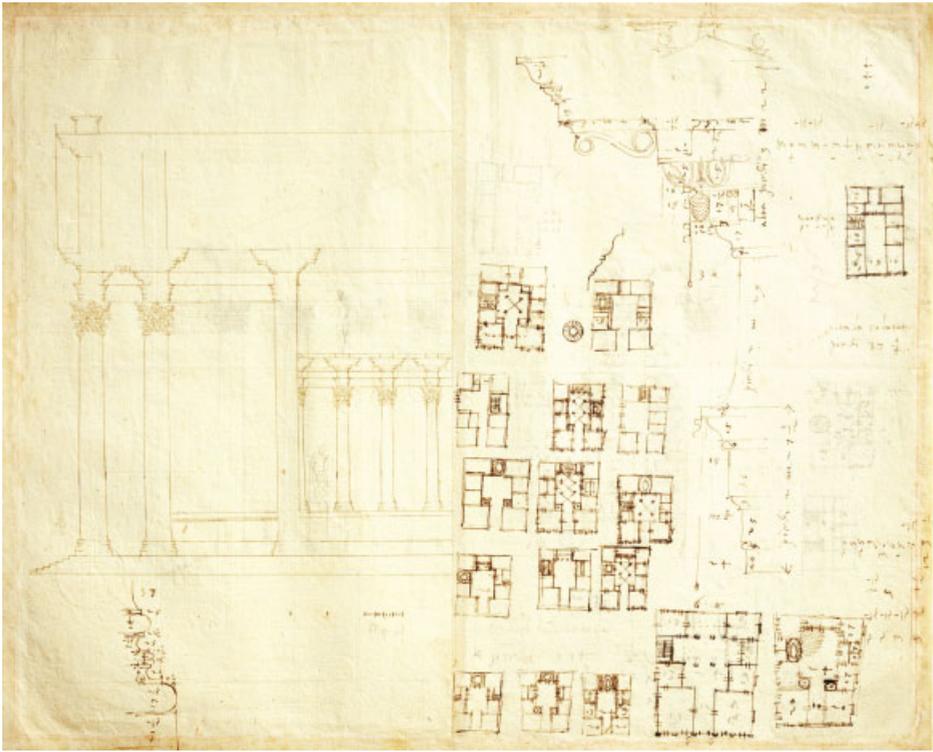


Figure 4.4 Andrea Palladio, plans for the renovation of the palace of Camillo Volpe, Vicenza, graphite or black chalk, pen and dark brown ink, 31.5 × 39.2 cm., RIBA Library Drawings & Archives Collection, Royal Institute of British Architects, London, XI/22r, late 1560s.

and letters exchanged between Michelangelo and Pope Clement VII (1523–34) during the construction of the Laurentian Library. The Pope was fluent in the language of architecture, and the drawings Michelangelo sent to him are informal, closer in appearance and function to working drawings. Several sheets are drawn only in red chalk, and even the drawings in pen often omit the final layer. These qualities indicate the level of mutual understanding that existed between architect and patron, as well as Clement VII's insistence that he be involved in all aspects of the design, and at every stage.³⁴ Based on the tone of the letters and the surviving drawings, it can be inferred that he placed greater value on being privy to Michelangelo's design process than on receiving highly polished drawings.

By contrast, a number of façade designs by Giuliano da Sangallo at the Uffizi demonstrate a high level of finish, with everything from the ornamented capitals to the reliefs fully articulated. Although frequently characterized as a unified series of designs made for Leo X for the façade of San Lorenzo, the reality is more complicated: close examination of these drawings reveals that they were physically layered composites as well as products of workshop collaboration, and that not

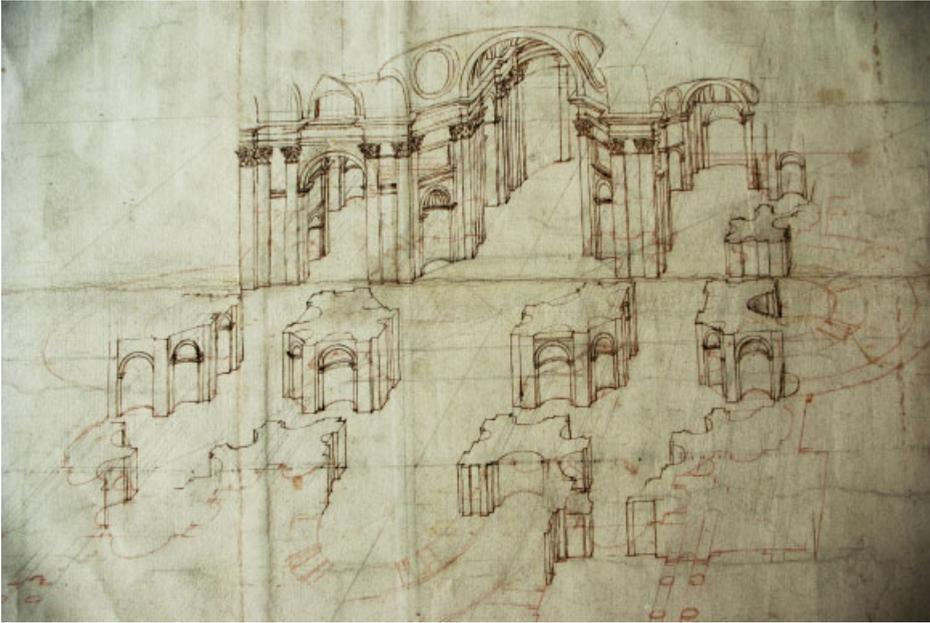


Figure 4.5 Baldassare Peruzzi, design for Saint Peter's, pen and ink, black and red chalk, stylus, 53.8 × 67.7 cm., Gabinetto *Disegni e Stampe* Degli Uffizi, Florence, 2 Ar, c. 1506. By permission of the Ministry of Heritage and Cultural Activities and Tourism.

all the designs were originally for San Lorenzo. Furthermore, stylistic and material evidence indicates that Giuliano did not execute all parts of the drawing himself, but rather that he relied on collaborators in his workshop, including his son Francesco; that he did not make an entirely new set of drawings for each project but in some cases reworked older drawings originally made for other projects; and that several of the drawings are physically comprised of multiple sheets, literally becoming works of pastiche and collage.³⁵ Collaboration within painters' studios is well established and often well documented, as in the case of Raphael: But the practice of collaborating on complex architectural drawings has yet to be examined.

An open question, about which tantalizing details have recently emerged, concerns the connection between the use of drawings and the use of three-dimensional models. The model for the Palazzo Strozzi (1489–90), long considered a "finished" model executed for the patron, Filippo Strozzi, in fact contains not only alternative solutions for the upper story that can be inserted into the model, but also multiple drawn details within the model itself, illustrating ideas for doors, windows, and so on. Despite its level of finish, these features indicate that it was meant to generate discussion.³⁶

As compared with drawings made for patrons, which are more likely to have been preserved because of their finished qualities, probably only a small fraction

of drawings made to communicate with builders and masons survive. In some cases, such as in drawings by Antonio da Sangallo the Younger and by Michelangelo, these are full-scale templates for details such as bases, intended for direct use by masons in cutting the stone. Michelangelo's drawings also include rough diagrams of the shape and dimension of marble blocks to be cut from the quarries, but these are exceptional.³⁷

Drawings and the Transmission of Knowledge

Narratives of Renaissance architecture have typically focused on printed treatises as the privileged agents of transmission of architectural ideas.³⁸ But drawings also circulated and were frequently copied, both before the arrival of the treatise, and after. Fifteenth-century modelbooks played a key role in this history, though they can be difficult to characterize due to their rarity, their ambiguous function, and frequently their anonymity. Another challenge emerges from the convergence of pictorial and architectural culture, making it difficult to distinguish between drawings made by painters and those made by architects.

Antiquarianism presented a field of shared interest between painters and architects, especially in the late fifteenth century, in Florence, Rome, Venice, and the Northern court cities. This surfaced in the borders and backgrounds of their paintings, but it was fed by drawings, often compiled into books that were compendia of ancient Roman details, and monuments. Although not yet fueled by the reading of Vitruvius or any other author, the similarity in the content of these books suggests an unspoken consensus about subjects worthy of inclusion. The books feature a consistent repertoire, regardless of whether their author was a painter, sculptor, or architect. This often included sarcophagi, figurative capitals, decorated pilasters, ancient style helmets, griffons and other hybrid animals, and triumphal arches. The triumphal arch, perhaps the most readily identifiable type of ancient monument, commonly employed as a model for both the composition and figural sculpture of Renaissance tombs, as a symbol for ancient civilization in Renaissance paintings, and as a source for ornamental details of architectural designs, especially palace and church façades.³⁹ Many of these details are included in the Oxford album formerly attributed to Jacopo Ripanda, the *Taccuino Senese* by Giuliano da Sangallo, the *Codex Escurialensis*, and the "Northern Italian Album."⁴⁰ Typically, historians have accounted for these similarities by speculating on a lost source. But in the absence of a theory regarding how multiple draftsmen would have had access to such a source, and without the source itself, this seems an unsatisfying solution. Instead, it suggests a convergence of taste almost as strong as in the decades that followed the rediscovery of Vitruvius. The distinction, of course, was that this consensus was not guided by a text. Its character must be discerned by observation, based on the repetition of motifs and their appearance in other places, such as in the backgrounds of paintings and in architectural details.

The grotesque drawings in the *Codex Escorialensis*, *Taccuino Senese*, *Ripanda Sketchbook*, *Codex Coner*, and elsewhere represent an unusual and significant category within these books, one that reveals the intentions of the draftsmen and functions of the books. Parallel in many regards to the drawings of figurative capitals, these drawings occupy a place between imitation and invention. Possible sources for the grotesque motifs are the paintings of the *Domus Aurea* in Rome, stucco reliefs from ancient tombs along the *via Appia* and elsewhere, pilasters, altars, and sarcophagi. The books of drawings mentioned above include an array of these objects, as well as independent drawings of grotesques, in which the line between imitation and invention becomes blurred.

Within this group, the “Northern Italian Album” poses a challenge to existing categories (Figure 4.6). Made up of cityscapes including elaborate, largely invented structures that bear a distant relationship to both known monuments and contemporary designs, it seems to hover between the world of the architect and the painter. While at first glance it may seem naive, it includes references to the work of Bramante and Francesco di Giorgio, and allusions to ancient Roman monuments. Recent analysis has confirmed that the traditional association of the drawings with the workshop of an intarsia artist is correct. As such, it offers a useful illustration of the expansion of architectural culture and knowledge to arenas beyond the strictly architectural.

Another significant example of a late-fifteenth-/early-sixteenth-century book of drawings that is poised between the cultures of painting and of architecture is the *Codex Escorialensis*. Attributed since the nineteenth century by Heinrich von Geymüller to the circle of Domenico Ghirlandaio (1449–94), recent attributions have associated the volume with Baccio Pontelli (circa 1450–92), Giuliano da Sangallo, or Mantegna (circa 1431–1506).⁴¹ Thus, after centuries of study scholars still cannot even agree on whether the author was a painter or an architect. The contents could point in either direction; interspersed among elevations and plans of ancient monuments are depictions of Roman sculpture, sarcophagi, ornamental details, and a series of highly pictorial views of Rome (what would later be called *vedute*). In my view, the representations of architecture, both in these views and on other pages in which monuments are represented in elevation, reflect a painter’s interests in ornament and overall composition. Although the drawings are detailed, there is little attention to proportions, structure, or construction, or to the relation between elevation and plan. By contrast, in the *Codex Barberini* and the *Taccuino Senese*, Giuliano da Sangallo represents many of the same monuments, reliefs, details, and views, but takes an explicitly architectural and analytic approach. In these volumes, the sheets often pair elevations and sections with plans, and include both overall views of the monuments and details of the orders, as well as notes concerning construction methods, materials, and measurements.

Another central point of reference for the transmission of architectural ideas through drawings is Francesco di Giorgio. In his prolific activities as a writer and draftsman, he created the prototype for the architectural treatise. While his drawings did not directly illustrate his text, in the sense that they were not labeled or



Figure 4.6 North Italian Album, a castle and a tower, colored inks white heightening and wash, 31.6 × 21.5 cm., Sir John Soane's Museum, London, c. 1500. By courtesy of The Trustees of Sir John Soane's Museum.

numbered in relation to it, in subject they were closely linked to his descriptions and principles. His drawings have qualities of both abstraction and specificity, encompassing both through their minimal details, on the one hand, and their multiplicity, on the other. His palace plans provide an excellent example of these qualities. Represented as mere line drawings, with no indication of wall thicknesses or window openings, they seem to be conceptual designs, unmoored by any specific site or commission. His drawings of machines, cogs, and wheels were widely copied, by figures including Leonardo da Vinci (1452–1519) and Giuliano da Sangallo.⁴²

Anonymity and Copies

Anonymity poses challenges for the traditional approach to architectural drawings. A large number of anonymous drawings survive from the Renaissance, and they have received a disproportionately small degree of scholarly attention, much of it devoted to efforts to associate them with a known architect. The other motive for studying these drawings has been archaeological; in cases in which anonymous drawings document Roman monuments, the drawings have been studied for their value as evidence.

Other possible avenues for exploring anonymous drawings of this kind have yet to be fully considered. Did architects or amateurs make books of copies, and why? How did their authors identify and gain access to their sources? Often anonymous drawings, whether direct copies of identifiable sources or not, register the diffusion of particular ideas that may otherwise seem limited to a single architect or draftsman. The category of the “copy book” itself merits reconsideration, because the name suggests a lesser genre and invites dismissal.⁴³

The traditional conception of copying and its mechanistic associations has implied that the practice was primarily governed by the logic of information: artists and architects copied drawings so as to acquire knowledge of models they could not draw first-hand themselves. Yet examination of these drawings reveals a different scenario, one in which the content of what is copied is as much style as anything else. Among the most intriguing examples of this is a series of drawings emulating a compositional format that Giuliano da Sangallo introduces in the “Libro Piccolo,” the earliest part of the Codex Barberini (probably dating from circa 1465). Even in its original appearance, it is surprising: details are shown overlapping, variously arranged on the page so as to create the fiction of a casually composed sketchbook. Giuliano groups similar types of details on the same page, all originating from different sites (Figure 4.7). The mode of overlay he adopts on these pages encourages comparison between the details, but it also confounds it: with each detail shown at a different scale, the comparisons can be misleading and imprecise. Giuliano’s overlay style of presentation was widely imitated: by Cronaca (the moniker of Simone del Pollaiuolo, 1457–1508); by the author of the Mellon Codex; and by Alberto Alberti, in drawings from the last decades of the sixteenth century (Figure 4.8).⁴⁴ Each of these draftsmen found the style particularly suitable for the representation of bases, but rather than using it to copy the precise bases in Giuliano’s Codex Barberini, they made their own selection.

At a broader level, drawings by anonymous or little known draftsmen offer insight into how particular ancient monuments became canonical, how some fifteenth- and sixteenth-century buildings achieved an almost equal status, and how modes of representing architecture were copied and adapted. The repetition of particular monuments, both ancient and modern, in books of drawings also suggests how a consensus about important monuments could develop over time, forming the background to their inclusion in printed books such as those by Sebastiano Serlio, Andrea Palladio, Jacopo Barozzi da Vignola (1507–73), and others.⁴⁵

Bramante’s Tempietto offers a case in point.⁴⁶ Included in the Codex Coner among other buildings designed by Bramante, it also appears in an anonymous drawing at the Uffizi, in the Codex Mellon, and later in the treatises of Serlio and Palladio.⁴⁷ While the Tempietto’s architecture is obviously significant, and its resemblance to ancient round temples might in itself justify its inclusion alongside the ancient examples, there were other important fifteenth- and sixteenth-century buildings that did not make it into these collections. In other words,



Figure 4.7 Giuliano da Sangallo, Codex Barberini, detail studies, pen and ink wash, stylus, detail studies, 27 × 39 cm., Biblioteca Apostolica Vaticana, Barb. Lat. 4424, Rome, fol. 12 r, c. 1485 © 2016 Biblioteca Apostolica Vaticana.

inclusion bestowed stature, and this could be enhanced through the mechanism of repetition.

Canonization happened differently through drawing than it did through print, and could have distinct objectives and consequences. In the context of fifteenth-century books of drawings, the repetition of particular capitals or bases (such as the Pegasus capital of the Temple of Mars Ultor, or its base) demonstrates how aesthetic criteria could take hold independently from any textual sanction. In this case,

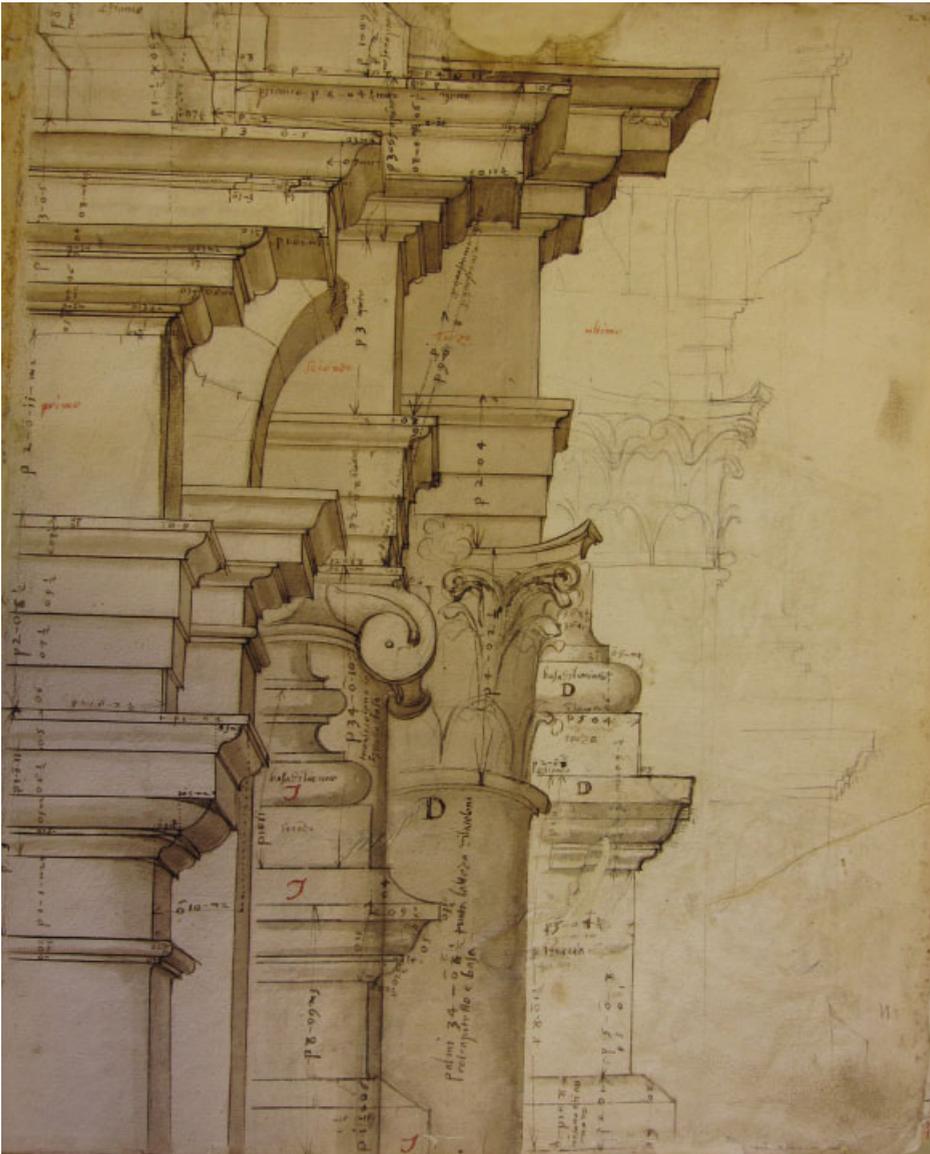


Figure 4.8 Alberto Alberti, Istituto Nazionale per la Grafica, 1595–97 46 × 36.3 cm, vol. 2501; post 1546, ante 1599, black chalk or graphite, pen and ink wash. With permission of the Ministero dei Beni e delle Attività Culturali e del Turismo.

highly ornamented details that never would have been sanctioned by Vitruvius but were beloved for their richness became well known to architects through their repeated representation. Although Peruzzi identified and annotated his representation of the Temple of Mars Ultor Pegasus capital as “the most beautiful and most beautifully made capital in Rome,” most versions did not even identify its location, since this topographic information was secondary to its aesthetic qualities.⁴⁸

Conclusion

Despite the influence of Wolfgang Lotz' 1956 essay, "The Rendering of the Interior in Architectural Drawings of the Renaissance," architectural drawings have occupied a marginal place within the history of architecture until recently. While frequently employed for their value as evidence – of an architect's first idea for a project that changed course, or of a date or attribution – they have much less often been studied as objects of independent interest. In particular, drawings of ancient Rome and anonymous drawings remain the province of specialists. A number of recent conferences and publications, however, suggest that this status may be changing, and that scholars are beginning to address broader set of topics.⁴⁹

The question of what drawings do has become urgent at a moment in which their purpose and role in architectural culture is undergoing profound change in response to the digital revolution. Many architecture schools are reevaluating the purpose of training in architectural drawing, as students are under pressure to acquire a complex array of digital skills. The examples discussed here are specific to the era in which they were made, but in illustrating the multiple functions drawings have played in the making of architecture, they suggest that it may be neither necessary nor desirable for digital techniques to supplant all of these roles.

Notes

1. I would like to thank the Center for the Advanced Study in the Visual Arts and the National Gallery of Art where I did much of the library research for this chapter. The greater availability of paper was tied to the invention of the printing press (Francis Ames-Lewis, *Drawing In Early Renaissance Italy* (New Haven: Yale University Press, 1981), 21–23; Carmen Bambach, "The Purchases of Cartoon Paper for Leonardo's *Battle of Anghiari* and Michelangelo's *Battle of Cascina*," *I Tatti Studies* 8 (1999): 105–33.
2. The best known medieval example is Villard de Honnecourt; see Carl F. Barnes, *The Portfolio of Villard De Honnecourt* (Paris: Bibliothèque Nationale De France, Ms Fr 19093), *A New Critical Edition and Color Facsimile* (Aldershot: Ashgate, 2009). A few ancient Roman examples are also cited by Mark Wilson Jones, *Principles of Roman Architecture* (New Haven: Yale University Press, 2000): 26, figures 1.9 and 1.10; 50–58. The carved drawings on the podium walls of the Temple of Apollo at Didyma are discussed, with other ancient examples, by Lothar Haselberger, "Aspekte der Bauzeichnungen Von Didyma," *Revue Archéologique* 1 (1991): 99–113; I am grateful to Alina Payne for this reference.
3. Examples of this new work abounded at a conference held in Amsterdam in May 2013, "Designing Architecture in Sixteenth-Century Europe: Drawing as Motor and Medium for Architectural Innovation," organized by Krista de Jonge and Konrad Ottenheim. It included discussion of a range of European drawing traditions by scholars such as Peter Fuhring, Anthony Gerbino, Stephan Hoppe, Merlijn Hurx, Javier Ibanez Fernandez, Ethan Matt Kavaler, Oliver Kik, and Yves Pauwels. Recent publications on European drawing include Tatjana Bartsch and Peter Seiler, ed., *Rom Zeichnen: Maarten van*

- Heems Kerck 1532–36/37* (Berlin: Gebr., Mann, 2012) Astrid Lang, *Die frühneuzeitliche architekturzeichnung als Medium Intra- Und Interkultureller Kommunikation: Entwurfs- Und Repräsentationskonventionen nördlich der Alpen und ihre Bedeutung für den Kulturtransfer um 1500 am Beispiel der Architekturzeichnungen von Hermann Vischer D.j.* (Petersberg: Michael Imhof Verlag, 2012); and Sylvie Deswarte-Rosa, *Le recueil de Lyon: Jacques Ier Androuet du Cerceau et son entourage: dessins d'architecture des XVIe et XVIIe siècles de la bibliothèque de Camille de Neufville de Villeroy: Manuscrit Ms 6246*, Bibliothèque municipale de Lyon (Saint-Etienne: Publications de l'université de Saint-Etienne, 2010), and Carolyn Yerkes, "Worcester College Ms B 2, 3 and Its Sources: Seventeenth-Century French Drawings of Ancient and Modern Roman Architecture," *Annali di Architettura* no. 23 (2001): 115–50. On early modern drawing practices in Britain, see Anthony Gerbino and Stephen Johnston, *Compass and Rule: Architecture As Mathematical Practice in England, 1500–1750* (New Haven: Yale University Press, 2009).
4. The problem of copying and how to interpret it is the subject of a chapter in my forthcoming book, *Giuliano da San Gallo and the Rulers of Rome*. It is also considered by Cara Rachele, "Building through the Paper: Disegno and the Architectural Copybook in the Italian Renaissance," (Ph.D. Dissertation, Harvard University, 2015).
 5. For a discussion of techniques of architectural drawing, see also Caroline Elam, "Funzione, tipo e ricezione dei disegni di architettura di Michelangelo," in *Michelangelo e il disegno di architettura*, ed. Guido Beltramini, Howard Burns, and Caroline Elam (Venice: Marsilio, 2006), 42–73; and Pier Nicola Pagliara, "Osservazioni sulle tecniche grafiche in alcuni disegni di Antonio da Sangallo il Giovane," in *Il disegno di architettura; Atti del convegno, Milano, 15–18 febbraio 1988* (Milan, 1988): 169–74. Other discussions of drawing materials and techniques include Joseph Meder, *Die Handzeichnung: ihre Technik und Entwicklung* (Vienna, 1919) and Joseph Meder and Winslow Ames, *The Mastery of Drawing* (New York: Abaris Books, 1978); Walter Strauss and Tracie Felker, eds, *Drawings Defined* (New York: Abaris Books, 1987), 165–70; Deanna Petherbridge, *The Primacy of Drawing: Histories and Theories of Practice* (New Haven: Yale University Press, 2010), and on Renaissance techniques, Hugo Chapman, "The Technique of Italian Renaissance Drawings," in *Fra Angelico to Leonardo, Italian Renaissance Drawings*, eds Hugo Chapman and Marzia Faietti (London: British Museum Press, 2010), 35–45; and Hugo Chapman, *Michelangelo Drawings: Closer to the Master* (New Haven: Yale University Press, 2005), 18–23.
 6. Ann Huppert considers Bramante's use of red chalk and published color reproductions of Bramante's designs for Saint Peter's, Uffizi 7495A ("Envisioning New St. Peter's: Perspectival Drawings And The Process Of Design," *Journal of The Society of Architectural Historians* 68, no. 2 (2009): 158–77). See also entry in Henry A. Millon and Vittorio Lampugnani, *The Renaissance From Brunelleschi to Michelangelo: The Representation of Architecture* (New York: Rizzoli, 1994), 601, and Christof Thoenes, "I tre progetti di Bramante per S. Pietro," *Quaderni dell'Istituto di storia dell'architettura n.s.* 15, no. 20 (1992): 439–46. In his reconstructions of ancient Roman buildings, Peruzzi sometimes used red chalk and black to signify parts of a building that were still standing or not; one example occurs in his study of the temple on the Quirinal Hill (Cammy Brothers, "Reconstruction as Design: Giuliano da Sangallo and the 'Palazzo di Mecenate' on the Quirinal Hill," *Annali di architettura* 14 (2002): 55–72).

7. The most recently discovered architectural drawings by Michelangelo were made on thin sheets used for keeping records that now form part of the Archives of Saint Peter's (Vitale Zanchettin, "Un disegno sconosciuto di Michelangelo per l'architrave del tamburo della cupola di San Pietro in Vaticano," *Römisches Jahrbuch der Bibliotheca Hertziana* 37 (2006): 9–55; and Zanchettin, "Il tamburo della cupola di San Pietro in Vaticano," in *Michelangelo architetto a Roma*, ed. Mauro Mussolin (Milan: Silvana Editoriale, 2009), 180–200. These multiple use sheets are discussed by Leonard Barkan, *Michelangelo: A Life on Paper* (New Haven: Yale University Press, 2011) as a means of exploring the working of the artist's mind; and by Mauro Mussolin as a way of understanding his use of paper ("In controllo: alcune osservazioni sull'uso della carta nei disegni architettonici di Michelangelo in Casa Buonarroti," in *Michelangelo e il linguaggio dei disegni di architettura*, eds Golo Maurer and Alessandro Nova (2012), 287–311.
8. The Codex Barberini is held in the Vatican Library, Barberini Latini 4424; it is reproduced in facsimile by Christian Huelsen, *Il libro di Giuliano da Sangallo; Codice Vaticano Barberiniano Latino 4424*, 2 vols (Leipzig, 1910; reprint, Vatican City, 1984). The Tacuino Senese is in the Biblioteca Comunale in Siena, with an edition by Rodolfo Falb, *Il taccuino senese di Giuliano da San Gallo* (Siena: Olschki, 1902). Francesco di Giorgio's treatises are held in multiple locations, including the Biblioteca Reale in Turin, the Vatican Library in Rome, the Laurentian Library in Florence, and the British Museum in London. A facsimile edition of his Codex Ashburnham 361 was produced by Pietro C. Marani and Massimo Mussini, *Trattato di architettura di Francesco di Giorgio Martini*, 3 vols (Florence: Giunti Barbèra, 1979). On Francesco di Giorgio, see also Francesco Paolo Fiore and Manfredo Tafuri, eds, *Francesco di Giorgio architetto* (Milan: Electa, 1993).
9. Examples of rubbing out and redrawing include the frontispiece of Giuliano da Sangallo's Codex Barberini in the Vatican Library and some folios of Francesco di Giorgio's Codex Saluzziano in Turin.
10. The first facsimile was by Hermann Egger, *Codex Escorialensis: Ein Skizzenbuch aus der Werkstatt Domenico Ghirlandaios*, 2 vols (Vienna, 1905–06); a new, color facsimile is now available, Margarita Fernández Gómez, *Codex Escorialensis 28-ii-12: Libro de dibujos o antigüedades* (Murcia: Editora Regional de Murcia, 2000). See also John Shearman, "Raphael, Rome, and the Codex Escorialensis," *Master Drawings* 15 (1977): 107–46; Arnold Nesselrath, "Il Codice Escorialense," in *Domenico Ghirlandaio, 1449–1494, Atti del convegno internazionale, Firenze, 16–18 ottobre 1994*, eds Wolfram Prinz and Max Seidel (Florence, 1996), 175–198; and Fabio Benzi, "L'autore del Codex Escorialensis identificato attraverso alcuni fogli erratici dell'albertina di Vienna," in *Römische Historische Mitteilungen* 42 (2000): 307–21.
11. Carmen Bambach, "The Purchases of Cartoon Paper for Leonardo's *Battle of Anghiari* and Michelangelo's *Battle of Cascina*," *I Tatti Studies* 8 (1999): 105–33.
12. Giuliano also used this technique of expanding the size of sheets with pasted on parchment additions in the "Libro piccolo," the earliest part of the Codex Barberini. Other examples include Giuliano's project for the Via Laura, Michelangelo's study for the tomb of Pope Julius II and Peruzzi's well known study of St. Peter's, all at the Uffizi in Florence. On the via Laura project, see Caroline Elam, "Lorenzo de' Medici and the Urban Development of Renaissance Florence," *Art History* 1 (1978): 43–66; Linda Pellicchia, "Designing the Via Laura Palace: Giuliano da Sangallo, the Medici, and Time,"

- in Lorenzo *The Magnificent: Culture and Politics*, eds Michael Mallett and Nicholas Mann (London: The Warburg Institute, 1996), 37–63; and Caroline Elam, “Lorenzo’s Architectural and Urban Policies,” in *Lorenzo il Magnifico e il suo mondo. Convegno internazionale di studi*, ed. Gian Carlo Garfagnini (Florence: L.S. Olschki, 1994) 357–84.
13. Thomas Ashby, “Sixteenth-Century Drawings of Roman Buildings Attributed to Andreas Coner,” *Papers of the British School at Rome* 2 (1904): 1–96. The attribution to Volpaia is by Tilmann Buddensieg, “Bernardo della Volpaia und Giovanni Francesco da Sangallo: Der Autor des Codex Coner und seine Stellung im Sangallo-Kreis,” *Römishches Jahrbuch für Kunstgeschichte* 15 (1975): 89–108. See also Arnold Nesselrath, “Codex Coner – 85 Years on” in Cassiano dal Pozzo’s *Paper Museum* (Milan: Olivetti, 1992), 145–67.
 14. Cammy Brothers, “Architecture, Education, and the Antique,” in *Michelangelo, Drawing, and the Invention of Architecture* (New Haven: Yale University Press, 2008), 45–84.
 15. Leon Batista Alberti, “On the Art of Building in Ten Books.”, trans. Joseph Rykwert, Neil Leach, and Robert Tavernor. Cambridge: MIT Press, 1988, 34 (Book 2). See also Massimo Bulgarelli, *Leon Battista Alberti, 1404–1472: Architettura e storia* (Milan: Electa, 2008).
 16. Vitruvius, *De architectura*, ed. Pierre Gros (Turin: Einaudi, 1997), vol. 1, 26–27 (or Rowland edition, 24–25). On *scaenographia*, see Christoph Thoenes, “Vitruvio, Alberti, Sangallo: La teoria del disegno architettonico nel Rinascimento,” in *Sostegno e adornamento: Saggi sull’architettura del Rinascimento* (Milan: Electa, 1998), 161–76 and David Summers, “The Heritage of Agatharchus: on Naturalism and Theatre in European Painting,” in Thomas Frangenberg, ed., *The Beholder: The Experience of Art in Early Modern Europe* (Aldershot, UK: Ashgate, 2006), 9–35. The term *scaenographia* is the subject of a chapter in Mari Yoko Hara’s dissertation, “Places of Performance: Baldassarre Peruzzi (1481–1536) – A Renaissance Painter-Architect,” (PhD diss., University of Virginia, 2015).
 17. The literature on the Letter is vast, all cited by John Shearman, *Raphael in Early Modern Sources: 1483–1602*, 2 vols. (New Haven and London: Yale University Press, 2003), vol. 1, 527–545. See also Christof Thoenes, “La ‘lettera’ a Leo X,” in *Raffaello a Roma. Il convegno del 1983* (Rome: Edizioni dell’Elefante, 1986), 373–381; and Cammy Brothers, “Architecture, History, Archeology: Drawing Ancient Rome in the Letter to Leo X and in Sixteenth-Century Practice,” in *Coming About...A Festschrift for John Shearman*, eds Lars Jones and Louisa Matthew (Harvard University Art Museums, 2002), 135–40.
 18. The volume had been kept in the library of Pallinsburn, a country house in Northumberland, England, and was first identified by Ian Campbell. The volume was acquired by the Royal Institute of British Architects and is housed in the Victoria and Albert Museum in London. A facsimile edition was produced by the auction house Lyon and Turnbull, and it has been published by Ian Campbell and Arnold Nesselrath, “The Codex Stosch: Surveys of Ancient Buildings by Giovanni Battista da Sangallo,” *Pegasus* 8 (2006): 9–90.
 19. This is discussed in further detail in Brothers, 2008, 45–84.
 20. Giorgio Vasari, *Le vite de’ più eccellenti pittori scultori e architettori: nelle redazioni del 1550 e 1568*, ed. Paola Barocchi, 6 vols (Florence: Sansoni, 1966), vol. 4, 76. Unfortunately none of Bramante’s drawings of antiquities survive.

21. Arnold Nesselrath has done a great deal to correct this situation, both through his own publications and by making the drawings available to a wider audience through the Census of Antique Works of Art and Architecture Known to the Renaissance (www.census.de). The Census is a digital catalogue inspired by the original one assembled by Ruth Rubinstein and Phyllis Pray Bober at the Warburg Institute, and culminating in their own book, Phyllis Pray Bober and Ruth Rubinstein, *Renaissance Artists and Antique Sculpture: A Handbook of Sources* (Oxford: Oxford University Press, 1986; 2nd ed. London: Harvey Miller, 2010). Nesselrath is also the founder of Pegasus, which publishes essays related to the reception of antiquity. A key essay is: Nesselrath, "I libri di disegni di antichità. Tentativo di una tipologia," in *Memoria dell'antico nell'arte italiana*, vol. 3, ed. Salvatore Settis (Turin, 1986), 87–147. See also Arnold Nesselrath, "Das Liller 'Michelangelo-Skizzenbuch,'" *Kunstchronik* 36 (1983): 46–47; idem, "Raffaello e lo studio dell'antico nel Rinascimento," in *Raffaello architetto*, eds Stefano Ray, Manfredo Tafuri and Christoph Frommel (Milan: Electa, 1984), 397–421; idem, "Raphael's Archaeological Method," in *Raffaello a Roma. Il convegno del 1983* (Rome: Edizioni dell'Elefante, 1986), 357–71; idem, "Monumenta antiqua romana: Ein illustrierter Rom-Traktat des Quattrocento," in *Antikenzeichnung und Antikenstudium in Renaissance und Frühbarock*, eds Richard Harprath and Henning Wrede (Mainz am Rhein: P. von Zabern, 1989); idem, *Das Fossombroner Skizzenbuch* (London: University of London, Warburg Institute, 1993); idem, "Il 'Libro di Michelangelo' a Lille," *Quaderni dell'Istituto di Storia dell'Architettura* 24 (1999): 35–52; idem, *Der Zeichner und sein Buch: die Darstellung der antiken Architektur im 15. und 16. Jahrhundert* (Mainz: Ruhpolding, 2014). Other important publications on drawings after the antique include Hubertus Günther, *Das Stadium der antiken Architektur in den Zeichnungen der Höchrenaissance*, Tübingen: Wasmuth, 1988; Ian Campbell, *Ancient Roman Topography and Architecture* (London: Royal Collection: Harvey Miller, 2004). Carolyn Yerkes, "Drawings of the Pantheon in the Metropolitan Museum's Goldschmidt Scrapbook," *Metropolitan Museum Journal*, (2003): 87–120.
22. The study of these artists is also facilitated by the publication of many of their drawings: Heinrich Würm, *Baldassarre Peruzzi: Architekturzeichnungen* (Tübingen: Wasmuth, 1984); Christoph Frommel and Nicholas Adams, *The Architectural Drawings of Antonio da Sangallo the Younger and His Circle* (New York: Architectural History Foundation, 1993); and Charles de Tolnay, *Charles, Corpus dei disegni di Michelangelo*, 4 vols, Novara: Istituto geografico De Agostini, 1975–1980.
23. Two examples of this point of view are found in William Bell Dinsmoor, "The Literary Remains of Sebastiano Serlio," *The Art Bulletin* 2 no. 1 (1942): 55–59; and Mario Carpo, *Architecture In the Age of Printing: Orality, Writing, Typography, and Printed Images in the History of Architectural Theory* (Cambridge, MA: MIT Press, 2001).
24. Emilie D'Orgeix, "The Goldschmidt and Scholz Scrapbooks in the Metropolitan Museum of Art: A Study of Renaissance Architectural Drawings," *Metropolitan Museum Journal* 36 (2001): 169–206. Many of d'Orgeix's conclusions are based on an unpublished typescript by Howard Burns in the museum file. The inscriptions are mostly in French or a combination of French and Italian (d'Orgeix, 171–2).

25. Alberto Alberti worked on the Villa Medici in Rome, among other projects: Isa Belli Barsali, *Dizionario biografico degli italiani*, vol. 1 (Rome: Istituto della Enciclopedia italiana, 1960) 680–1.
26. Howard Burns and Guido Beltramini, *Palladio* (London: Royal Academy of Arts, 2008), cat. 147, 300–3; 307–8.
27. The vast majority of his drawings are held at the Gabinetto Disegni e Stampe of the Uffizi Gallery in Florence. See Ann Huppert, *Becoming an Architect in Renaissance Italy* (New Haven: Yale University Press, 2015).
28. Vasari, vol. 4, 327; other contemporary sources, including Serlio, Egnazio Danti, and Giovan Paolo Lomazzo, are cited and discussed by Howard Burns, “Baldassare Peruzzi and Sixteenth-Century Architectural Theory,” in Jean Guillaume, ed., *Les traités d’architecture de la Renaissance* (Paris: Picard, 1988) 207–26.
29. Georgia Clarke, “‘La più bella e meglio lavorata opera’: Beauty and Good Design in Italian Renaissance Architecture,” in *Concepts of Beauty in Italian Renaissance Art*, eds. Francis Ames-Lewis and Mary Rogers (Aldershot, UK: Ashgate, 1998), 107–23.
30. Other architects also had publishing projects in mind, with the implication that study drawings often had multiple purposes. See Vincenzo Fontana and P. Marachiello, *Vitruvio e Raffaello: Il “De architectura” di Vitruvio nella traduzione inedita di Fabio Calvo Ravennate* (Rome: Officina, 1975) and concerning the project of Giovanni Battista da Sangallo, see Ingrid Rowland, ed., *Ten Books on Architecture: The Corsini incunabulum* (Rome: D’ell’Elefante, 2003).
31. The drawing has received much scholarly attention, including: Wolfgang Lotz, “The Rendering of the Interior in Italian Renaissance Drawing,” in *Studies in Italian Renaissance Architecture* (Cambridge, MA: MIT Press, 1977); Wolfgang Jung, *Über szenographisches Entwerfen: Raffael und die Villa Madama* (Vieweg: Braunschweig, 1997); and Huppert, “Envisioning New St. Peter’s”: 158–77.
32. The drawing is in Ferrara; see Howard Burns, “A Peruzzi Drawing In Ferrara,” *Mitteilungen des Kunsthistorisches Institut, Florence* 12 (1966): 245–70.
33. Among the complications in considering works from this category is that many of them are not actually finished drawings. In other words, there are many drawings that appear to be of the scale and degree of refinement that would indicate that they are for a patron, but they are not complete. In these cases, we do not know whether they were presented in their unfinished state to the patron, or if for some unclear reason they were abandoned prior to completion. Examples of drawings that have been identified as “presentation drawings” but were not finished include many of Michelangelo’s drawings, for the façade of San Lorenzo, for example, or for the Laurentian Library.
34. See Paola Barocchi and Renzo Ristori, eds, *Michelangelo, Il carteggio di Michelangelo, Edizione Postuma di Giovanni Poggi*, 5 vols, 1965–83, vol. III, 30–31, 35, 37, 41, 51, 57, 64, 71–86, 217 and vol. IV, 17, 34; and Maria Teresa Sambin De Norcen, “Michelangelo e Clemente VII. Corrispondenza e corrispondenti nella genesi della sacrestia Nuova e della biblioteca Laurenziana,” *Annali di architettura* 15 (2003): 75–87.
35. See Georg Satzinger, *Michelangelo und die Fassade von San Lorenzo in Florenz: Zur Geschichte der Skulpturenfassade der Renaissance* (Munich: Hirmer, 2011). Further study will be necessary to parse the authorship of individual parts of the drawings, but initial examination suggests the central role of Francesco da Sangallo, imitating the figurative

- style of his father. Several of the sheets were likely intended for the Santa Casa in Loreto, as suggested by the presence of emblems of the della Rovere family.
36. Amanda Lillie, "The Palazzo Strozzi and Private Patronage in Fifteenth-Century Florence," and catalogue entry for the model of Palazzo Strozzi, in Millon and Lampugnani, *From Brunelleschi to Michelangelo*, 518–19; Mauro Mussolin and Amanda Lillie, "The Wooden Models of Palazzo Strozzi as Flexible Instruments in the Design Process," in *Giuliano da Sangallo*, eds A. Belluzzi, C. Elam and F. P. Fiore (forthcoming). See also Henry A. Millon, "Models in Renaissance Architecture," in Millon and Lampugnani, *From Brunelleschi to Michelangelo*, 19–74.
 37. They are discussed by William E. Wallace, *Michelangelo At San Lorenzo: The Genius As Entrepreneur* (New York: Cambridge University Press, 1994), 41–3; and Barkan, *Michelangelo*, 100–3.
 38. Michael Waters offers a critical revision of this thesis, centering on the role of single leaf prints. Michael Waters, "A Renaissance without Order: Ornament, Single-sheet Engravings, and the Mutability of Architectural Prints," *Journal of The Society of Architectural Historians* 71, no. 4 (2012): 488–523; and, with Cammy Brothers, *Variety, Archeology and Ornament: Renaissance Architectural Prints from Column to Cornice*, (Virginia: University of Virginia Art Museum, 2011).
 39. See also Alina Payne, "The Sculptor-Architect's Drawing and Exchanges Between the Arts," in *Donatello, Michelangelo, Cellini: Sculptors' Drawings from Renaissance Italy*, ed. Michael Cole (Boston: Isabella Gardner Museum, 2014), 57–73 (published after this chapter was written).
 40. The Ripanda Album is at Oxford and The Northern Italian Album is at the Sir John Soane Museum in London (Valeria Cafà, "I disegni di architettura del taccuino KP668 all'Ashmolean Museum di Oxford," *Annali di architettura* 14 (2002): 129–61; and Lynda Fairbairn, *The North Italian Album*, The Sir John Soane's Museum (London: Azimuth, 1998).
 41. The newer attribution to the Sangallo circle is by Nesselrath, "Il Codice Escorialense"; Benzi offers another alternative; see note 10.
 42. Elizabeth Merrill considers these machine drawings and their dissemination in her dissertation, "Francesco di Giorgio and the Formation of the Renaissance Architect," University of Virginia, 2015.
 43. The category of the "copy book" appears frequently in literature on Renaissance drawings; it is described specifically in relation to architecture by Nesselrath.
 44. Cronaca's drawings are at the Uffizi; the Mellon Codex is held at the Morgan Library in New York; and Alberto Alberti's drawings are at the Istituto Nazionale per la Grafica in Rome.
 45. These treatises are all available in modern editions. Andrea Palladio, *I quattro libri dell'architettura di Andrea Palladio* (Venice, 1570); Robert Tavernor, ed., *Palladio, The Four Books On Architecture* (Cambridge, MA: MIT Press, 1997); Sebastiano Serlio, *Il terzo libro di Sebastiano Serlio* (Venice, 1540); Vaughan Hart and Peter Hicks, ed. and trans., *Sebastiano Serlio On Architecture* (New Haven: Yale University Press, 1996); Jacopo Barozzi da Vignola, *Regola delli cinque ordini d'architettura di M. Iacopo Barozzio da Vignola* (Rome, 1562); Branko Mitrovic, *Canon of the Five Orders of Architecture*, facsimile edition with commentary (New York: Acanthus Press, 1999).

46. It is discussed by Alexander Nagel and Christopher Wood, *Anachronic Renaissance* (Cambridge, MA: MIT Press, 2010) 139, 172–4, 188–94 and Jack Freiberg, “Bramante’s Tempietto, the Roman Renaissance and the Spanish Crown” (Cambridge: Cambridge University Press, 2014).
47. Serlio, *Book II On Antiquities*, in Hart and Hicks, *Sebastiano Serlio on Architecture* 131–4, [67r, 68v], facsimile edition (Ridgewood, New Jersey: Gregg Press, 1964); *Tutte l’opere d’architettura et prospetiva* (Venice, 1619); Palladio, *Book IV on Antiquities, Chapter XVII*, in Tavernor and Schofield, 276–8; Licisco Magagnato and Paula Maini, eds, *I quattro libri dell’architettura* (Milan: Edizioni Il Polifilo, 1980), 324–6. Notably, Bramante’s work does not appear in Giuliano da Sangallo’s Codex Barberini, perhaps because he considered Bramante a rival; instead, Giuliano includes several plans by Brunelleschi.
48. Clarke, “La più bella e meglio lavorata opera.” The base and capital were drawn extensively in the Renaissance, as well as reproduced in printed treatises. Examples include: Peruzzi UA 632v and 633 r (fig. 9.2 in Clarke); in the Codex Coner, fol. 124 (95); Antonio da Sangallo the Elder, UA 1879; Aristotile da Sangallo, Uffizi UA 4337v; Giorgio Vasari the Younger, Uffizi 4337v (all mentioned by Ashby, “Sixteenth–Century Drawings,” 61); Serlio, Book 3, fol. 84v and book 4, fol. 185 in *Tutte l’opere d’architettura et prospetiva di Sebastiano Serlio deviso in sette libri* (Venice, 1619); Palladio book 3, fol. 22, 232 in Tavernor, *Palladio*.
49. Recent conferences include the University of Washington in Rome Symposium, “Drawing and the Renaissance Architect,” Rome, December 2011; “Is Drawing Dead?,” a symposium at the Yale University School of Architecture, February, 2012; and numerous conference sessions over the past five years at the Renaissance Society of America and the College Art Association annual meetings.

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