

*Master Builders*  
*of Byzantium*

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## *The Mysterious Disappearing Architect and His Patron*

The builders of the great monuments of Byzantine architecture are most often anonymous figures who fail to appear in the historical record. Considerably more is known about their patrons because the texts tell us more about them. Historians are sometimes even able to reconstruct patrons' personalities, although the implications of this for the study of architecture are far from clear. Nevertheless, a text-oriented history of Byzantine architecture tends to emphasize patronage because the texts document patronage. It is easy to overlook the fact that a text may tell us next to nothing about the building itself, or about the builder, his working method, and the process of building. As with so many other aspects of Byzantine art, connecting text and artifact is a problematic exercise. In an attempt to rediscover the mysterious Byzantine architect, it is important to examine the evidence from the texts.

### *Architects and Their Patrons*

The Early Christian period has left some information about architects—enough to determine that the practices of Roman times were continued perhaps as late as the seventh century. For example, in the sixth century, Cassiodorus provides the following formula for a palace architect: “When we are thinking of rebuilding a city, or of founding a fort or a general’s quarters, we shall rely on you to express our ideas on paper. The builder of walls, the carver of marbles, the caster of bronzes, the vaulter of arches, the plasterer, the worker in mosaic, all come to you for orders, and you are expected to have a wise answer for each.”<sup>1</sup> The architect is advised to “study Euclid—get his diagrams well into your mind, study Archimedes and Metrobius.” All of this suggests that a proper Early Christian architect was both well trained and highly regarded, and that he followed much the same course of education that Vitruvius prescribed in the first century B.C.<sup>2</sup> Throughout the literature of the fourth through the seventh centuries, architects are praised, names

are recorded, and the architect seems to have achieved a certain social standing. For example, Anthemius and Isidorus, the architects of Hagia Sophia in Constantinople, were men of status, the equivalent of university professors, with direct access to the emperor.

The picture is considerably different in the Middle and Late Byzantine periods, when builders are of considerably lower stature. In Alexios Makrembolites's "Dialogue between the Rich and the Poor," written between 1342 and 1344, masons are included among the poor.<sup>3</sup> Masons are rarely mentioned by name in either texts or inscriptions, and when named, it is usually as an incidental detail in a text with another purpose. Some histories and hagiography provide information about architecture in the form of *ekphrasis*, but architectural practices are difficult to piece together from the written evidence. In the *ekphrasis* of the Middle and Late Byzantine periods, the structure of the building seems to vanish amid the luxurious ornamentation and details. Similarly, those responsible for the construction seem to have vanished as well. They go unmentioned and unnamed in most of the documents of the period, whereas the *ketores*, or founders, are given all the credit. But this may happen in almost any period: it is still commonplace to say that Justinian built Hagia Sophia, or that Louis XIV built Versailles, in spite of the fact that historians know quite a bit about the actual architects, who were lauded in their own day. Like Louis, Justinian clearly understood the symbolic implications of a building program, and both rulers were interested in—and presumably personally involved in—the process of building. But neither was an architect.

The relative status of patron and mason is nicely illustrated in a Latin manuscript of the *Chronicon Santa Sophiae*, which shows Justinian directing a mason in the completion of the dome of Hagia Sophia (fig. 26).<sup>4</sup> The contrast of scale says it all: Justinian is huge, even larger than Hagia Sophia. The tiny mason stands on the ladder holding a trowel and a roofing tile; he turns nervously to receive the emperor's instructions. Although this is a Western European manuscript, it follows in the Byzantine tradition, as the subject matter of the manuscript might suggest. Similar signative discrepancies in scale between patron and builder are evident in numerous other manuscripts, such as the Manasses World Chronicle and the Hamilton Psalter.<sup>5</sup>

It was common in a Byzantine *ekphrasis* for the building to be seen as a reflection of the character of the patron. For example, Procopius glorified Justinian's architectural production as a part of his panegyric to the emperor: he dominates the text, just as he dominates the illustration in figure 26. Procopius attributes major decisions to the emperor, while minimizing the contribution of the architects. According to Procopius, when structural problems occurred during construction, the builders despaired of finding a solution themselves and turned to the divinely inspired emperor for guidance.<sup>6</sup> In contrast, it has been suggested that the ninth-century author of the *Diegesis*, a semi-legendary account, attempted to do exactly the opposite—that is, to emphasize the



FIG. 26. Detail of an illuminated manuscript depicting Justinian directing the construction of Hagia Sophia. Vatican Library, Rome (MS lat. 4939, fol. 28v)

structural problems in order to diminish the reputation of Justinian, and possibly to criticize indirectly a contemporary imperial builder.<sup>7</sup>

As in Procopius's sixth-century panegyric to Justinian, the tenth-century *Vita Basilii*, which celebrates the deeds of Emperor Basil I (reigned 867–86) and was apparently written by his learned grandson Constantine Porphyrogenetos (reigned 913–59), includes a lengthy account of the emperor's architectural patronage. In general, the text emphasizes Basil's just government, while the discussion of architecture emphasizes his piety and his renewal of the empire:<sup>8</sup> "Between his warlike endeavors which he often, for the sake of his subjects, directed to a good end like a president of athletic contests, the Christ-loving emperor Basil by means of continuous care and the abundant supply of all necessary things, raised from ruin many holy churches that had been rent asunder by prior earthquakes or had fallen down or were threatening immediate collapse on account of the fractures [they had sustained], and to the solidity he added [a new] beauty."<sup>9</sup> There follows a catalogue of Basil's numerous restorations and building projects, without mention of an architect.

The eleventh-century writer Michael Psellos described examples of lavish architectural patronage to emphasize the weak or wasteful characters of the imperial patrons,

following a formula that had been established in Roman times. His account of Constantine IX Monomachos's construction at the Mangana, "In the catalogue of the emperor's foolish excesses . . . the worst of all [was] the building of the church of Saint George the Martyr,"<sup>10</sup> seems to echo Suetonius's account of Nero's golden house: "His wastefulness showed most of all in the architectural projects."<sup>11</sup> Both buildings are said to have been encrusted with gold and surrounded by lavish gardens. In contrast, John Kinnamos's very brief characterization of the early twelfth-century Empress Eirene notes her patronage as evidence of her devotion: "[Empress Eirene] passed her whole life benefiting persons who were begging something or other from her. She established a monastery in the name of the Pantokrator, which is among the most outstanding in beauty and size. Such was this empress."<sup>12</sup>

Byzantine hagiography follows a similar pattern, and the churches constructed by Byzantine saints are seen as physical manifestations of their holiness. Usually in such descriptions it is the saint who calls the shots, as a combination of patron, contractor, and master mason. The saint follows divine authority, assuring that the building is constructed in accord with God's plan. The sixth-century *vita* of Saint Nicholas of Sion, for example, made his authority explicit. Wanting to depart for the Holy Land in the middle of a construction project, Nicholas proposed to halt the work in his absence and to dismiss the craftsmen and stonemasons. His brother Artemas objected: "How so? Can't I direct the craftsmen?" Nicholas was firm: "No! God granted me this grace, the stone obeys me, and I do as I wish."<sup>13</sup> The workers agreed and departed. When Artemas attempted to continue the quarrying with new workers, they were unable to move a single block until the saint returned.

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For the several churches built by Saint Nikon of Sparta in the tenth century, no architect is mentioned, and the divinely inspired saint directed the work himself. At the beginning of the construction of the church of Saint Photeine at Sparta, the saint's gathering of workers, materials, and donations is said to have been "sufficient to win the favor of the saint and for the work to be in accord with God's plan."<sup>14</sup> At about the same time, at the Lavra monastery on Mount Athos, Athanasios also organized and directed the workmen.<sup>15</sup> Although the laborers are called *oikodomoí*, the common word for trained builders, their contribution is never made specific: they fade into the background because the text—and thus the building—is all about Athanasios, who visited the construction site regularly to oversee the work.

With very few exceptions, however, patrons must have lacked expertise and specialized skills related to building, and it is possible that most often their contribution to the final product amounted to little more than determining the scale and the budget. Beyond this is only speculation. For example, Emperor Constantine IX Monomachos was a knowledgeable and involved patron. He is said to have regularly visited the construction site



FIG. 27. Mosaic depicting Theodore Metochites presenting the church to Christ, Chora monastery (Kariye Camii), Istanbul

at the Mangana, altering the plan and expanding the project several times (although Psellos credits his interest to the fact that his mistress lived nearby).<sup>16</sup> Psellos praises the final product, but the exact nature of Constantine's contribution remains unclear.<sup>17</sup> Similarly, in the early fourteenth century, Theodore Metochites was apparently personally involved in the reconstruction and redecoration of the Chora monastery (fig. 27), and his position in the coordination of such a large, multimedia endeavor begs speculation.<sup>18</sup> But the input of the patron must by necessity remain an indeterminate element in our analysis of Byzantine architecture. Whatever his or her contribution, in the end the masons held the responsibility of translating the patron's wishes into buildable architectural terms. Patrons such as Theodore Metochites, or Justinian in an earlier age, could have provided "hothouse conditions," an unlimited budget, and perhaps a few suggestions—but the masons did the rest.

### *Byzantine Builders*

Until the sixth century, or perhaps slightly later, the term for an architect was *mechanikos* or *mechanopoios*, often translated as "engineer." The title indicates a broadly based, academic education similar to that specified by Vitruvius in Roman times. The education in *mechanike theoria* is also clarified by Pappus of Alexandria in his *Synagoge*, written about

A.D. 320.<sup>19</sup> Anthemios and Isidoros, the builders of Hagia Sophia, were architects in this tradition, with strong theoretical backgrounds. Isidoros was a professor of geometry and mechanics, and a specialist in the works of Archimedes, Euclid, and Heron. Anthemios was a mathematician and the author of several technical treatises, including one on conic sections.<sup>20</sup> On the other hand, an *architekton* of the Early Christian period seems to have been equipped with a technical education but not with the academic or theoretical background of the *mechanikos*. Either could have directed a construction project, as the texts indicate.<sup>21</sup> In the Early Christian period, then, architecture could be either theoretically-based or practically-based, depending on the training of the architect in charge. As the architectural landscape of the Early Christian period was formed, and building types were developed, theoretically-based architecture set the standards and provided a constant source of inspiration for the functioning workshops of the builders. Theory-based innovation could have resulted in new design concepts, new systems of decorative detailing, or even new structural systems. Once introduced, these features could have been imitated and adapted by other builders with more practical backgrounds.

In the period following the economic and social changes of the Transitional period, however, there is no indication that architects sought or received any special theoretical education. The term *mechanikos* was no longer used. The supervisor of construction may be called an *architekton*, however rarely, and the term seems to denote a master builder. The term appears in the tenth-century *Book of Ceremonies*, but in a section of text copied from fifth- or sixth-century material, and it is most likely an archaism in this context.<sup>22</sup> The *Lexica Segueriana*, probably from the Middle Byzantine period, defines an *architekton* as a “supervisor of construction work; chief of carpenters (or builders); one who fashions something with painstaking care.”<sup>23</sup> But the term was out of use by this time, with *oikodomos* used more commonly for both the master mason and the skilled worker. The terms *maistor* and *protomaistor* are also used for the master mason or for the head of a guild.<sup>24</sup> Skilled workers or artisans were called *technites*,<sup>25</sup> whereas unskilled workers were usually called *ergates*. Other terms appear, such as *litboxoos* for mason (specifically a stoneworker) and *tekton* or *leptourgos* for carpenter. However, by the tenth century, the terms for carpenters, masons, and builders had lost their distinctive meanings and were used interchangeably.<sup>26</sup>

After the Transitional period, all of the builder’s training was apparently learned through participation in a workshop. In that conservative environment, a mason learned methods of wall and vault construction that had been tested over time and that had been proven effective. Presumably design methodology was passed on in the same way. In other words, architecture in the later periods was based on practice rather than on theory, and this may account for its inherent conservatism.



FIG. 28. Detail of an illuminated manuscript illustrating Psalm 95. Bibliothèque Nationale de France, Paris (MS gr. 20, fol. 4r)

Psalters from the Middle Byzantine period often show scenes of construction accompanying Psalm 95 (fig. 28).<sup>27</sup> Workers are shown setting columns in place with ropes and pulleys; others carry building materials up ladders. But the images seem incomplete when compared to a thirteenth-century mosaic from San Marco in Venice, which depicts masons building the Tower of Babel (fig. 29).<sup>28</sup> Here, in addition to the scurrying workers, is a well-dressed figure on the lower right, holding an L-shaped stick and gesturing. He is the master mason, directing the project. Following western medieval iconography, the San Marco mosaic clearly recognizes the master mason's importance. The master mason is curiously absent in the Byzantine illustrations, however, just as he is invisible in most of the texts. For example, the mosaic illustrations of the construction of the Tower of Babel from Monreale Cathedral and the Cappella Palatina in Palermo show workers engaged in a variety of activities, but the master mason is missing (fig. 30).<sup>29</sup>

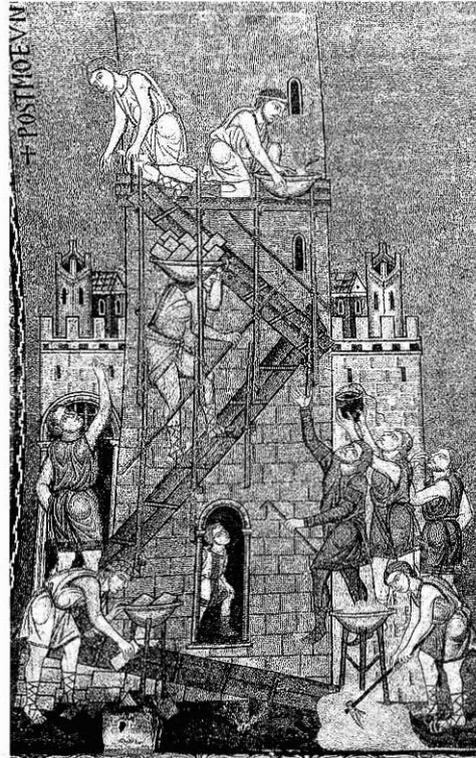


FIG. 29. Mosaic illustrating the construction of the Tower of Babel. San Marco, Venice

### *Project Supervision*

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According to the *Basilika*, the legal code employed in the Middle Byzantine period, a manager, or *ergolabos*, served as the intermediary between the client and the workers. He received and distributed payments, and he was responsible for providing the building materials.<sup>30</sup> When names are recorded in Byzantine documents in relationship to a building project, however, it is often difficult to determine the role of the individual: was he a professional builder, a project supervisor, or even a civil servant?<sup>31</sup> The Bryas Palace, for example, was constructed in an Asian suburb of Constantinople around 830 for the emperor Theophilus by John the *synkellos*, who later became patriarch. The palace was built in the Arab style, following John's diplomatic mission to Baghdad, and was based on his impressions of Arab palaces. Theophanes Continuatus writes, with a play on words, that "the work was carried out according to John's instructions by a man named Patrikes, who happened to be also adorned with the rank of patrician [*patrikios*]."<sup>32</sup> It has been suggested—correctly, I believe—that Patrikes was a supervisor rather than a mason because of his rank.<sup>33</sup>

The same may hold true for a certain dignitary with the rank of *spatharokandidatos*, Petronas Kamateros, who is sometimes identified as an architect.<sup>34</sup> He was responsible for the construction of the fortress of Sarkel on the Don River (ca. 833) and is mentioned by Constantine Porphyrogenetos in the *De administrando imperio*.<sup>35</sup> His dignity suggests that, like Patrikes, he was the imperial overseer rather than the architect.

At the Kosmosoteira monastery, built by the Sebastokrator Isaak Komnenos in the mid-twelfth century, the founder's secretary took responsibility for overseeing the construction, as Isaak informs us in the *typikon*:

My secretary Michael, in all respects my dearest retainer . . . has labored greatly over the foundation and rebuilding of this holy monastery and everything erected around it . . . and suggested many ideas to me about them, novel arrangements of buildings [which are] essential and useful for the monastery, in many [cases] the clever inventions of a talented nature. In fact, following his advice I myself renovated most of what was being done by the workmen, marveling naturally at the truly marvelous dexterity of the man in such matters.<sup>36</sup>

Michael's contribution to the construction of the monastery was of such value that he was well provided for during his lifetime, was given a private house in the monastery, and was promised that upon his death he would be buried in a finely outfitted tomb in the exonarthex of the church. Was he an architect? In the *typikon*, Isaak refers to Michael simply as his secretary and scribe, and it is possible that he functioned only in a supervisory capacity. This is not to say that Michael was not clever, merely that his training was not as a builder.

Another architect from this time may be a certain Nikephoros, who was responsible for the construction of the Pantokrator monastery in Constantinople in the early twelfth century. Nikephoros is called "the new Bezalel," a name which compares him to the fabled architect of the Temple of Jerusalem. He is also called a co-worker (*synergates*) of the founder, Empress Eirene. However, there is no evidence concerning his responsibilities in the project, and again, his social status suggests that he was a government overseer rather than a mason. Moreover, his name does not appear in the *typikon* of the monastery but in the Life of Eirene, added to the *Synaxarion* at an uncertain date, and in a late fourteenth-century *ekphrasis* based on the *typikon*. It may thus represent a later development in the tradition—that is, from a time when architect's names were more commonly recorded.<sup>37</sup>

During the Seljuq invasion of Bithynia, Emperor Alexios Komnenos needed to secretly construct a fortress at Kibotos, on the Sea of Marmara. Anna Komnene reported, "All the construction materials needed for the building of this fortress, together with the masons (*oikodomoï*) were put on board transport ships and sent off under the command of Eustathios, the Drungarius of the Fleet, who was to be responsible for the building."<sup>38</sup>



FIG. 30. Mosaic illustrating the construction of the Tower of Babel. Cappella Palatina, Palermo

48 Here we may begin to reconstruct a chain of command for an imperial project, in which  
 Chapter a government official—who was certainly *not* an architect—is placed in charge of the  
 Two project, presumably with a master mason (or master masons) under his command.

In another instance, during the restoration of Constantinople by Michael VIII following the reconquest of the city from the Latins in 1261, the emperor appointed a monk named Rouchas to restore the church of Hagia Sophia: “And placing in charge the monk Rouchas, a man efficacious in this type of affair [*andra drasterion epi tois toioutois*] he rearranged the sanctuary, the ambo, and the solea, and reconstructed other parts with imperial funds.”<sup>39</sup> Although it is possible that Rouchas was a mason, the context suggests that he was instead the imperial overseer.

A chain of command between the imperial patron and the workers is clearly recorded in a sixth-century provincial building project. The church of the Theotokos (the “*Nea Ekklesia*”) in Jerusalem was constructed by Justinian and Theodora in the 530s. Cyril of Scythopolis writes that a *mechanikos* named Theodore was responsible for the actual

construction of the church, while the tax clerks (*trakteutai*) at the praetorian prefect's office were to take care of the finances for the project. At the same time, Peter, the archbishop of Jerusalem, was given final authority, but a certain Barachos, bishop of Bakhtha, was charged with supervising the construction.<sup>40</sup> Thus, between the patron and the project architect were a variety of named intermediaries; none of them were architects.

Building contracts (*homologiai*) and other documents are also occasionally mentioned in relationship to building projects. These are frequently noted in the *Book of the Eparch*, a tenth-century code governing the guilds of Constantinople.<sup>41</sup> Both written and verbal contracts between the patron and the contractor or overseer of a project are noted; both are regarded as binding. Similarly, in the tenth-century *vita* of Hagios Germanos, the author recorded a contract that established the wage Germanos was to pay the workers.<sup>42</sup> The late eleventh-century *typikon* of Gregory Pakourianos also mentions receipts issued to document successfully completed work.<sup>43</sup>

It is possible to surmise that, in addition to a master mason, a workshop of masons had a supervisor or some sort of official to attend to the finances and the non-architectural decision making. This was the role taken by Barachos and Eustathios, and probably by Rouchas, Nikephoros, Stephen, Petronas, and Patrikios in the earlier examples. Clearly, when names are mentioned, they identify individuals from the upper part of the hierarchical structure of a building project. But the same language ("X built Y," or "X was responsible for the construction of Y") might identify the patron, the government representative, or the manager—as well as the mason. Possibly two roles, architect and manager, were played by the same individual in a small project, but in most projects, there was likely some division of leadership.

### *Workshops and Guilds*

Apart from a few rules governing the organization of guilds, very little is known about the activities or the constitution of a workshop of builders in the Middle or Late Byzantine periods. Our best source is the *Book of the Eparch*, from the tenth century, which gives some of the regulations governing craftsmen at that time.<sup>44</sup> Artisans were organized into guilds (*systemata*, or *somateia*), which, in the tenth century, were privileged corporations with voluntary membership, and which were protected from the competition of non-guild members. In many ways, they were similar to the later medieval guilds of Paris. Byzantine guilds were subject to governmental control, but direct services to the state appear to have been minimal.<sup>45</sup> Urban guilds played a role in imperial triumphs and other ceremonies.<sup>46</sup> The guild system continued into the following centuries but became less strict.<sup>47</sup> During the Middle Byzantine centuries at least, the guilds were an active political force within Constantinople.<sup>48</sup> There are indications that some sort of profes-

sional corporation continued in the thirteenth and fourteenth centuries.<sup>49</sup> For example, Georgios Marmaras of Thessaloniki is identified consistently with his title, *protomaistor ton oikodomon* or *protomaistor ton domitoron* (master of the builders), in several documents from Mount Athos (1322–27) that do not concern architecture.<sup>50</sup> This seems to have been a professional title, suggesting the existence of a permanent workers' organization within the city.<sup>51</sup> On the other hand, workshops (*ergasteria*) were also temporary associations of workers from various professions who were brought together for a specific project. Unfortunately, the relationship between the guild system and the individual workshops is not clear.

According to the *Book of the Eparch*, competition was restricted by the precise definition and limitations placed on the guild's activities.<sup>52</sup> For example, the artisan was held responsible for his work, and he was not allowed to embark on another project before completing the one at hand. At the same time, workers were also protected from the improper behavior of the client. Special skills were demanded of builders: "Those who build walls and domes or vaults of brick must possess great exactitude and experience lest the foundation prove unsound and the building crooked or uneven." For brick buildings, builders were held accountable for ten years after construction, and with mud-brick construction, they were accountable for six years, barring natural disasters.<sup>53</sup>

### *Workshop Size and Make-up*

Workshops are usually assumed to have been temporary organizations, formed to complete a specific task. For certain, the relationship between workers with complimentary skills, or between workers and apprentices, continued over a period of years. The presence of apprentices is important in this respect, because in a "professionally illiterate" society, workshops were the method of transferring acquired knowledge from one generation to the next. The fact that workshops spanned several generations helps to account for the continuity in Byzantine architecture.

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The head of a workshop or of a guild was called the *maistor* or *protomaistor*, which is usually translated as "master mason" or "master builder." The *Diegesis*, a semi-legendary account of the ninth century, credits the building of Justinian's church of Hagia Sophia to one hundred master builders (*maistores*), each directing one hundred workers, with fifty master builders and their teams working simultaneously on each half of the building.<sup>54</sup> But this account is clearly fabulous: the *Diegesis* also claims that the design of the church was revealed to the emperor by an angel. It is plausible that the magnitude of the workshops fantasized in the *Diegesis* was meant to contrast with the workshops of its author's time, just as the scale of Middle Byzantine architecture contrasted with that of the Justinian period.

In another example, given by Theophanes, Constantine V wanted to restore the aqueduct system for Constantinople in 766–67; therefore, he called artisans from the various regions of the empire.<sup>55</sup> The numbers may appear equally fabulous, but this was an extensive undertaking: one thousand masons (*oikodomoï*) and two hundred plasterers (*christai*) from Asia and Pontus; five hundred clay-workers (*ostrakarioi*) from Greece and the islands; five thousand laborers (*operai*) and two hundred brickmakers (*keramopoioi*) from Thrace. Moreover, “He set taskmasters over them including one of the patricians.”<sup>56</sup> By contrast, although numbers are not given in the discussion of an Isaurian workshop of stonemasons in Antioch during the early sixth century, which is mentioned in the *vita* of Saint Symeon the Younger, one has the impression of a small, itinerant workforce in which the workers took care of each other.<sup>57</sup> In the sixth-century *vita* of Saint Nicholas of Sion, the hagiographer writes that eighty-three craftsmen (*technitai*) were working on the church.<sup>58</sup> On the other hand, at Peristerai, near Thessaloniki, Saint Euthymios built the church of Saint Andrew in the ninth century with the assistance of only three or four laborers.<sup>59</sup>

One of the post-Byzantine *hypomnemata* (commentaries) associated with the monastery of Hosios Loukas is accepted by several scholars as presenting some important evidence for the early history of the monastery, although almost all of the attention has been focused on the evidence for dating the existing churches.<sup>60</sup> For a church completed in the year 966, the emperor sent experienced masons (*oikodomoï*) from Constantinople under the supervision of an overseer (*epistates*) who held the ranks of *patrikios* and *Domestikos ton Scholon*, and two hundred men. They were instructed to build a church “as beautiful as Hagia Sophia, but not so large.” In the team were eighty of the most experienced master builders (*oi pleon empeiroi kai megaloi technitai 80, oi protomaistores*) with eighty apprentices (*mathetas*).<sup>61</sup> The text poses several problems: the numbers are certainly exaggerated, no specialized skills are identified, and no names are given. Still, it suggests something of the hierarchy that existed within a construction project.

The evidence from Western Europe in the Gothic period is much more detailed, but considering the vastly different scale of projects of the East and West, it would be misleading to reconstruct a Byzantine workshop on a Western model.<sup>62</sup> Some basic features of Western medieval practice are worth considering, however. For example, it was common in the West for the supervision of a project to be divided between a clerk of works, who was responsible for the administrative and financial aspects, and the master mason, who directed the actual construction. In comparison to a master mason, a clerk had some formal education, came from a higher social class, was paid considerably better, and could hope for advancement. A master mason, on the other hand, was regarded as a craftsman in spite of his talent. He normally lacked education other than his experience in the workshop, where he would have learned through the oral transmission of the tra-

ditions of the craft. Commonly, after a boy began an apprenticeship, he worked his way through the various labors of construction. Often he started as a laborer in the quarry, cutting and removing stones. From there he could advance to become, successively, a layer of rough stone at the building site, a layer of finely carved stones, or perhaps a carver. If he had aptitude, he could become the apprentice to the master mason and learn design techniques. It was expected that a master mason would work his way, step by step, through the workshop, to eventually possess considerable practical and technical knowledge of the materials, as well as the skills necessary to work with them. His training was also supplemented by his personal experience and the study of existing monuments.<sup>63</sup>

There must have been considerable variation in the organization of a Byzantine workshop, depending on the size and lavishness of each project and the source of funding. In some instances, it is possible to envision a single master mason, perhaps with an assistant, taking charge of the construction of a small or medium-sized church, directing a team of unskilled workers. In other situations, a larger team of varying skill levels would have been necessary. In most instances, there were probably artisans with specialized skills. Trained craftsmen would have been necessary for the interior decoration, whether in marble and mosaic or in fresco. Although the *Basilika* specifies a building manager as an intermediary, no distinction is made between *ergolaboi* and *technitai* in the *Book of the Eparch*. Regulations concerning craftsmen list them under the heading of “contractors of all kinds” (*peri panton ton ergolabon*): carpenters, plasterers, marble workers, locksmiths, painters, and others (*leptourgon, gypsoplaston, marmararion, askothurarion, zographon kai loipon*).<sup>64</sup> In addition, in the hagiographical literature, the saint may assume the roles of both *ergolabos* and *oikodomos*. Already in the sixth century, in the *vita* of Saint Martha, the distinctions among builder, architect, and contractor are unclear: men of all three professions take responsibility in succession for the construction of a problematic vault.<sup>65</sup> It may be possible that the technical terminology related to the various building professions lost its specificity as did the responsibilities of the individual workers. That is to say, in the Middle and Late Byzantine periods, the vague and interchangeable terminology may indicate that there were few specialists in the building profession.

As in the Western European workshop, a Byzantine building team probably spanned several generations, with youths learning the trade as assistants to the mature workers. In figure 28, different ages of workers can be discerned: an elderly man sets columns in place, assisted by a boy. The *Patria of Constantinople* and other texts mention *maistores* and their apprentices (*misthioi*). Apprentices are mentioned without further elaboration in the mathematical textbooks from the fourteenth and fifteenth centuries, which gives some suggestion of the functioning of a workshop in their “story problems” involving a builder (*mastores* or *technites*) and occasionally his apprentices (*mathetades*).<sup>66</sup> In the *hypomnemata* of Hosios Loukas, each master had his own apprentice. The fact that boys acting

as helpers were a regular part of a construction workshop in Byzantium is also attested to by the numerous decrees from Mount Athos. When *aikodomoï* were summoned to work at the monasteries, boys and “beardless youths” were not allowed to come—apparently to safeguard the morals of the monks. Similar warnings appear as early as the tenth century and as late as the fifteenth.<sup>67</sup> In some professions, contracts of apprenticeship placed a youth under the supervision of a master for a fixed period, between five and ten years, during which he was paid no wages but was provided with food and clothing. According to some contracts, the master was obliged to provide the apprentice with tools or payment at the end of the contracted period.<sup>68</sup>

In some projects, the workforce consisted primarily of unskilled laborers who had been recruited or enlisted particularly for that project. For example, Basil I employed sailors from the imperial fleet in the construction of the Nea Ekklesia in Constantinople.<sup>69</sup> The local inhabitants or the army could serve as laborers, either out of piety or out of necessity. Both groups assisted in the construction of fortifications, where their protection was a prime consideration.<sup>70</sup> From the tenth century onward, fortifications were built and maintained by *kastroktisia*, an obligation to the state placed on landowners. In the Middle Byzantine period, this amounted to a *corvée* of the inhabitants, although in the Late Byzantine period this could be commuted for monetary payment.<sup>71</sup> Under John VIII, the walls of Constantinople were rebuilt by hired laborers.<sup>72</sup> Alexios II Komnenos of Trebizond (reigned 1297–1330) also employed hired workers to build a fortress (*frou- rion*) in Constantinople.<sup>73</sup> Some work was voluntary: in the *vita* of Saint Nikon, the devout citizens of Sparta helped to construct a church, apparently without pay.<sup>74</sup> There are certainly many more examples.

Occasionally saints' *vitae* may provide some evidence concerning the organization of workers for a building project. For example, in the tenth century, Saint Nikon assumed the roles of both master mason and contractor for the construction of the church of Saint Photeine at Sparta. He selected the site, took charge of the fundraising, organized the workers, directed the construction, labored alongside the others, and arranged for the continued provision of building materials throughout the undertaking.<sup>75</sup> The text indicates that there were voluntary workers from among the townspeople, as well as hired builders. Nikon was also responsible for providing the workers' salaries. At one point, unable to pay them, he staged a bit of guerrilla theater, having the workers drag him through the town in chains until the wealthy townspeople paid them.<sup>76</sup> There are few other mentions of the payment of workers. In the same period, Saint Germanos of Kositza found himself in a similar predicament as the supervisor: he had ordered *technitai* to build a church, they had signed a contract (*homologia*) which required the saint to pay them one hundred gold pieces upon completion of the work, but in the end, he was unable to provide compensation.<sup>77</sup>

The *typikon* of the Monastery of the Resurrection at Constantinople (ca. 1295–1324), written by Constantine Akropolites, records several significant details concerning the monastery's restoration by Constantine's father, George Akropolites. Salaries were paid to the workers, and, until expenses grew excessive, careful records were kept. "Specially assigned secretaries recorded in detail on paper the gold pieces delivered to the supervisors of the project, as is customary for those who undertake large projects."<sup>78</sup> The text also suggests the problems of financing a large architectural endeavor. After sixteen thousand gold pieces were spent in the course of a year, George ordered the ledgers to be abandoned, and in the end, George had to take money from the inheritance of his son to complete the project.<sup>79</sup> Thus Constantine declares that he paid the wages of the workers, even though he was still a small child when the work was completed.

In a legal case in fifteenth-century Thessaloniki, payments, quantity of materials, and the number of workers are all recorded.<sup>80</sup> Payments are also included in the mathematical textbooks: in examples, the construction of a house requires between six and twenty days. In one problem the builder is paid twenty *aspra* for each day that he works, but owes thirty *aspra* for each day that he does not work; in another equation the builder earns one thousand *aspra* for the entire project.<sup>81</sup> It is not clear how hypothetical these problems are.

In the tenth century, Athanasios of Athos cured a group of masons from a mysterious paralysis, tonsured them, and put them to work—thus apparently eliminating the necessity of payment.<sup>82</sup> According to his *vita*, Athanasios regularly ascended the scaffolding to oversee the work. Of the workers, who are called both *technitai* and *oikodomoι*, only one is mentioned by name: a man named Daniel is singled out not because of his contribution to the construction but because he had a vision after the saint's death.<sup>83</sup> At Mount Galesios in the following century, the stylite saint Lazaros similarly served as both master mason and contractor. He directed the planning and construction of a new trapeza, or dining hall, apparently while standing on the top of a column, from which he could literally oversee the work.<sup>84</sup> At least part of his workforce consisted of monks from the monastery.

In the fourteenth century, Dionysios of Athos directed the construction of the monastery named after him, Dionysiou, in several phases.<sup>85</sup> Dionysios acted as a general contractor, organizing the workers and the building materials. In the earlier phases of construction at the monastery, all of the work was carried out by the monks alone: they built cells and a chapel, and added winter cells on the west side of the mountain, another church, a storehouse at seaside, and a tower to guard against pirates.<sup>86</sup> In a later and apparently more prosperous period, Dionysios hired workmen (*ergatai*), who assembled the necessary building materials and then summoned the builders (*oikodomoι*). Through their efforts, Dionysios was able to erect a new church dedicated to Saint John Pro-

dromos, a fortification wall, new cells, a refectory, and an aqueduct.<sup>87</sup> A clear distinction is made between the laborers (presumably unskilled) and the team of builders (presumably skilled).

A document from the monastery of Iviron on Mount Athos (dated 1421) records the work done on a garden in Thessaloniki whose ownership was contested. Three *oikodomoï*, Andreas Kampamares, Argiros Xifilinos, and Georgios Monomachos, made various improvements and constructed a fountain and a water channel (*hydrochetos*) with the help of others. Andreas testified that, after the flooding from the fountain, he employed ten unskilled workers (*ergatai*) to clean up, and then for the repair, he hired four skilled workers (*technitai*) along with twenty unskilled workers (*ergatai*) at a cost of fifty aspra (which also included the price of two squared timbers to brace the fountain). The other *oikodomoï* declared that when they enlarged another fountain and seven water channels (repairing five and adding two new ones) in 1416–17, they employed fourteen trowels (*mystria*), twenty workers (*ergatai*), seven buckets of plaster (*asbestos*), three buckets of either potsherds or seashells (*ostraka*), and one bottle of linseed oil (*linelaion*) worth two aspra, at a total cost of twenty aspra.<sup>88</sup> The document is rare because of the information it provides about the size of the workforce, the materials necessary, and the costs. It also distinguishes among the roles assigned to *oikodomoï*, *technitai*, and *ergatai* respectively.

Although most references to masons and builders say nothing about them and fail to provide names, they are found in a wide variety of locations. Byzantine masons were at work in Kievan Rus' in the tenth and eleventh centuries and were clearly responsible for the introduction of both masonry construction and a Byzantine architectural vocabulary, but the references to their presence are extremely vague; they are usually referred to as "masters," following the Greek *maistores* or *mastores*. The Laurent'ev Chronicle of 989 and the Ipat'ev Chronicle of 991 record simply that Vladimir brought Greek masters to construct the Tiche church in Kiev.<sup>89</sup> At the katholikon of the Dormition in the Monastery of the Caves in Kiev, the *Paterikon* reports that a local team of workmen was headed by four masters from Constantinople.<sup>90</sup> The names of only four masons have been recorded for pre-Mongol Rus'; none of them was a Byzantine, although Greek masters were at work in Kiev, Chernigov, and Pereslavl in the eleventh century, and at work in Kiev, Vitebsk, and Pskov in the twelfth century.<sup>91</sup> Rappoport assumes that the Byzantine team working in Kiev in the 1030s was large and included numerous specialists, but this is without textual basis.<sup>92</sup>

In Ottonian Germany, the chapel of Saint Bartholomew at Paderborn was said to have been constructed by Byzantine workmen: *per graecos operarios construxit*. This phrase has elicited a great deal of speculation. Although the chapel is suggestive of Byzantine forms and is unique in Ottonian architecture, the exact contribution and point of origin of the Byzantine masons remains unclear.<sup>93</sup> Similarly, in the ninth century, Emperor Leo V is

said to have sent “workmen and excellent masters in architecture” to construct the church of San Zaccaria in Venice.<sup>94</sup> Workers from Constantinople might also have participated in the construction of Madinat al-Zahra in Spain in the tenth century.<sup>95</sup>

There are also some mentions of masons traveling within the Byzantine Empire. In the tenth century, an Armenian architect named Trdat was at work in Constantinople, repairing the dome of Hagia Sophia.<sup>96</sup> In the eleventh century, Constantinopolitan masons were sent to Chios to build the katholikon of Nea Moni<sup>97</sup> and to Jerusalem to rebuild the Holy Sepulcher.<sup>98</sup> There are also the references (noted earlier in this study) of masons being brought to Athos. Similarly, in the twelfth century at Patmos, Christodoulos imported builders for the construction of the monastery.<sup>99</sup> Furthermore, in 1361, John V ordered two *technitai* to be sent from Athos to Lemnos to repair the fortifications.<sup>100</sup>

The many recorded instances of the movement of masons merit comment, as they seem to contradict the regulations specified by the *Book of the Eparch*. In some instances, these may be dismissed as *topoi*, meant to emphasize the significance of the building project. For example, it is possible to dismiss as hyperbole Procopius’s assertion that for the reconstruction of Hagia Sophia, “Justinian began to gather artisans (*technitai*) from the whole world.”<sup>101</sup> In other instances, however, workers must have been “summoned from afar” out of genuine need, such as for the reconstruction of the Aqueduct of Valens by Constantine V. This assertion is in agreement with the recorded depopulation of Constantinople and Thrace in the eighth century, which required new inhabitants to be brought in.<sup>102</sup> In other instances, such as in Kievan Rus’ or Jerusalem, the presence of Byzantine workers may have been a part of a program of Byzantine cultural or ideological expansion. Although the *Book of the Eparch* suggests that under normal circumstances workshops did not travel, Byzantine history is full of unusual circumstances. In addition, imperial patronage often included the provision of both materials and craftsmen. Finally, there probably were not active workshops of builders in every part of the empire; thus at Athos, Patmos, and elsewhere, it was necessary to bring in trained personnel. This may have become standard practice by the Late Byzantine period, as it seems to have been the norm in the Late Byzantine Balkans.<sup>103</sup>

Many masons are mentioned by name in the Late Byzantine period, but this may be the result of several factors: records and inscriptions have survived better from this period; at the same time, the scarcity of trained builders may have increased their individual importance; or perhaps the recording of masons’ names echoes contemporaneous developments in the West, where the emergence of distinctive architectural and artistic personalities is evident. For example, several names may be associated with surviving monuments in Macedonia: at the church of Bogorodica Ljeviška in Prizren, an inscription (ca. 1310) names two *protomaistores*, Nicholas and Astrapas, who are usually identified as the

builder and the artist. At Dečani, a *protomaistor*, George, and his brothers, Dobroslav and Nicholas, constructed the entrance tower and the refectory. An inscription at Chilandar monastery on Mount Athos mentions builders named Michael and Barnabas; the former may be the same as the painter Michael, whose inscription is known from the frescoes of the church of the Peribleptos in Ohrid.<sup>104</sup>

In addition to those already mentioned, there are also references to builders from the *Acts* of the monasteries of Mount Athos, in which the builders are mentioned by name, but no further details are given. For example, the *oikodomoι* Demetras, Eustathios, and Nikon are noted at Lavra.<sup>105</sup> The *oikodomoι* Manouilos Vivlodoitis and Theodoros Malakis are mentioned at Chilandar in 1296.<sup>106</sup> *Protomaistoros ton oikodomon* or *protomaistoros ton domitoron* (master of the builders) Georgios Marmaras of Thessaloniki is mentioned in documents at Chilandar, Iviron, and Zographou in 1322, 1326, and 1327 respectively.<sup>107</sup> Another *protomaistor*, Demetrios Theophilos, is mentioned at Docheiariou in 1389.<sup>108</sup> In the early fifteenth-century inscriptions from the Gattilusi family holdings in the north Aegean, a certain Constantine *maistor* (or *mastoras*) is named four times, twice in inscriptions at Samothrace and twice in inscriptions at Enez.<sup>109</sup> In Constantinople, Nikephoros Gregoras notes the presence of *tektones* in 1348, and two *leptourgoι* (carpenters or sculptors of wood), named Giorgios and Stylianos, are mentioned in documents of the 1360s.<sup>110</sup> Masons and carpenters are also mentioned at Kerinia on Cyprus and at Trebizond in the fourteenth century.<sup>111</sup> There are certainly many other references.

In her study of inscriptions and donor portraits in thirteenth-century Greece, Sophia Kalopissi-Berti has observed that artists are mentioned when they are of the same social standing as the patron, or when the artist and patron are one and the same.<sup>112</sup> The same may hold true for builders or project supervisors: Patrikes and Nikephoros, for example, whatever their roles, clearly had an elevated status and are mentioned in connection with their imperial patrons. Saints Nikon and Lazaros assumed the dual roles of both patron and builder. On the other hand, the masons mentioned in the documents from Mount Athos would have had a social standing similar to that of the monks who hired them.

It is easier today to recognize the individualizing traits of a workshop than it is to determine its size or to identify its members. The remarkable uniformity in Byzantine architecture can be attributed to the consistency in workshop practices within a given region, as has long been recognized.<sup>113</sup> Indeed, more than a century ago, Auguste Choisy credited the influence of the workshop system for the traditional and regional character that is often still evident in Byzantine art.<sup>114</sup> Although much that Choisy wrote has been superseded, this observation still rings true.

51. As emphasized by James and Webb, "To Understand Ultimate Things," 1–17.

52. L. Petit, "Typikon du monastère de la Kosmosotira près d'Aenos (1152)," *IRAİK* 13 (1908): 17–75; English trans. by N. P. Ševčenko in *BMTD*, forthcoming, cf. chaps. 75, 79, 82.

53. R. Krautheimer, "Introduction to an 'Iconography of Medieval Architecture,'" in *Studies in Early Christian, Medieval, and Renaissance Art* (New York, 1969), 115–50.

54. Vatican Library, MS gr. 1162, fol. 2v; Monastery of Saint Catherine, Sinai, MS gr. 339, fol. 4v; Monastery of John the Theologian, Patmos, cod. 707, roll 1; for illustrations, see H. C. Evans and W. D. Wixom, eds., *The Glory of Byzantium: Art and Culture of the Middle Byzantine Era, A.D. 843–1261*, exh. cat., Metropolitan Museum of Art (New York, 1997), 4, 107–11; A. Cutler and J.-M. Spieser, *Byzance médiévale 700–1204* (Paris, 1996), figs. 290–93.

55. Vatican Library, MS gr. 1613, p. 353; illustrated in Cutler and Spieser, *Byzance médiévale*, fig. 120.

56. A. Cutler, "Originality as a Cultural Phenomenon," in *Originality in Byzantine Literature, Art and Music*, ed. A. Littlewood (Oxford, 1996), 203–16; see also A. Kazhdan, "Innovation in Byzantium," in *ibid.*, 1–14.

57. Mango, *Byzantine Architecture*, 249.

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1. Cassiodorus, *Variae*, vii.5, *The Letters of Cassiodorus*, trans. T. Hodgkin (London, 1886), 323; quoted in M. S. Briggs, *The Architect in History* (Oxford, 1927), 48. The recent, abridged translation by Barnish omits this passage.

2. Vitruvius, *The Ten Books on Architecture*, esp. 1.1–1.2; trans. M. H. Morgan (Cambridge, Mass., 1914), 5–12.

3. I. Ševčenko, "Alexios Makrembolites and His 'Dialogue between the Rich and the Poor,'" *ZRVI* 6 (1960): 200.

4. Vatican Library, MS lat. 4939, fol. 28v. I thank Mark Johnson for this reference.

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5. See I. Dujcev, *Die Miniaturen der Manasses-Chronik* (Sofia, 1965); Vatican Library, MS slav. 2, fol. 109r (a similar scene, badly flaked, of Justinian directing the construction of Hagia Sophia); and C. Havice, "The Hamilton Psalter in Berlin, Kupferstichkabinett 78. A.9" (Ph.D. diss., Pennsylvania State University, 1978), 437–38, for fol. 174r (David supervising the building of the Temple).

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6. Procopius, *The Buildings*, 1.1.66–78; trans. H. P. Dewing (Cambridge, Mass., 1940), 28–33.

7. G. Dagron, *Constantinople imaginaire* (Paris, 1984), 265–69; see also the useful discussion by C. Mango, "Byzantine Writers on the Fabric of Hagia Sophia," in *Hagia Sophia from the Age of Justinian to the Present*, ed. R. Mark and A. Çakmak (Cambridge 1992), 41–56.

8. *Vita Basilii*, in *Theophanes Continuatus*, ed. I. Bekker (Bonn, 1838), 211–353; significant portions trans. in Mango, *Sources*, 192–99.

9. *Ibid.*; Mango, *Sources*, 192.

10. Psellos, *Chronographia*, 6.143–51 (Sewter, 250–52).

11. Suetonius, *The Twelve Caesars*, 6.31; trans. R. Graves (Harmondsworth, 1957), 224. Although Suetonius's work may not have been known to the Byzantines, other Roman biographies

were; cf. R. Jenkins, "The Classical Background of the *Scriptores Post Theophanem*," *DOP* 8 (1954): 13–30, who suggests that the *Vita Basilii* relied on biographies of Mark Anthony and Nero.

12. John Kinnamos, *Deeds of John and Manuel Comnenus*, 1.14; trans. C. Brand (New York, 1976), 17.

13. I. Ševčenko and N. Ševčenko, eds. and trans., *The Life of Saint Nicholas of Sion* (Brookline, Mass., 1984), 68–69.

14. D. Sullivan, *The Life of Saint Nikon* (Brookline, Mass., 1987), 119.

15. J. Noret, ed., *Vitae duae antiquae Sancti Athanasii Athonitae* (Turnhout, 1982), Vita A: 74–76; Vita B: 25.

16. Psellos, *Chronographia*, 6.54–58 (Sewter, 182–83): "He always had a pretext for these visits—that he was supervising some detail of the building—and several times a month he would go there, nominally to watch the progress of the work, but in reality to be with his mistress."

17. For comments on the limitations in determining the role of the patron in art, see R. Cormack, "Patronage and New Programs of Byzantine Iconography," *The 17th International Byzantine Congress, Major Papers* (New York, 1986), 609–38; also A. Cutler, "Uses of Luxury: On the Functions of Consumption and Symbolic Capital in Byzantine Culture," in *Byzance et les images*, ed. A. Guillou and J. Durand (Paris 1994), 289–327.

18. See R. Ousterhout, "Collaboration and Innovation in the Arts of Byzantine Constantinople," *BMGS* 21 (1997): 93–112, esp. 98–100; see also below, Chapter 8.

19. G. Downey, "Byzantine Architects: Their Training and Methods," *Byzantion* 18 (1946): 99–118, esp. 105–9.

20. *Ibid.*, 112–14; also A. Cameron, "Isidore of Miletus and Hypatia: On the Editing of Mathematical Texts," *GRBS* 31 (1990): 103–27, esp. 122.

21. K. P. Mentzou, *Symbole eis ten meleten tou oikonomikou kai koinoikou biou tes proimou byzantines periodou* (Athens 1975), 169–94, lists professions recorded from Early Christian inscriptions; workshops include *oikodomos* and *technites*, which were very common, as well as *maistor*, *kristai*, *ergodotai*, *ergolaboi*, *tektones*, *epistektones*, *latomoi*, *leptourgoi-xylikarioi*, *marmavarioi*, and *litxooi-akonetai*.

22. Architects measure the capacity of granaries: *De ceremoniis*, 2.51 (ed. Reiske, 701).

23. Downey, "Byzantine Architects," 109 n. 2; I. Bekker, ed., *Anecdota graeca* (Berlin, 1814–21), 1:202 (no. 5).

24. M. Johnson et al., "Architect," *ODB*, 1:157.

25. A. Kazhdan, "Technites," *ODB*, 3:2020.

26. A. Kazhdan and A. Cutler, "Carpenter," *ODB*, 1:382–83; A. Kazhdan, "Mason," *ODB*, 3:1311–12.

27. Paris gr. 29, fol. 4r: S. Dufrenne, *L'illustration des Psautiers grecs du Moyen-Âge* (Paris, 1966).

28. O. Demus, *The Mosaic Decoration of San Marco, Venice*, ed. H. Kessler (Chicago, 1988), 137.

29. O. Demus, *The Mosaics of Norman Sicily* (London, 1949), pl. 102.

30. *Basilicorum libri LX*, ed. H. J. Scheltema, N. van der Wal, D. Holwerda (Groningen, 1953–58), 15.1.38, and *scholia* 1; also A. Kazhdan and A. Cutler, "Building Industry," *ODB* 1:331–32.

31. Johnson et al., "Architect," *ODB*, 1:157.

32. Contra G. Necipoğlu, *The Topkapı Scroll—Geometry and Ornament in Islamic Architecture* (Los Angeles, 1994), 3, no architectural drawing is mentioned; trans. in Mango, *Sources*, 160.
33. Mango, *Byzantine Architecture*, 351 n. 14.
34. Johnson et al., "Architect," *ODB*, 1:157.
35. Chap. 42; ed. G. Moravcsik and R. Jenkins (Washington, D.C. 1967), 184–85.
36. Trans. N. Ševčenko, in *BMFD*, forthcoming.
37. G. Moravcsik, *Szent László Leánya és a Bizánci Pantokrator-Monostor* (Budapest, 1923), 44, 50.
38. Anna Comnena, *The Alexiad*, 6.10 (ed. Migne, 503–4); trans. E. R. A. Sewter (Harmondsworth, 1969), 203–4, with slight modification.
39. G. Pachymeres, *Relations historiques*, ed. A. Failler, French trans. V. Laurent (Paris, 1984), 1:233.8–11; A.-M. Talbot, "The Restoration of Constantinople under Michael VIII," *DOP* 47 (1993): 243–61, esp. 247, 251.
40. Cyril of Scythopolis, *Vita Sabae*, chap. 73 (ed. Schwartz, 177); see also J. P. Thomas, *Private Religious Foundations in the Byzantine Empire* (Washington, 1987), 45.
41. J. Koder, ed. and German trans., *To Eparchikon Biblion* (Vienna, 1991).
42. *AASS* (May 3), 9\*.
43. For the *typikon*, see P. Gautier, "Le typikon du Christ Sauveur Pantocrator," *REB* 32 (1974): 1–145, esp. 127–29; noted by Thomas, *Private Religious Foundations*, 45.
44. Koder, *Eparchikon Biblion*, 139–43.
45. A. Kazhdan, "Guilds," *ODB*, 2:887.
46. M. McCormick, *Eternal Victory: Triumphal Rulership in Late Antiquity, Byzantium and the Early Medieval West* (Cambridge, 1986), 204–5.
47. A. Kazhdan and A. Epstein, *Change in Byzantine Culture in the Eleventh and Twelfth Centuries* (Berkeley, 1985), 52.
48. S. Vryonis, "Byzantine *Demokratia* and the Guilds of the Eleventh Century," *DOP* 17 (1963): 289–314.
49. N. Oikonomidès, *Hommes d'affaires grecs et latins à Constantinople (XIIIe–XVe siècles)* (Montreal, 1979), 108–14.
50. Z. Pljakov, "La production artisanale dans la ville byzantine aux XIIIe–XIVe siècles," *Bulgarian Historical Review* 16 (1988): 34–55, esp. 44.
51. *Ibid.*
52. See comments by A. Kazhdan, "Book of the Eparch," *ODB*, 1:308.
53. Koder, *Eparchikon Biblion*, 139–43.
54. Mango, *Sources*, 96–97.
55. Theophanes, *Chronographia*, am. 6258; trans. C. Mango and R. Scott, *The Chronicle of Theophanes the Confessor* (Oxford, 1997), 607–9.
56. *Ibid.*, 608.
57. C. Mango, "Isaurian Builders," in *Polychronion: Festschrift F. Dölger zum 75. Geburtstag*, ed. P. Wirth (Heidelberg, 1966), 358–65, esp. 361.
58. Ševčenko and Ševčenko, *Saint Nicholas*, 76–77.
59. L. Petit, "Vie et office de St. Euthyme le jeune," *Bibliothèque hagiographique orientale* 5 (1904): 38–39.
60. For the text, see G. P. Kremos, *Phokika. Proskynetarion tes en te Phokidi mones tou Osiou Louka*

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*tou piklen Steirioto*, 3 vols. (Athens, 1874–80), 1:18'. See L. Boura, *O Glyptos Diakosmos tou Naou tes Panagias sto Monasteri tou Osiou Louka* (Athens, 1980), 8–9 (and English summary, p. 124), who doubts the number of masons but finds the legend otherwise satisfactory; she identifies the building in question as the Theorokos church. See also P. A. Mylonas, "Gavits arméniens et Litae byzantines: Observations nouvelles sur le complexe de Saint-Luc en Phocide," *CA* 38 (1990), 107–116, esp. 115–16, who probably correctly interprets this building as having been the predecessor of the katholikon.

61. Kremos, *Phokika*, 1:18'. I thank Paul Mylonas for this reference.

62. For convenient summary and further bibliography, see L. Shelby, "Masons and Builders," *DMA*, 8:172–80; also J. Harvey, *The Mediaeval Architect* (London, 1972); P. du Colombier, *Les chantiers des cathédrales* (Paris, 1973); and D. Kimbel, "Le développement de la taille en série dans l'architecture médiévale et son rôle dans l'histoire économique," *Bulletin monumental* 135, no. 3 (1977): 195–222.

63. Shelby, "Masons," 172–80.

64. Koder, *Eparchikon Biblion*, 139–43.

65. *AASS* (May 24), 415–17; discussed by H. Magoulias, "Trades and Crafts in the Sixth and Seventh Centuries as Viewed in the Lives of the Saints," *Byzantinoslavica* 37 (1976): 11–13.

66. K. Vogel, ed., *Ein byzantinisches Rechenbuch des frühen 14. Jahrhunderts* (Vienna, 1968); H. Hunger and K. Vogel, eds., *Ein byzantinisches Rechenbuch des 15. Jahrhunderts* (Vienna, 1963).

67. See for example, *Actes du Protaton*, ed. D. Papachryssanthou (Paris, 1975), 213 [*typikon* of John Tzsmiskes dated 972], no. 7, lines 141–42; 260: [Manuel Palaiologos's chrysobull of 1406], no. 13, lines 74–75.

68. Oikonomidès, *Hommes d'affaires*, 73–74.

69. R. Janin, *La géographie ecclésiastique de l'Empire Byzantin: Les églises et monastères* (Paris, 1969), 361 (hereafter cited as *Eglises et monastères*).

70. See, for example, M. Bartusis, "State Demands for Building and Repairing Fortifications in Late Byzantine and Medieval Serbia," *Byzantinoslavica* 49 (1988): 205–12.

71. *Ibid.*, 205.

72. A. Lampros, *Palaiologeia kai Peloponnesiaka*, 4 vols. (Athens, 1912–30), 3:298; cited in Bartusis, "State Demands," 210.

73. A. Papadopoulos-Kerameus, *Analekta Ierosolymitikes Stachboulougias* (St. Petersburg, 1891–98), 1:433; cited in Bartusis, "State Demands," 210.

74. Sullivan, *Life of Saint Nikon*, 114–19.

75. *Ibid.*, 114–35.

76. *Ibid.*, 128–29.

77. *AASS* (May 3), 9\*.

78. For the text, see H. Delehayé, "Constantini Acropolitai Hagiographi Byzantini Epistularum Manipulus," *AB* 51 (1933): 279–84, esp. 280; trans. A.-M. Talbot, in *BFMD* (forthcoming).

79. *Ibid.*

80. F. Dölger, *Aus den Schatzkammern des heiligen Berges* (Munich, 1948), 102.

81. A. Kazhdan, "Nov'ie Material'i po Vnutrennei Istorii Bizantii X–XV vv.," *VizVrem* 26 (1965): 81; A. Kazhdan and A. Cutler, "Building Industry," *ODB*, 1:331–32. An *aspron* is a coin of small denomination.

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82. Noret, *Vitae duae*, Vita A: 74–76; Vita B: 25.
83. *Ibid.*, Vita A, 241–44.1–9.
84. AASS (Nov. 3), 109.
85. B. Laourdas, ed. “Metrophanes, Bios tou hosiou Dionysiou tou Athonitou,” *Archeion Pontou* 21 (1956): 43–79. I thank Alice-Mary Talbot for this reference.
86. *Ibid.*, 54–55.
87. *Ibid.*, 63.
88. Dölger, *Aus den Schatzkammern*, no. 102, pp. 263–69, translates *ostraka* as mussel shells.
89. H. Schäfer, “Architekturhistorische Beziehungen zwischen Byzanz und der Kiever Rus im 10. und 11. Jahrhundert,” *IM* 23–24 (1973–74): 197–224, esp. 208.
90. P. A. Rappoport, *Building the Churches of Kievan Russia* (Aldershot, 1995), 205 (hereafter cited as *Churches*).
91. *Ibid.*, 199–206.
92. *Ibid.*, 200.
93. See most recently, C. L. Striker, “The Byzantine Question in Ottonian Architecture Reconsidered,” in *Architectural Studies in Memory of Richard Krautheimer*, ed. C. L. Striker, (Mainz, 1996), 157–61.
94. A. L. Frothingham, “Byzantine Architects in Italy from the Sixth to the Fifteenth Century,” *AJA* 9 (1894): 32–52, esp. 36.
95. R. Ertinghausen and O. Grabar, *The Art and Architecture of Islam 650–1250* (Harmondsworth, 1987), 137–40.
96. C. Mango, *Materials for the Study of the Mosaics of St. Sophia in Istanbul* (Washington, D.C., 1963), 77.
97. A universally accepted tradition, recorded in the nineteenth-century *Hellenika Hypomnemata*; see Ch. Bouras, *Nea Moni on Chios: History and Architecture* (Athens, 1982), 53.
98. R. Ousterhout, “Rebuilding the Temple: Constantine Monomachus and the Holy Sepulchre,” *JSAH* 48 (1989): 66–78, esp. n. 17; here the evidence is in the masonry, although William of Tyre records that a Byzantine nobleman, Ioannes Karianites, who had retired to Jerusalem, acted as intermediary to obtain the necessary subsidies from the imperial fisc.
99. *Patmou Engrapha*, 1/6, 60, lines λγ–γδ.
100. *Actes de Lavra*, ed. P. Lemerle et al. (Paris, 1970–82), vol. 3, app. xiv.8–10.
101. Procopius, *Buildings*, 1.1.23 (Dewing, 10–11).
102. Theophanes, *Chronographia*, a.m. 6247 (Mango and Scott, 593).
103. S. Ćurčić and E. Hadjitrifonas, eds., *Secular Medieval Architecture in the Balkans 1300–1500 and Its Preservation* (Thessaloniki, 1997), esp. 25.
104. D. Bošković, “Sur quelques maîtres-maçons et maître-peintres des premières décades du XI<sup>e</sup> s. en Serbie et en Macédoine,” *Starinar*, n.s., 9–10 (1958–59): 125–131.
105. *Actes de Lavra*, vol. 1, nos. 1.33, 6.17, app. 1.13.
106. Pljakov, “Production,” 44.
107. See *Actes de Chilandar*, ed. L. Petit (Amsterdam, 1968), no. 84 [originally published in *VizVrem* 17, suppl. 1 (1911): 180.64]; also Kazhdan, “Nov’ie Material’i,” 307.
108. *Actes de Docheiariou*, ed. N. Oikonomidès (Paris, 1984), no. 50.22.
109. C. Asdracha and Ch. Bakirtzis, “Inscriptions byzantines de la Thrace (VIII<sup>e</sup>–XV<sup>e</sup> siècles). Edition et commentaire historique,” *AD* 35 (1986): 271–76. The abbreviated inscriptions

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from Samothrace give the name as *Ma(istor) Kost(antinos)* and *Kost(antinos) Ma(i)st(or)*. Cf. C. Asdracha, "Inscriptions byzantines de la Thrace orientale et de l'île d'Imbros (XIII–XVe siècles)," *AD* 43 (1995): 261–67, where the inscriptions end with the abbreviated name *Kost(antinos)* and *Kost(antinos) Mast(or)s*. Here Asdracha suggests the title be read as *mastoras*, conforming to the neo-Greek usage.

110. Pljakov, "Production," 44.

111. *Ibid.*, 45.

112. S. Kalopissi-Verti, *Dedicatory Inscriptions and Donor Portraits in Thirteenth-Century Churches of Greece* (Vienna, 1992), 26.

113. G. Millet, *L'école grecque dans l'architecture byzantine* (Paris, 1916).

114. "Assurément la vie des ouvriers en corporation est une des principales influences qui imprimèrent à l'art byzantin le caractère à fois traditionnel et local que nous avons observé en lui."

A. Choisy, *L'art de bâtir chez les Byzantins* (Paris, 1883), 174.

### Chapter Three

1. Sullivan, *Life of Saint Nikon*, 118–19; the word *stoa* might also be translated as *arch* or as *room*.

2. See also Vatopedi Octateuch, fol. 379v; illustrated in P. Huber, *Bild und Botschaft* (Zurich, 1973), figs. 104–9.

3. G. Dennis, *Three Byzantine Military Treatises* (Washington, D.C., 1985), 246–61, 329–35.

4. R. Thomson, "Architectural Symbolism in Classical Armenian Literature," *Journal of Theological Studies*, n.s., 30 (1979): 101–14, esp. 109.

5. C. Carty, "The Role of Gunzo's Dream in the Building of Cluny III," *Gesta* 27 (1988): 113–23; K. J. Conant, "Mediaeval Academy Excavations at Cluny. IX: Systematic Dimensions of the Buildings," *Speculum* 38 (1963): 8–11; and Conant, *Cluny. Les églises et la maison du chef d'ordre* (Mâcon, 1968), 76, saw the illustrations of Gunzo's dream as evidence that the architects employed the Vitruvian system of geometry—square and half-square set pointwise—although this is reading too much into some simple depictions. It is noteworthy, however, that in the illustration in which Gunzo relates his dream to Abbot Hugh, he shows the plan with gestures rather than with a drawing. J. Marquardt, "The Original Significance of the Gunzo Legend at Cluny," *Comitatus* 9 (1978): 55–62, clarifies Conant's mistaken belief that the phrase *architectum nostrum* in the *Miracles* refers to Gunzo when it more likely refers to the great builder Abbot Hugh himself.

6. J. Lefort et al., *Géométries du fisc byzantin* (Paris, 1991), 218–19, for this and what follows.

7. E. Schilbach and A. Cutler, "Orgyia," *ODB*, 3:1532–33.

8. Lefort et al., *Géométries*, 218–19.

9. E. Schilbach, "Schoinion," *ODB*, 3:1851.

10. Lefort et al., *Géométries*, 218–19.

11. Vitruvius, *Architecture*, 1.2.2 (Morgan 13–14). See also W. E. Kleinbauer, "Pre-Carolingian Concepts of Architectural Planning," in *The Medieval Mediterranean: Cross-Cultural Contacts*, ed. M. J. Chiat and K. L. Reyerson (St. Cloud, Minn., 1988), 67–79, esp. 70–71 and nn. 17–18.

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