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From the Seventh through the Fifteenth Century*

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Master Craftsmen, Craftsmen, and Building Activities in Byzantium

Charalambos Bouras

To judge from the written sources and from the surviving monuments, building was one of the most important activities carried out in Byzantium and an essential component of life. Significant sums of money were invested in the construction and ornamentation of buildings, mostly of a religious or generally public nature, since in Byzantine society sponsors reinforced their image and gained in social prestige when they created and donated works of art and architecture. This concept had roots in the ancient world and survived without interruption even after the fall of the empire.

Although the role of architects, craftsmen, and laborers in producing such buildings was obviously a central one, accounts of it are very scanty and always indirect. No systematic archives on the construction of major projects have survived from Byzantium (as they have in the case, for instance, of the Ottoman projects of the 16th century), nor have any theoretical or practical texts of architecture come down to us. Such questions were of very little interest to any of the authors of the time, who passed lightly over the constructional details of the buildings to which they referred and rarely provided descriptions when singing the praises of donors and founders.

The situation became still more difficult after the iconoclastic controversy. It is common knowledge that the substantive differences between the early Christian and early Byzantine periods, on the one hand, and the middle Byzantine and Palaiologan periods, on the other, also extended to the realm of architecture. It was not only the case that building projects became smaller, and consequently that the organization of their construction became simpler; it is also a fact that our information becomes still more limited. In the particular instance of the production of buildings, of their economic dimension, and of the individuals who put them into effect, the flow of information dwindles almost to nothing. However, analysis of the typological, morphological, and technological aspects of the architectural monuments themselves is sufficient to convince us of their continuity, of their constructors' loyalty to the values of the ancient heritage.

This chapter was translated by John Solman.

The publication in the early tenth century (in the reign of Leo the Wise) of the *Book of the Eparch*¹ seems to have been part of the effort to reorganize the Byzantine state after the Dark Ages where building projects, too, were concerned. It contains regulations dealing with the working methods of craftsmen in general (masons, carpenters, plasterers, locksmiths, artists) that display similarities to the rules of the late Roman period,² although the craftsmen were not viewed as members of any specific guild among the twenty-two provided for in the *Book of the Eparch*, as had been the case in Roman times. The rules deal mainly with the obligations of craftsmen toward their employers and with the role of the eparch as arbitrator in any disputes that might arise. By modern standards, the position of the craftsmen was undoubtedly a difficult one; when executing one project, for instance, they were prohibited from agreeing to the next, and could only take on a new building when they were unemployed.

Naturally enough, this unique source of information has been the object of study and the starting point for hypotheses of all kinds³ based on the state of the guilds or the *synaphia* in the Byzantine world at a much later date.⁴ The provisions determining the liabilities of the craftsmen in the event of the project proving to be ill-advised or being abandoned are enlightening, as are the sanctions provided for in each case. However, the *Book of the Eparch* has not been securely dated,⁵ and, more important, it does not seem to have had force outside Constantinople.⁶ The frequent movements of craftsmen in the Byzantine period are strong evidence that in the provinces during the middle Byzantine era there were no local guilds, but rather informal teams of craftsmen formed on a temporary basis. However the case may be, a document from Thessalonike dated 1322 confers the title of “master craftsman of the building workers” (πρωτομαΐστωρ τῶν οἰκοδόμων) on a certain *kyr* Georgios Marmaras,⁷ and this implies a form of organization broader than a mere team.

In Byzantine times, construction projects were commissioned and executed on the

¹ Leo the Wise, Τὸ Ἐπαρχικόν Βιβλίον: J. Nicole, ed., *Le Livre du Préfet* (Geneva, 1893; repr. London, 1970). The most recent edition is by J. Koder, *Das Eparchenbuch Leons des Weisen* (Vienna, 1991). For the builders, see also C. Mango, *The Byzantine Empire: Sources and Documents* (Englewood Cliffs, N.J., 1972), 206–7.

² Where liability for the discontinuation of a project already undertaken is concerned, comparisons can be made with the provisions of the Sardis inscription of 459. See H. Grégoire, *Recueil des inscriptions grecques-chrétiennes de l'Asie Mineure* (Paris, 1922), 1:112, no. 322; C. Foss, *Byzantine and Turkish Sardis* (Cambridge, Mass., 1976), 19, 20, 112, 113; and A. Kazhdan, “Κριτική,” *Byzantina* 9 (1977): 479. For the situation prior to the iconoclastic controversy, see also J.-P. Sordini, “L’artisanat urbain à l’époque paléochrétienne,” *Ktéma* 4 (1979): 71–119.

³ A. Christophilopoulos, Τὸ Ἐπαρχικόν Βιβλίον Λέοντος τοῦ Σοφοῦ καὶ αἱ συντεχνίαι ἐν Βυζαντίῳ (Athens, 1935); A. Stoeckle, “Spättrömische und byzantinische Zünfte,” *Klio* 9 (1911): 120.

⁴ Particularly as described by A. Choisy, *L’art de bâtir chez les byzantins* (Paris, 1883), 174–78, and N. Moutsopoulos, Ἐκκλησίες τῆς Καστοριάς (Thessalonike, 1992), 440–44.

⁵ See A. Kazhdan, “*Book of the Eparch*,” *ODB*, 308.

⁶ C. Mango, *Byzantine Architecture* (New York, 1976), 26. For the last period, see also R. Ousterhout, “Constantinople, Bithynia and Regional Developments in Later Palaeologan Architecture,” in *The Twilight of Byzantium*, ed. S. Curčić and D. Mouriki (Princeton, N.J., 1991), 79.

⁷ L. Petit and B. Korabiev, “Actes de Chilandar,” *VizVrem* 17 (1911): 178. *Kyr* Georgios was a witness to a legal instrument.



1. The builders. Biblioteca Nacional, Madrid, the Skylitzes codex (Vitr. 26-2), fol. 141v (13th–14th centuries) (after A. Grabar and M. Manoussacas, *L'illustration du manuscrit de Skylitzès de la Bibliothèque Nationale de Madrid* [Venice, 1979], pl. XXIX)



2. The building of the Temple. Bibliothèque Nationale, Paris. gr. 20, fol. 4r (10th century) (after S. Dufrenne, *L'illustration des psautiers grecs du Moyen Age*, vol. 1 [Paris, 1966], pl. 34)

basis of a written “bond” signed by the employer and the team of craftsmen who were to undertake the project. In accordance with express provisions of the *Basilics*,⁸ a contractor could serve as a middleman, undertaking to construct the entire building in return for a fixed sum. Such was the case with the *katholikon* of the Kosenitza monastery, for which St. Germanos⁹ agreed to pay a sum of 100 gold pieces (which he did not in fact have), and of the Enkleistra monastery in Cyprus,¹⁰ where, by way of contrast, St. Neophytos refused to give his consent to the commencement of building work until the entire sum necessary had been assembled. The contractor might also provide all the building materials needed, depending on circumstances.¹¹

It seems that a more common practice was for the agreement to provide for the payment of daily wages to the craftsmen of different skills and for the materials to be supplied by the employer. The dynamic method of constructing buildings, including many important ones, with modifications to the original plans,¹² and sometimes with the demolition of sections already built so as to incorporate changes,¹³ could not have been implemented without the system of payment of a daily wage.

A third method consisted of the payment by lump sum of only a part of the construction project (the system still called *fatoura* in the Greek building trade today). We have no direct account of this, but indirect evidence is to be found in the prefabricated marble or stone architectural members that reached the building site ready, or almost ready, for use.¹⁴ These can be recognized in Byzantine buildings by the builders’ symbols they bear, which were very probably used to indicate the names of those who had constructed the project and supplied its component parts. Most of the known examples date from the centuries preceding the iconoclastic controversy,¹⁵ but the tradition seems to have continued into the middle Byzantine period.¹⁶

⁸ *Basilicorum libri LX*, ed. H. J. Scheltema, N. van der Wal, and D. Holwerda, 17 vols. (Groningen, 1953–88), 15.1.39.

⁹ “Βίος καὶ πολιτεία τοῦ Ὁσίου πατρὸς ἡμῶν Γερμανοῦ,” *AASS*, May 3:10; see also Moutsopoulos, *Καστοριά*, 445–47.

¹⁰ I. Tsiknopoulos, *Κυπριακά Τυπικά* (Nicosia, 1969), 89–90. The same recommendation is made by Kekaumenos (*Στρατηγικόν*, ed. D. Tsoungarakis [Athens, 1993], chap. 52, p. 175): “If you are poor, do not attempt to build, lest you fall into sin, and change your purpose.”

¹¹ In accordance with the provisions of the *Basilics*.

¹² C. Bouras, *Ἱστορία τῆς ἀρχιτεκτονικῆς*, 2 vols. (Athens, 1994), 2:192–93.

¹³ Extreme examples of this were the church of the Peribleptos, founded by Romanos III Argyros, and St. George of Mangana, founded by Constantine IX Monomachos. See, in this respect, *Michel Psellos, Chronographie*, ed. E. Renauld, 2 vols. (Paris, 1967), 1:41–43, chap. 3.14 and 2:61–63, chap. 6.186, respectively.

¹⁴ See N. Asgari, *Objets de marbre finis, semi finis et inachevés du Proconnèse, Pierre éternelle du Nil au Rhin, Carrières et préfabrication* (Brussels, 1990), 106–26.

¹⁵ C. Mango, *Byzantium: The Empire of New Rome* (London, 1980), 261–62; J.-P. Sodini, “Remarques sur la sculpture architecturale d’Attique, de Béotie et du Peloponnèse,” *BCH* 101 (1977): 425ff; idem, “Marques de tâcherons inédites à Istanbul et en Grèce,” in *Artistes, artisans et production artistique au moyen âge*, ed. X. Barral i Altet, 2 vols. (Paris, 1986–87), 2:503–18; idem, “Le commerce des marbres à l’époque proto-byzantine,” in *Hommes et richesses dans l’empire byzantin*, 2 vols. (Paris, 1989–91), 1:163–86; cf. idem, “Marble and Stoneworking in Byzantium, Seventh–Fifteenth Centuries,” *EHB*.

¹⁶ J. Morganstern, *The Byzantine Church at Dereagzi and Its Decoration* (Tübingen, 1983), 132; A. H. S. Megaw, “Excavations on the Castle Site at Paphos, Cyprus, 1970–1971,” *DOP* 26 (1972): 335 n. 42, figs. 18 and 19.

Major public or imperial projects of a defensive, ecclesiastical, or other nature were constructed by the second method: after the materials had been assembled (συναγωγή τῆς ὕλης), craftsmen were hired by the day and implemented the project. The various items of work had to be coordinated, and the person responsible for liaison operations of this kind was usually a state official with experience of similar tasks and not the master craftsman. Here, too, we see a continuation of a tradition dating back to the time of Theodosios¹⁷ or Justinian.¹⁸ The names of quite a number of these supervisors of large projects are known to us from inscriptions and other sources: they include Theodore Velonas,¹⁹ Kakikis,²⁰ Vasileios Klados,²¹ Fakoleatos, Astras and Peralta,²² Eustathios,²³ Roupēnis Armenios,²⁴ and others. In the case of large-scale private projects, the supervisor for construction of the project, responsible for coordinating the work of the craftsmen, might be a secretary who enjoyed the confidence of the owner of the project.²⁵

As far as the building work sector is concerned, we do not know to whom the means of production belonged in Byzantium. By “means of production” I mean, on the one hand, the simple tools of the craftsmen (hammers, saws, drills, T squares, spirit levels, planes,²⁶ pack saddles,²⁷ and the tools of masons, including trowels, picks, and hods) and, on the other, the building site equipment, which a number of craftsmen would have used together (scaffolding, ladders, pulleys, ropes, winches, cranes, primitive cement mixers,²⁸ and so on). The appearance of these tools, often unchanged to the

¹⁷ Examples being those of Cyrus, who built the walls of Constantinople (according to Theophanes, *Chronographia*, ed. C. de Boor, 2 vols. [Leipzig, 1883–85], 1:96, 97 (hereafter Theophanes), and of Hormisdas in Thessalonike (O. Tafrafi, *Topographie de Thessalonique* [Paris, 1913], 33ff).

¹⁸ As in the case of Victorinos, who fortified the Isthmus of Corinth and Byllis in north Epiros: S. Anamali, “Katēr Mbishkrime udērtimi nga Bylisi,” *Monumentet* 33 (1987): 62–73 nn. 7–12.

¹⁹ Who built a church in Chalcedon, according to *Theophanes Continuatus*: A. Markopoulos, “Le témoignage de Vaticanus gr. 163 pour la période entre 945–963,” *Σύμμεικτα* 3 (1977): 4–25, and O. Demus, *The Church of San Marco* (Washington, D.C., 1960), 91.

²⁰ Who in 862 repaired the fortifications of Thessalonike: E. Marki, *Δεύτερο Συμπόσιο Χριστιανικῆς Ἀρχαιολογικῆς Ἑταιρείας* (Athens, 1982), 55–56.

²¹ Who repaired the walls of Kavala: see S. Kyriakides, *Βυζαντινὰ Μελέται* (Thessalonike, 1939), 134.

²² Who, according to Kantakouzenos, repaired the domes of Hagia Sophia: *Ioannis Cantacuzeni Historiarum libri quattuor*, ed. L. Schopen, 3 vols. (Bonn, 1828–32), 3:29–30 (hereafter Kantakouzenos).

²³ A *droungarios* who built a settlement for Alexios Komnenos: *Anne Comnène*, Alexiade, ed. B. Leib, 3 vols. (Paris, 1937–45), 2:71.

²⁴ Who, according to Kedrenos, repaired the walls of Thermopylae in the reign of Basil II: Georgius Cedrenus, *Σύνοψις Ἱστοριῶν*, 2 vols. ed. I. Bekker (Bonn, 1838–39), 2:435.

²⁵ Such as Michael Grammatikos, who supervised the construction of the monastery of the Kosmosoteira: see L. Petit, “Typikon du monastère de Kosmosotira près d’Aenos (1152),” *IRAİK* 13 (1908): 69.

²⁶ See Ch. du Cange, *Glossarium ad scriptores mediae et infimae Graecitatis* (Lyons, 1688; repr. Graz, 1958), 1307, s.v. ρουκάνη.

²⁷ See PG 4:140.

²⁸ There is no testimony to such equipment in Byzantium, but it is reported in western Europe and Georgia in the period from the 10th to the 12th centuries: see Barral i Altet, *Artistes, artisans et*

present day, can be recognized in their depictions in miniatures, wall paintings, and mosaics.²⁹ If the project was undertaken by a contractor, it is reasonable to assume that this essential equipment would have belonged to him.

In the case of major public projects, however, the site equipment would have been so costly that it can only have belonged to the state itself. Characteristic is the following piece of information from the accounts relating to the repairs on Hagia Sophia in Constantinople in 995: “Just for the lifting machinery on which the craftsmen stand and, receiving the materials hoisted up to them, rebuild the part of the structure that had collapsed, 10 kentenaria,”³⁰ that is, the cost totaled 1,000 litrai of gold. No study has yet been conducted of the relationship between the technology of war engines or shipbuilding and that of construction sites, possibly permitting the formation of hypotheses about the use of some of the same engines. It is apparent from indirect references that the Byzantine monasteries possessed their own equipment, at least as far as tools were concerned: the severe penances specified by Theodore of Stoudios³¹ are testimony to his concern that the mason’s tools belonging to the monastery should be looked after carefully and maintained.

In the Byzantine period, unlike classical antiquity, we have no information as to the wages paid to craftsmen. Such wages differed in any case from place to place and in accordance with the craftsman’s trade and the season of the year. Cyril Mango has investigated these wages and their purchasing power in early Christian times,³² but once again the information is of limited extent. The duration of the craftsman’s working day is noted loosely in the *Hypotyposis* of St. Christodoulos of Patmos³³ as being “from dawn till dusk.” The five-day week recorded by the same document was probably an exception caused by the living conditions peculiar to the island in the eleventh century.

As a result of our ignorance of the wages received by craftsmen and of their purchas-

production artistique au moyen âge (as above, note 15), 2:324 (P. Skubiszewski) and 321 (N. Thierry), respectively. Equipment of this kind was probably to be found in Byzantium, on the sites of large projects. Among similar machinery one could cite the kneading machine powered by animals and invented by St. Athanasios the Athonite: see L. Petit, “Vie de Saint Athanase l’Athonite,” *AB* 25 (1906): 63.

²⁹ A. K. Orlandos, “Παραστάσεις εργαλείων τινῶν ξυλουργοῦ μαρμαρογλύπτου καὶ κτίστου ἐπὶ παλαιοχριστιανικῶν καὶ βυζαντινῶν μνημείων,” Πεπραγμένα τοῦ Θ’ διεθνοῦς βυζαντινολογικοῦ συνεδρίου (Athens, 1954), 1:329–39, figs. 57–63; A. Louvi-Kizi, “Ἡ βυζαντινὴ τέχνη ὡς πηγή γιὰ τὴν μεσαιωνικὴν τεχνικὴν,” Ἐθνογραφικά 6 (1989): 115–20.

³⁰ εἰς μόνας τὰς μηχανὰς τῆς ἀνόδου, δι’ ὧν οἱ τεχνῖται ἰστάμενοι καὶ τὰς ὕλας ἀναγομένας δεχόμενοι ὀκοδόμουν τὸ πεπτωκός, κεντηνάρια ι’.” *Michaelis Glycae, Annales*, ed. I. Bekker (Bonn, 1836), 576 (hereafter Glykas).

³¹ “Θεοδώρου τοῦ Στουδίτου τὰ εὕρισκόμενα,” PG 99:1744.

³² Mango, *Byzantium*, 40ff. In a case in which accounts were rendered for 200 gold pieces spent on the monastery of Bebaia Elpis (H. Delehaye, “Deux typica byzantins de l’époque des Paléologues,” *Mémoires de l’Académie Royale de Belgique* 13.4 [1921]: 104), things are equally unclear. See also in this respect, A. E. Laiou, “Στο Βυζάντιο τῶν Παλαιολόγων. Οικονομικά καὶ πολιτιστικά φαινόμενα,” in Εὐφρόσυνον. Ἀφιέρωμα στὸν Μανόλη Χατζηδάκη (Athens, 1991), 1:392 n. 36.

³³ MM 6:68.

ing power, it is impossible to produce even an approximation (on the basis of the quantity of work of which we know modern craftsmen to be capable) of the percentage of the total cash investment in the specific monument represented by the value of human labor. We can be certain, however, that the craftsmen of Constantinople and the provinces would have been paid in cash and not in kind.³⁴

The production of architectural work also often involved the participation of unpaid persons. These might be monks building their own monastery, or the enthusiastic founders of churches and monasteries who were later proclaimed to be persons of special sanctity (*hosioi*). The written sources, and the hagiographical texts in particular, contain a considerable amount of indirect information about the role these people played in construction, whether as organizers and supervisors³⁵ or in other cases as mere manual laborers.³⁶ The best-known example is that of St. Athanasios the Athonite,³⁷ who in fact died when the *katholikon* of the monastery of the Great Lavra collapsed as it was being built,³⁸ possibly in 1001. Other famous anchorites of the Greek world were also known for their enthusiasm as builders,³⁹ including Hosios Nikon the Metanoicite,⁴⁰ Hosios Euthymios the Younger,⁴¹ St. Germanos,⁴² Hosios Meletios,⁴³ and St. Paul of Mount Latmos.⁴⁴

The written sources also mention the names of ordinary monks who were builders: Daniel⁴⁵ was among those killed in the accident at Lavra; there was also a Master Gregorios⁴⁶ at Lavra, though it is unclear whether he was a craftsman; at Vatopedi an inscription gives the name of one Methodios,⁴⁷ and another at Docheiariou refers to “Theodoulos, craftsman in building” (Θεόδουλος τεχνίτης εἰς τὴν κτιστικὴν);⁴⁸ at Pantokrator monastery in the Meteora we find a reference to Serapion, monk and mason;⁴⁹ Iakovos⁵⁰ is mentioned at the Tsipiana monastery, and in distant Russia lived

³⁴ N. Oikonomides, “Σε ποῖό βαθμό ἦταν ἐκχρηματισμένη ἡ μεσοβυζαντινὴ οἰκονομία”; in Ροδωνιά, τιμὴ στὸν Μ. Ι. Μανούσακα (Rethymnon, 1994), 363–71.

³⁵ As in the case of St. Sabas in Morača, 1251–52: see S. Petković, *Morača* (Belgrade, 1986), figs. 51–52.

³⁶ Stone carrying for the building of the monastery by St. Paul, for the purpose of asceticism and against sleep: see T. Wiegand, “Der Latmos,” *Milet* 3.1 (1913): 108, 138.

³⁷ See Petit, “Vie de Saint Athanase,” 33–38.

³⁸ *Ibid.*, 76–77.

³⁹ According to Orlandos: see Ἀρχ.Βυζ.Μνημ.Ἑλλ. 5 (1939–40): 39.

⁴⁰ Sp. Lambros, “Ὁ βίος Νίκωνος τοῦ Μετανοεῖτε,” *Νέος Ἑλλ.* 3.2 (1906): 152, 153, 164, 170, 171, 193.

⁴¹ L. Petit, “Vie et office de Saint Euthyme le jeune,” *ROC* 8 (1903): 168–205.

⁴² “Βίος καὶ πολιτεία τοῦ Ὁσίου πατρὸς ἡμῶν Γερμανοῦ,” *AASS*, May 3:10ff.

⁴³ Βίος τοῦ Ὁσίου πατρὸς ἡμῶν Μελετίου, ed. C. Papadopoulos (Athens, 1968), 43, 51–53.

⁴⁴ Wiegand, “Der Latmos.”

⁴⁵ Petit, “Vie de Saint Athanase,” 76; K. Doukakis, *Μέγας Συναξαριστής* (Athens, 1983), 67.

⁴⁶ P. Meyer, *Die Haupturkunden für die Geschichte der Athosklöster* (Leipzig, 1894), 130.

⁴⁷ G. Millet, J. Pargoire, and L. Petit, *Recueil des inscriptions chrétiennes de l’Athos* (Paris, 1904), 15.

⁴⁸ Δαμασκηνοῦ τοῦ ὑποδιακόνου καὶ Στουδίτου Θησαυρὸς (Venice, 1581), 201.

⁴⁹ P. Uspenskii, *Puteshestvie v Meteorskie i Osoolimpitskie Monastyri v Fessalii* (St. Petersburg, 1896), 408–9.

⁵⁰ Y. Lambakis, “Περιηγήσεις ἡμῶν ἀνὰ τὴν Ἑλλάδα,” *Δελτ.Χριστ.Ἀρχ.Ἑτ.* 3 (1902): 24–25, and N. Moutsopoulos, “Αἱ παρὰ τὴν Τρίπολιν μοναὶ Γοργοπηκόου, Βαρσῶν καὶ Ἐπάνω Χρέπας,” *ΕΕΒΣ* 29 (1959): 400.

a certain Ioannikios, monk and builder.⁵¹ We can assume that there would have been many more of these monk-builders, members of monastic communities, who provided their services as craftsmen free of charge. A comparison with the building activities of the monks of the West during the same period lies, of course, outside the scope of this discussion.

Forced or *corvée* labor, the institution by which citizens were obliged to offer their services to the state or some other authority, does not seem to have been implemented in Byzantium where building work was concerned,⁵² with the exception of emergencies in which towns or positions had to be fortified rapidly or have their walls repaired.⁵³ What was called *kastroktisia* (construction of fortresses) had the same purpose but was a fiscal charge.⁵⁴ One known instance of the construction of fortifications by *corvée* labor is that related by Kantakouzenos,⁵⁵ in which Stefan IV Dušan compelled ten thousand people to take part in building the walls of Berroia.

Sailors from the imperial fleet were also likely to find themselves being used on major construction projects. Their experience in the handling of winches and pulleys and in lifting heavy weights would certainly have contributed to their suitability for work on the building sites for large projects. The sources tell us, however, that the employment of ships' crews on construction work also had another purpose: "so as to prevent the mob of sailors from becoming more disorderly through idleness."⁵⁶ The best-known examples of the use of sailors are the construction by Nikephoros Phokas of the church of the Theotokos in Crete⁵⁷ and of the Nea Ekklesia in Constantinople in the reign of Basil I,⁵⁸ the latter being said to have been the cause of serious losses during the war at sea against the Arabs.⁵⁹ The use of prisoners of war for work on building projects, including some of the most elaborate, as some scholars have hypothesized,⁶⁰ is not documented by the texts and would not appear to be borne out by the facts.

⁵¹ B. Latschew, *Bulletin de la commission Impériale archéologique* 14 (1905): 132, no. 5; see also N. Bees, "Πεντήκοντα χριστιανικῶν καὶ Βυζαντινῶν ἐπιγραφῶν νέαι ἀναγνώσεις," *Ἀρχ. Ἐφ.* (1911): 107.

⁵² M. Bartusis, "Corvée," *ODB* 536.

⁵³ A. Stavridou-Zafra, "Ἡ ἀγγαρεία στό Βυζάντιο," *Byzantina* 11 (1982): 22ff, and esp. 32 n. 69, where various examples are given.

⁵⁴ S. Trojanos, "Καστροκτησία: Einige Bemerkungen über die finanziellen Grundlagen des Festungbaues im byzantinischen Reich," *Byzantina* 1 (1969): 41–57.

⁵⁵ Kantakouzenos, 3:124.21–24.

⁵⁶ ὡς ἂν μὴ σχολάζων ὁ ναυτικὸς ὄχλος ἀτακτότερος γένοιτο: *Theophanes Continuatus*, ed. I. Bekker (Bonn, 1838), 308.

⁵⁷ The church was visited approximately a century after its foundation by Michael Attaleiates, who preserves the obviously mistaken assertion that it was built in three days, presumably in order to refer to the large number of sailors from the fleet: "and of the craftsmen in the ships and of working hands to be numbered in tens of thousands" (καὶ πολλῶν ὄντων τεχνιτῶν ἐν τοῖς πλοίοις καὶ χειρῶν ἐν μυριάσιν ἀριθμουμένων). See *Michaelis Ataliothae Historia*, ed. I. Bekker (Bonn, 1858), 226. See also N. Panagiotakis, *Θεοδόσιος Διάκονος καὶ τὸ ποίημα αὐτοῦ Ἄλωσις τῆς Κρήτης* (Herakleion, 1960), 37, 38 n. 103.

⁵⁸ *Theophanes Continuatus*, 843.

⁵⁹ *Ioannis Zonarae Epitome historiarum*, ed. T. Buttner-Wobst (Bonn, 1841–97), 3:432 (hereafter Zonaras).

⁶⁰ G. Sotiriou, "Ἀραβικαὶ διακοσμήσεις εἰς τὰ βυζαντινὰ μνημεῖα τῆς Ἑλλάδος," *Πρακτικά Χριστιανικῆς Ἀρχαιολογικῆς Ἐταιρείας* (1933): 88–89.

The craftsmen of Byzantium belonged to the lower social class. The physical punishments provided for in the *Book of the Eparch*⁶¹ confirm this. The conduct toward the craftsmen of a supervisor named Stephanos,⁶² when palace buildings were being erected around 700, is characteristic. There were also cases of builders who were *paroikoi* (dependent peasants), such as Eustathios of the Great Lavra.⁶³ The craftsmen of Byzantium, whatever their trade, worked to make a living and not for the joy of creative activity, and this was particularly true of construction workers, whose jobs were tiring and dangerous. It is no coincidence that, although amateur painters have been identified by name in Byzantium,⁶⁴ the same is not true of builders or master craftsmen.

It is clear that in the medieval mode of production there was no distinction between the design of the project and its execution,⁶⁵ and consequently the role of the architect, as we are familiar with it in classical antiquity and later during the Renaissance, was nonexistent. Much has been written about the gradual disappearance of the term *architect*, and of the special kind of education that architects received, during the late Roman and early Christian periods, both in Byzantium and in the West. Much has also been said about the shift at a later date, during the Renaissance, in the concept of the artist, which ceased to be that of a manual worker and became that of the creator by form. That discussion, however, lies outside the scope of this chapter.

Although Byzantine master craftsmen, like their contemporaries in the West, certainly had to solve a whole host of problems, they belonged to the guild or team of craftsmen and were not paid separately for designing the project. Their training was empirical and traditional, not theoretical. A knowledge of mathematics has always been decisive where theory is concerned. It is common knowledge that mathematics was at a low ebb during the middle Byzantine period, and very little progress was made during the time of the Palaiologoi.⁶⁶ Such knowledge as existed was certainly not available to the practitioners of architecture, who at best would know how to solve practical

⁶¹ See Koder, *Eparchenbuch*, 140: “while contractors who break their contracts are to be punished by beating and shaving of the head and banishment” (οἱ δὲ ἀθετήσαντες ἐργολάβοι διὰ δαρμού καὶ κουράς καὶ ἐξορίας σωφρονιζέσθωσαν).

⁶² Theophanes, 367: “and in order to urge them on he set over them Stephanos the Persian, his *sakellarios* and chief eunuch, a most bloodthirsty and cruel master and overlord, who did not confine himself to maltreating the laborers but stoned both them and their foremen” (καὶ ἐπέστησεν ἐπέικτην Στέφανον τὸν Πέρσην, σακελλάριον αὐτοῦ καὶ πρωτοεunuόχον, κύριον καὶ ἐξουσιαστὴν λίαν ὄντα αἰμοβόρον καὶ ἀπηνῆ).

⁶³ Mentioned in a document of 974: *Actes de Lavra*, ed. P. Lemerle, A. Guillou, N. Svoronos, and D. Papachryssanthou, *Archives de l’Athos*, 4 vols. (Paris, 1970–81), 1:110 (doc. 6, line 17).

⁶⁴ N. Oikonomides, “L’artiste amateur à Byzance,” in Barral i Altet, *Artistes, artisans et production artistique au moyen âge*, 1:45–50.

⁶⁵ Perhaps the sole reference to a building as being “designed” is found in the Life of St. Ioannikios, *AASS*, Nov. 2, 1:407c.

⁶⁶ See H. Hunger, *Die hochsprachliche profane Literatur der Byzantiner* (Munich, 1978), 2:221–60; D. Pingree, “Mathematics,” *ODB*, 1313–14. For the practical applications of mathematics, see J. Lefort, “Géométrie et Géodesie,” *Abstracts of Short Papers, 17th International Byzantine Congress* (Washington, D.C., 1986), 191, and in particular, idem, “Le cadastre de Radolivos (1103): Les géomètres et leur mathématiques,” *TM* 8 (1981): 276–78, 285.

problems in geometry⁶⁷ or simple arithmetic. The only handbook of calculations containing problems connected with the organization of building projects to have come down to us dates from the period after the fall of Constantinople.⁶⁸ As for the professional training of master craftsmen, surveyors, agronomists, and other experts, our ignorance is complete.⁶⁹ No “scrapbooks” of sketches useful to craftsmen, of the kind known to us from western Europe,⁷⁰ have survived, and none are even mentioned in Byzantium in the period under discussion, although one can hypothesize that in some cases they must have existed.⁷¹

It is a feature of Byzantium that the names of builders and master craftsmen are not known to us. The few names that have survived have almost always done so by chance, since, precisely as was the case in the Middle Ages in the West,⁷² they were believed to be of much less importance than the names of donors, founders, supervisors, and, in general, those who had initiated the architectural project. In most cases, it is unclear whether the person stated to have “made” the project was the man who built it, who supervised it, or who financed it. Neither the unknown person from Chonai who claimed to have built a church in Asia Minor⁷³ nor the Gregorios of the Hosios Loukas monastery who stated that he constructed the marble revetment in the *katholikon* with his own hands⁷⁴ can be telling the exact truth, given the magnitude of the projects in question.⁷⁵ Other instances are equally uncertain, including the cathedral of Berroia,⁷⁶ the church of St. John in Messene,⁷⁷ the Porta Panagia near Trikala,⁷⁸ and all the cases in which the word μαῖστωρ (“master craftsman”) is used.⁷⁹ The word *maistor* (whence the modern Greek (μάστορας) is often used in Byzantium to refer to craftsmen, but it was also applied to other occupations when the speaker wished to refer to a man of skill, great experience, and the ability to pass his knowledge on to others.

Names of some of the craftsmen and master craftsmen of the period under discus-

⁶⁷ For a manual of practical geometry and stereometry, see N. Svoronos, “Recherches sur le cadastre byzantin et la fiscalité aux XIe et XIIe siècles: Le cadastre de Thebes,” *BCH* 83 (1959): 1ff.

⁶⁸ H. Hunger and K. Vogel, *Ein byzantinisches Rechenbuch des 15. Jahrhunderts* (Vienna, 1963). It contains one hundred exercises in calculating materials and labor costs from Cod. Vindobonensis Phil. gr. 65.

⁶⁹ P. Lemerle, *Le premier humanisme byzantin* (Paris, 1971), 261.

⁷⁰ Such as that of Villard de Honnecourt.

⁷¹ See A. H. S. Megaw, “Background Architecture in the Lagoudera Frescoes,” *JÖB* 21 (1972): 198; V. Lazarev, *Old Russian Murals and Mosaics* (London, 1966), 14ff, 27ff.

⁷² N. Pevsner, “The Term Architect in the Middle Ages,” *Speculum* 18 (1942): 553.

⁷³ K. Kourouniotis, “Τὸ ἔργον τῆς ἐλληνικῆς Ἀρχαιολογικῆς Ὑπηρεσίας ἐν Μικρᾷ Ἀσίᾳ,” *ΑΔ* 7 (1921–22): app., p. 4. The church was a large one, ornamented with marble sculptures.

⁷⁴ R. Schultz and S. H. Barnsley, *The Monastery of St. Luke of Stiris* (London, 1901), 28.

⁷⁵ M. Chatzidakis, “A propos de la date et du fondateur de Saint-Luc,” *CahArch* 19 (1969): 141 n. 36.

⁷⁶ T. Papazotos, “Η κτητορική ἐπιγραφή τῆς παλιᾶς μητρόπολης Βεροίας,” *Historikogeographika* 1 (1986): 200.

⁷⁷ A. Orlandos, “Ἐκ τῆς χριστιανικῆς Μεσσήνης,” *Ἀρχ.Βυζ.Μνημ. Ἑλλ.* 11 (1969): 124–26.

⁷⁸ A. Orlandos, “Ἡ Πόρτα Παναγιά τῆς Θεσσαλίας,” *Ἀρχ.Βυζ.Μνημ. Ἑλλ.* 1 (1935): 39, fig. 27.

⁷⁹ As in the case, e.g., of the Tokali Kilise. See A. W. Epstein, *Tokali Kilise: Tenth-Century Metropolitan Art in Byzantine Cappadocia*, (Washington, D.C., 1986), 78, no. 1. It is also used to describe Gregorios of Lavra, already mentioned.

sion are: Nikephoros, who built the church of Christ Pantokrator in Constantinople⁸⁰ and emerged as the “Besaleel”⁸¹ of the entire project; Michael Kolokyntes, who “crafted” the church of St. John Kalyvites⁸² in Euboea; and the builders Sergios⁸³ and Demetras,⁸⁴ whose prestige was such that they witnessed official acts of donation and sale, respectively. Names of craftsmen are encountered in twos or threes, as in the cases of Nikolaos, Theodoros, and Ioannes at Arkasades in Lakonia,⁸⁵ Tobias, Akakios, and Paulos at Abydos,⁸⁶ and Ioannes and Kosmas at Burgaz.⁸⁷ We also have the names of some marble masons, including Vasilis, Vardas, and Ioannes at Tralles in Asia Minor,⁸⁸ George at Frangoulia in the Mani,⁸⁹ and the Niketas who put his name to at least four works of sculpture,⁹⁰ also in the Mani.

In the repetition of the name of that marble mason, one can perhaps detect the craftsman’s pride in his work and one of the rare Byzantine instances of self-advertisement on the part of a member of the lower class. This also applies to the builder Theophylaktos, who went so far as to mention his birthplace in an inscription at Ligourio.⁹¹ This phenomenon reappears late in the Palaiologan period, with the two Greek master craftsmen, both called Constantine, who constructed important fortifications and other works for the Gattilusi family⁹² and for the Knights of St. John of Rhodes.⁹³ In these last cases, however, we ought perhaps to see the impact of the enhancement in the role of the master craftsman that had taken place in the West in the late Gothic period. None of this gainsays my original statement as to the namelessness of Byzantine building activities. For a period of seven centuries and given the size of the empire, we have very few names indeed; more importantly, they are rarely connected with specific monuments, and we know nothing whatever about the personalities of those who bore them.

It does not seem necessary to reiterate here the terminology for the special skills of

⁸⁰ See G. Moravcsik, “Szent Laszló leánya es a Bizanci Pantokrator Monostor,” *Mitteilungen der Ungarischen Wissenschaftlichen Institut in Konstantinopel* 7–8 (1923): 43–47; Mango, *Architecture*, 24 n. 14.

⁸¹ Besaleel was the architect of the tabernacle, according to the Old Testament (Exodus 31:1–5).

⁸² Archimandrite I. Liapis, *Μεσαιωνικά μνημεία Εύβοίας* (Athens, 1971), 28.

⁸³ E. Vranousi, “Δύο ανέκδοτα ἀφιερωτήρια ἔγγραφα ὑπὲρ τῆς μονῆς τῆς Θεοτόκου τῶν Κριβιτζῶν,” *Σύμμεικτα* 4 (1981): 29–30.

⁸⁴ Lemerle, *Lavra*, 1:91 (doc. 1).

⁸⁵ D. Feissel and A. Philippides-Braat, “Inventaires en vue d’un recueil des inscriptions historiques de Byzance,” *TM* 9 (1985): 320–21.

⁸⁶ Grégoire, *Inscriptions grecques-chrétiennes*, 1:5, no. 5.

⁸⁷ *Ibid.*, 44, no. 117.

⁸⁸ *Ibid.*, 127, no. 347b.

⁸⁹ Feissel and Philippides-Braat, “Inventaires,” 306–7.

⁹⁰ N. Drandakis, “Νικήτας μαρμαράς,” *Δωδώνη* 1 (1972): 21–44, pls. I–XVI.

⁹¹ Ch. Bouras, “Ο Ἅγιος Ἰωάννης ὁ Ἐλεήμων Λιγουριῶν Ἀργολίδος,” *Δελτ.Χριστ.Ἀρχ.Ἐτ.* 7 (1973–74): 26.

⁹² Konstantinos the master craftsman built two churches in Ainos, two towers on Samothrace, and one tower on Thasos. See F. W. Hasluck, “Monuments of the Gattilusi,” *BSA* 15 (1908–9): 248–69, and A. Conze, *Reise auf den Inseln des Thrakischen Meeres* (Hanover, 1960), 54–55.

⁹³ Konstantinos Manolis, or Manolis Kountis (?), built the walls of Rhodes. See A. Gabriel, *La cité de Rhodes* (Paris, 1921), 1:98, no. 57.

craftsmen involved in the building trade, as listed in the *Book of the Eparch* and studied by Ph. Koukoules,⁹⁴ L. Robert,⁹⁵ and others. The church honored manual labor, basing itself on St. Paul's words in Acts 20. Thus the capacities of craftsman and clergyman were not seen as incompatible,⁹⁶ and we have an instance of a priest who was also a building worker.⁹⁷ In the letter from Michael Choniates to Patriarch Theodosios, we find a learned man's praise for manual labor.⁹⁸

Speros Vryonis has made a systematic investigation of the involvement of the guilds or teams of craftsmen in the political activities of eleventh-century Constantinople.⁹⁹ During the lengthy conflict between the political (or bureaucratic) aristocracy and that of the military, the role of both the clergy and the *banausoi*¹⁰⁰ (i.e., the people of the marketplace and of the crafts in general) seems to have been important, given that some emperors strove to keep themselves in power by relying on this class. Constantine X Doukas, for example, permitted them to become members of the senate, and Nikephoros III Botaneiates planned his ascent to the imperial throne with the support of the working people, that is, of the men of the market and the *banausoi*. Unfortunately, we have no information about the participation in this ephemeral Byzantine "democracy"¹⁰¹ of craftsmen from the building trades, just as we do not know whether during the uprisings of the period they put forward claims relating to their own particular interests.

We have already noted the mobility of craftsmen during the Byzantine period. It was only natural that laborers and craftsmen should move away from areas that were lacking in primary production to the urban centers or to large-scale projects where there were jobs to be had. There are many examples of this phenomenon in the early Christian era,¹⁰² and Prokopios tells us that under Justinian "the Emperor, disregarding all questions of expense, eagerly pressed on to begin the work of construction, and began to gather all the artisans from the whole world"¹⁰³; the reference is to the construction of Hagia Sophia. Later, during the medieval period, craftsmen moved around the

⁹⁴ Ph. Koukoules, *Βυζαντινῶν βίος καὶ πολιτισμός*, 6 vols. (Athens, 1948–57), 2.1:200–201, 207–8, 212–13.

⁹⁵ L. Robert, "Noms de métiers dans des documents byzantins," in *Χαριστήριον εἰς Ἀ. Κ. Ὀρλάνδον* (Athens, 1965), 324–47.

⁹⁶ E. Παπαγιάννη, "Ἐπιτρεπόμενες καὶ ἀπαγορευμένες κοσμικὲς ἐνασχολήσεις τοῦ βυζαντινοῦ κλήρου," in *Δ' Πανελληνιῶν Ἱστορικῶν Συνεδρίων, Πρακτικὰ* (Thessalonike, 1983), 146–66.

⁹⁷ *MM* 2:488–90 (the case of the priest Gavras, 1401).

⁹⁸ *Michaelis Acominati Opera*, ed. S. Lambros (Athens, 1878–80), 2:48, line 15.

⁹⁹ S. Vryonis, Jr., "Byzantine Δημοκρατία and the Guilds in the Eleventh Century," *DOP* 17 (1963): 287–314.

¹⁰⁰ For the definition of the *banausoi* by Theodore of Stoudios, see *PG* 99:273; see also Koukoules, *Βίος*, 220–23.

¹⁰¹ For this term, see Vryonis, "Guilds," 291 n. 8.

¹⁰² Mango, *Architecture*, 24, 26–28; idem, "Isaurian Builders," in *Polychronion: Festschrift Franz Dölger zum 75. Geburtstag*, ed. P. Wirth (Heidelberg, 1966), 358–65.

¹⁰³ Prokopios, *De aed.*, 1.1.23: "Ὁ μὲν οὖν βασιλεὺς ἀφροντιστήσας χρημάτων ἀπάντων ἐς τὴν οἰκοδομὴν σπουδῆ ἴετο, καὶ τοὺς τεχνίτας ἐκ πάσης γῆς ἤγειρεν ἅπαντας." English translation from the Loeb edition, *Procopius* (London, 1965), 7:11.

Byzantine Empire as frequently as their counterparts in the West.¹⁰⁴ A very well known reference in the *Chronicle* of Theophanes tells us that Constantine V summoned skilled craftsmen from all the provinces of the empire to repair the Aqueduct of Valens¹⁰⁵ in Constantinople in 766.¹⁰⁶

There are other examples of the movement of master craftsmen and craftsmen within the frontiers of the empire that might be mentioned here: from Constantinople to Chios to construct the Nea Moni;¹⁰⁷ from Monemvasia to Kythera for the repairs to the church of St. Demetrios;¹⁰⁸ from Kea to Ligourio for St. John Eleemon;¹⁰⁹ from Paros to Magoula in Lakonia;¹¹⁰ from Rhodes to Crete;¹¹¹ from various parts of the empire to the monastery of the Great Lavra¹¹² and to Xanthos in Lycia;¹¹³ and from Thebes to Athens.¹¹⁴

The movements of Byzantine master craftsmen and craftsmen outside the boundaries of the empire are perhaps of greater interest for the historians of art and architecture: master craftsmen from Constantinople worked at the Holy Sepulcher in the time of Constantine IX Monomachos;¹¹⁵ the master craftsman Nicholas built Our Lady Ljeviska at Prizren;¹¹⁶ and another craftsman, whose name has not survived, built the basilica of San Marco in Venice.¹¹⁷ A team of Byzantine craftsmen worked at Monte Cassino at the invitation of the Abbot Desiderius;¹¹⁸ and a certain Constantine, a marble mason, was employed by the cathedral of Monreale in Palermo.¹¹⁹ Although there is no confirmation of this in the written sources, we can be sure that the first churches

¹⁰⁴ K. J. Conant, *Carolingian and Romanesque Architecture, 800–1200* (Harmondsworth, 1974), 108. In medieval Serbia, all the major monuments of what is called the Raskja school were constructed by craftsmen from the Dalmatian coast who moved inland for the purpose. See V. Djurić, “Dubrovački graditelji u Srbiji srednjeg veka,” *Zbornik za Likovne Umetnosti Matice Srpske* 3 (Novi Sad, 1967): 85–106.

¹⁰⁵ Theophanes, I:440.

¹⁰⁶ G. Millet, *L'école grecque dans l'architecture byzantine* (Paris, 1916), 3; Choisy, *L'art*, 179; M. Chatzidakis, “Μεσοβυζαντινή τέχνη, 1071–1204,” in *Ἱστορία τοῦ Ἑλληνικοῦ Ἔθνους* (Athens, 1979), 9:394; Moutsopoulos, *Καστοριά*, 444.

¹⁰⁷ G. Foteinos, *Tà Neomoniá* (Chios, 1865), 42.

¹⁰⁸ “Χρονικόν Χειλά,” ed. C. Hopf, *Chroniques gréco-romanes* (Berlin, 1873), 346ff, no. XX.

¹⁰⁹ Chatzidakis, “Μεσοβυζαντινή τέχνη,” 394.

¹¹⁰ D. Drandakis, “Βυζαντινά καί μεταβυζαντινά μνημεῖα Λακωνικῆς,” *Ἀρχ. Ἐφ.* (1969): app., 10–11.

¹¹¹ G. Seferis, *Το βυσσινί τετράδιο* (Athens, 1987), 41, and commentary by F. Dimitrakopoulos, 106.

¹¹² According to the *typikon* of John Tsimiskēs; see P. Meyer, *Die Haupturkunden für die Geschichte der Athosklöster* (repr. Amsterdam, 1965), 129–30, 149.

¹¹³ J.-P. Sodini, “Une iconostase byzantine à Xanthos,” in *Actes du colloque sur la Lycie antique* (Paris, 1980), 148.

¹¹⁴ *Michaelis Acominati Opera*, 69.

¹¹⁵ R. Ousterhout, “The Byzantine Reconstruction of the Holy Sepulchre,” in *Abstracts of Short Papers, 17th International Byzantine Congress* (as above, note 66), 248; see also the complete text in the *Journal of the Society of Architectural Historians* 48 (1989): 66–78.

¹¹⁶ D. Panić and G. Babić, *Bogorodica, Ljeviska* (Belgrade, 1975).

¹¹⁷ Demus, *Church of San Marco* 89, 90, 100.

¹¹⁸ E. Müntz, “Les artistes byzantins dans l'Europe latine du Ve au XIe siècle,” *RArtChr* 4 (1893): 182, 183, 185; H. Bloch, “Monte Cassino, Byzantium and the West,” *DOP* 3 (1946): 166–230.

¹¹⁹ O. Demus, *The Mosaics of Norman Sicily* (New York, 1949), 102, 155 n. 97.

in Russia were built by craftsmen from Constantinople,¹²⁰ while by way of contrast the contribution made by Greeks to the building of monuments at Paderborn,¹²¹ at Pisa,¹²² and in Asia Minor after its conquest by the Seljuks¹²³ is clearly stated by the sources but is not confirmed by the style of the monuments in question.

We also have information about the presence of foreign master craftsmen and craftsmen in Byzantium as far back as the time of Justinian.¹²⁴ The story of Tiridates the Armenian, who repaired the domes of Hagia Sophia in Constantinople in the late tenth century, is particularly familiar.¹²⁵ Even so, neither at this date nor later, in the case of a church in Greece¹²⁶ built by an *ingegnere* of western origin and experience, can we discern any deviation from the architectural morphology and technique of Byzantium.¹²⁷ In the fourteenth century, the needs of accelerating development in the Venetian-occupied parts of the empire seem to have resulted in an influx of craftsmen from Italy.¹²⁸

I have already discussed the ways in which Byzantine buildings were designed and built, noting the lack of clarity in the distinction between the two processes and the dynamic manner in which both developed. Changes to the original plan and the deferment of solutions to the more serious problems seem to have been commonplace in medieval architecture, in the West as well as in Byzantium.¹²⁹ We can be sure that the economic impact of modifications and changes of plan and of the partial demolition required to achieve them would have been very considerable. Psellos has the following to say of the public money wasted on the construction of two imperial foundations in Constantinople, the Virgin Peribleptos¹³⁰ and St. George of Mangana, respectively: “all the royal treasure was opened, and all the golden streams flowed there; and, on the

¹²⁰ O. Powstenko, *The Cathedral of St. Sophia in Kiev* (New York, 1954), 34; H. Schäfer, “Architektur-historische Beziehungen zwischen Byzanz und der Kieven Rus’,” *IstMitt* 23/24 (1973–74): 197–224.

¹²¹ Müntz, “Les artistes byzantins,” 185; and K. Trypanis, “Ἡ ἐκκλησία τοῦ Ἁγίου Βαρθολομαίου ἐν Βεστροφιλίᾳ,” *Ἑλληνικά* 9 (1936): 171–72.

¹²² R. Krautheimer, *Early Christian and Byzantine Architecture* (Harmondsworth, 1975), 351, 430; O. Demus, *Church of San Marco*, 97; S. Guyer, “Der Dom von Pisa und das Rätsel seiner Entstehung,” *MünchJb* (1932): 352ff.

¹²³ S. Vryonis, *The Decline of Medieval Hellenism in Asia Minor* (Berkeley, 1971), 235, 236, 378, 389, 390.

¹²⁴ According to Kodinos, “Περὶ κτισμάτων” (PG 157:569), the church of St. Polyuktos in Constantinople was built “by craftsmen who had come from Rome.”

¹²⁵ Asolik de Taron, *Histoire universelle*, ed. F. Macler (Paris, 1917), 133; K. L. Oganessian, *Zodehii Tdat* (Erevan, 1951), 87–89; P. Mylonas, “Ἡ ἐπισκευὴ τοῦ προύλλου τῆς Ἁγίας Σοφίας,” *Ἀρχαιολογία* 32 (1989): 59–60.

¹²⁶ The church of the Transfiguration at Galaxidi, according to the *Χρονικόν τοῦ Γαλαξειδίου*, ed. K. N. Sathas (Athens, 1865), 197–200.

¹²⁷ P. Vokotopoulos, “Παρατηρήσεις στὸν ναὸ τοῦ Σωτῆρος κοντὰ στὸ Γαλαξειδί,” *Δελτ.Χριστ.Ἀρχ.* Ἐτ. 17 (1993–94): 203 n. 13.

¹²⁸ F. Thiriet, *Délibérations des assemblées vénitienes concernant la Roumanie*, 2 vols. (Paris, 1966), 1:170, 176, 217; A. Laiou, “Quelques observations sur l’économie et la société de Crète vénitienne,” *Bizancio e Italia: Raccolta di studi in memoria di Agostino Pertusi* (Milan, 1982), 177–98.

¹²⁹ R. Mainstone, “Structural Theory and Design before 1742,” *Architectural Review* (April 1968): 305.

¹³⁰ See also Zonaras, 3:578–79.

one hand, all the sources were exhausted and, on the other, the church that was being built remained unfinished¹³¹; and “the gold flowed from the public treasury like a stream bubbling up from inexhaustible springs.”¹³² The dynamism of execution and the modifications can be identified in a study of the architectural monuments themselves, which display inexplicable joints, masonry of different kinds in different places, pilasters that support nothing, and so on. Among the examples that spring to mind are the Virgin Paregoritissa in Arta,¹³³ the Peribleptos church at Mistra,¹³⁴ and St. Demetrios at Kypseli in Thesprotia.¹³⁵

The fact that design was underplayed or even completely absent meant that in Byzantium a model had always to be pointed out to the master craftsman so that he could erect a similar building. Among instances of this are the Nea Moni of Chios,¹³⁶ the church of Sts. Carpus and Papyrus in Constantinople,¹³⁷ and the church built by Bishop Kyprianos in honor of St. Demetrios.¹³⁸ In reality, however, the copy was never a perfect one, because in medieval times it was impossible to survey the building or even arrive at a detailed description of it. On this question, the study by R. Krautheimer remains a classic.¹³⁹

The first stage in executing any architectural project was to assemble the materials needed, in particular the marble.¹⁴⁰ The problem of whether or not quarries operated in middle and late Byzantium will not detain us here,¹⁴¹ nor will we concern ourselves with the sources of other materials.¹⁴² However, we are constantly gaining a greater knowledge of the role played by the recycling of architectural material, especially of

¹³¹ Psellos, *Chronographia*, chap. 3.14, lines 20–23: πᾶς μὲν βασιλείος πρὸς τὸ ἔργον θησαυρὸς ἀνεφῆγγυτο, πᾶν δὲ χρυσοῦν ἐκεῖ εἰσερχεῖτο ρεῦμα. Καὶ πᾶσαι μὲν ἐζητηλοῦντο πηγαί, ὃ δὲ οἰκοδομούμενος οὐκ ἐξεπληροῦτο νεώς.

¹³² Ibid., chap. 6.185, lines 19–21: ὁ δὲ χρυσοῦς ἀπὸ τῶν δημοσίων ταμείων, ὡσπερ ἐξ ἀφθόνων πηγῶν καχλάζοντι ἐπέρρει τῷ ρεύματι. English translation by E. R. A. Sewter, *Fourteen Byzantine Rulers* (Harmondsworth, 1979), 251.

¹³³ G. Velenis, “Thirteenth-Century Architecture in the Despotate of Epirus,” in *Studenica et l’art byzantin autour de l’année 1200*, ed. V. Korać (Belgrade, 1988), 280.

¹³⁴ G. Millet, *Monuments byzantins de Mistra* (Paris, 1910), pl. 28.2.b. There is no reason for the presence of the pilaster on the north wall.

¹³⁵ Unpublished.

¹³⁶ C. Bouras, *Ἡ Νέα Μονή της Χίου* (Athens, 1981), 141.

¹³⁷ W. Müller-Wiener, *Bildlexikon zur Topographie Istanbuls* (Tübingen, 1977), 186–87; the martyrrium for the two saints was constructed along the lines of the Holy Sepulcher.

¹³⁸ P. Lemerle, *Les plus anciens recueils des miracles de Saint-Démétrius et la pénétration des Slaves dans les Balkans*, 2 vols. (Paris, 1979–81), 1:239.

¹³⁹ R. Krautheimer, “Introduction to an Iconography of Medieval Architecture,” *JWarb* (1942): 1–33.

¹⁴⁰ Glykas (496) tells us that “it took seven years to assemble the materials” for the construction of Hagia Sophia.

¹⁴¹ Mango, *Architecture*, 22, 24; cf. Sodini, “Marble.”

¹⁴² Of these materials, the most important were bricks and tiles. See K. Theocharidou, “Συμβολή στην μελέτη τῆς παραγωγῆς οἰκοδομικῶν κεραμικῶν προϊόντων στὰ βυζαντινά καὶ μεταβυζαντινά χρόνια,” *Δελτ.Χριστ.Ἀρχ.* 13 (1985–86): 97–112.

the reuse of marble architectural members, in the economics, aesthetics,¹⁴³ and symbolism¹⁴⁴ of the monuments of the middle and late Byzantine periods.¹⁴⁵ Spolia were used even in the most important of the imperial foundations: in the Virgin of the Pharos, the filling slabs and abacuses were produced by sawing up a royal sarcophagus,¹⁴⁶ while in the church of Christ Pantokrator, also in Constantinople, many of the sculptures had been removed from the ruined church of St. Polyeuktos.¹⁴⁷ Architectural spolia were valuable items, particularly when they could be incorporated into a new building. We find them as merchandise,¹⁴⁸ spoils of war,¹⁴⁹ security for a loan,¹⁵⁰ dowry goods,¹⁵¹ and welcome donations.¹⁵² Old marble members could be reworked¹⁵³ so as to remove all trace of cracking caused by damage or adapt them for their new positions.

The question of the recycling of building material, with its financial implications, is directly connected with the attitude of the Byzantines toward the restoration of old ruins,¹⁵⁴ their reuse, and, in general, the conservation of the existing built environment. Characteristic here is the praise paid by Nikephoros Gregoras to Emperor Andronikos II, who maintained the old buildings and did not succumb to the vanity of constructing new ones.¹⁵⁵

The ways in which buildings were designed and constructed in Byzantine cities were subject, finally, to the building regulations. We know some of the provisions of these regulations from the *Nomoi* of an architect writing in the time of Julian of Ascalon (6th

¹⁴³ In connection with the spolia that were detached from buildings in Constantinople as ornamentation for new structures at Galatas, Gregoras comments on “the moving of the elegance from here to there” (ἡ τῆς ἐντεῦθεν χάριτος ἐκεῖσε μετάρθεσις). See Laiou, “Στό Βυζάντιο τῶν Παλαιολόγων,” 291.

¹⁴⁴ B. Brenk, “Spolia from Constantine to Charlemagne: Aesthetics versus Ideology,” *DOP* 41 (1987): 108–9.

¹⁴⁵ Bouras, Ἱστορία τῆς ἀρχιτεκτονικῆς, 2:193. For the generalization of the phenomenon, see also G. Goodwin, “The Reuse of Marble in the Eastern Mediterranean in Mediaeval Times,” *JRAS* (1977): 17–30.

¹⁴⁶ *Leonis Grammatici Chronographia*, ed. I. Bekker (Bonn, 1842), 248.23.

¹⁴⁷ R. Harrison, *Excavations at Sarayane in Istanbul*, vol. 1 (Princeton, N.J., 1986), 146, 147, 165, pl. 171.

¹⁴⁸ Laiou, “Στό Βυζάντιο τῶν Παλαιολόγων.”

¹⁴⁹ Demus, *Church of San Marco*, 101–3.

¹⁵⁰ A. Laiou, “Venice as a Centre of Trade and of Artistic Production in the Thirteenth Century,” *Il Medio Oriente e l'Occidente nell'arte del XIII secolo*, ed. H. Belting (Bologna, 1982), 15–16.

¹⁵¹ N. Banescu, “Un récit en grec vulgaire de la construction de Sainte Sophie,” *ΕΕΒΣ* 3 (1926): 148 (eight columns from Marcia).

¹⁵² Βίος τοῦ Νίκωνος τοῦ Μετανοεῖτε, ed. Sp. Lambros, *Νέος Ἑλλ.* 3 (1906): 226 (the Malakinos donation, two columns).

¹⁵³ As they were in the *katholikon* of the Areia monastery (L. Bouras, Ὁ γλυπτός διάκοσμος τοῦ ναοῦ τῆς Παναγίας [Athens, 1960], 60, fig. 91), in the *katholikon* of the monastery of Xenophon (T. Pazaras, “Ὁ μαρμάρινος διάκοσμος τοῦ παλαιοῦ καθολικοῦ τῆς μονῆς Ξενοφώντος,” in 7ο Συμπόσιο Βυζαντινῆς καὶ Μεταβυζαντινῆς Ἀρχαιολογίας καὶ Τέχνης. Περιλήψεις ἀνακοινώσεων [Athens, 1987], 63–64), and, above all, in San Marco, Venice (F. Deichmann, *Corpus der Kapitelle der Kirche von S. Marco* [Wiesbaden, 1981], 8).

¹⁵⁴ C. Mango, “I bizantini e la conservazione dei monumenti,” *Casabella* 581 (1991): 38–40.

¹⁵⁵ *Nicephori Gregorae Byzantina historia*, ed. L. Schopen (Bonn, 1829–55), 274–77.

century),¹⁵⁶ which were codified at a much later date by Constantine Harmenopoulos.¹⁵⁷ It remains questionable whether these provisions were actually implemented in the Byzantine provinces as well as in Constantinople, but the discussion of building legislation has only a slight and indirect connection with the subject of this chapter.

This initial approach to the questions surrounding craftsmen and their contribution to the building activity of Byzantium has served to indicate that certain important problems relating to the economic history of Byzantium are intractable. It does not seem that scholarly research will come up with answers in the near future to the very serious problems connected with capital investments in buildings, the percentage of the expenditure represented by labor costs, the productivity of the workers, and the income to be gained from cash investments in buildings across the entire period from the iconoclastic controversy to the fall of Constantinople. However, some statements can be made. Where the organization of production is concerned, we can contrast the differing modes of production involved in major public projects and smaller building works, and we can also be sure that the relative importance of the state and the mode of production represented by state investments differed from one period to the next. The combination of paid and unpaid labor is another significant factor and may have implications for other areas of concern. The mobility of the craftsmen is an indication—as far as the provinces are concerned, at least—of the existence of free organizations set up for specific occasions, as a kind of “company of colleagues,” rather than of guilds subject to state control.

¹⁵⁶ H. J. Scheltema, “The ‘Nomoi’ of Iulianus of Ascalon,” in *Symbolae ad jus et historiam antiquitatis C. van Oven dedicatae* (Leiden, 1946), 349–60.

¹⁵⁷ K. Harmenopoulos, *Πρόχειρον Νόμων ἢ Ἐξάβιβλος*, ed. K. G. Pitsakis (Athens, 1971), 114–15.