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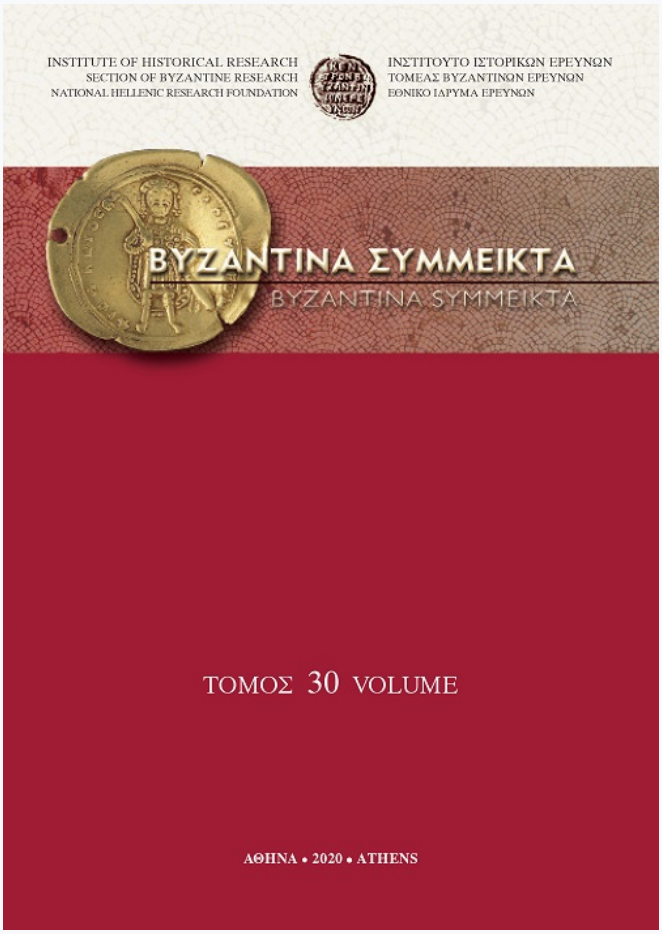

The Dome in Byzantine Church Architecture

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Nicholas N. Patricios

The Dome in Byzantine Church Architecture

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Nicholas N. Patricios

The Dome in Byzantine Church Architecture

Architectural history books distinguish between Roman architecture[1] and Byzantine architecture[2]. It is intended to argue that this does not apply to one common feature, the dome, as there was a continued development in architectural form and symbolism of the dome between the two periods. As David Talbot Rice commented, the most famous of the Byzantine churches, Hagia Sophia in Constantinople, was not the beginning of a new dome tradition in Byzantine architecture but the culmination of the soaring vault architecture of the Roman West but in brick and not concrete[3]. What did distinguish the Byzantine dome from the Roman was function, its use almost entirely in religious structures, the commemorative and the congregational churches, with a few utility building exceptions, such as in a Byzantine bath or the refectory or kitchen in a monastery[4]. It will also be contended that the shift from the gable roofed basilica type church after the sixth century to the domed type involved a human factor. The argument on typological and symbolic continuity and distinction in function will be presented within

1. For example S. Grundmann (ed.), *The Architecture of Rome,* Stuttgart: Edition Axel Menges, 1998.

2. For example C. Mango, *Byzantine Architecture,* Milano: Electa Editrice, 1978; Idem, Approaches to Byzantine Architecture, *Murqarnas* 8, K.A.C. Creswell and his Legacy, 1991, 40-44, http://www.jstor.org/stable/1523151 (accessed September 4, 2017).

3. D. Talbot Rice (ed.), *The Great Palace of the Byzantine Emperors.* Second Report, Edinburgh: The University Press, 1958, 103.

4. F. Revithiadou and K. T. Raptis, *Restoration-Consolidation of the Byzantine Bath in Thessaloniki,* Thessaloniki: Hellenic Ministry of Culture and Sports, 2014; A. Ορλανδος, *Μοναστηριακὴ Ἀρχιτεκτονική,* Athens 1958.

the context of a most informative historical outline of Byzantine churches provided by Robert Ousterhout[5]. Although the focus here will be on the dome in Byzantine churches it should not be forgotten that the dome was also an architectural feature of Christian baptisteries that began in Italy during the fourth century and spread during the following century[6]. Before proceeding to discuss the dome in Byzantine church architecture it will be important to define Byzantine terminology to ensure clarity of understanding.

DOME TERMINOLOGY

The Byzantine church dome - an astute architectural or art historian could point out two anachronisms. First, the term *Byzantine* was never used in the Eastern Roman Empire itself during the centuries of its existence. The people of the Empire referred to themselves as *Ρωμαῖοι* while the Emperor considered himself as heir of the old Caesars[7]. In historical studies, however, the term Byzantine is now well established to refer to the Eastern Roman Empire from the fourth to the fifteenth centuries AD ever since the publication of *Corpus Historiae Byzantinae* by the German historian and humanist Hieronymus Wolf (1516-1580)[8]. Scholars debate the beginning date of the

5. R. Ousterhout, Churches and Monasteries, in E. Jeffreys with J. Haldon and R. Cormack (eds.), *The Oxford Handbook of Byzantine Studies*, Oxford: Oxford University Press, 2008, 353-371. See also J. A. Hamilton, *Byzantine Architecture and Decoration,* 2nd ed., London: B. T. Batsford Ltd., 1934; C. Cavarnos, *Byzantine Church Architecture,* Belmont MA: The Institute for Byzantine and Modern Greek Studies, 2007.

6. *Encyclopedia Britannica,* s.v. "Baptistery Architecture"; B. Fletcher. *A History of Architecture,* 19th ed., London: The Butterworth Group, 1987, 285; J. F. Baldovin, The Empire Baptized, in G. Wainwright – K. B. Westerfield Tucker (eds.), *Oxford History of Christian Worship,* Oxford: Oxford University Press, 2006, 84. The baptistery was originally an ordinary rectangular room or chapel, usually with a small apse and the building kept separate. As baptism was seen as a mystic re-experience of death and resurrection of Christ the baptistery was envisaged as the tomb of Christ. Probably the central plan and domical Lateran baptistery in Rome set a precedent for baptisteries.

7. G. Ostrogorsky, *History of the Byzantine State,* New Jersey: Rutgers University Press, 2002, 28.

8. G. Mezger, Wolf, Hieronymus, *Allgemeine Deutsche Biographie* 43(1898), 755-757, https://www.deutsche-biographie.de/gnd100706460.html#adbcontent (accessed September 4, 2017). – H. G. Beck, *Der Vater der deutschen Byzantinistik: das Leben des Hieronymus Wolf von ihm selbst erzählt* [MBM 29], München 1984.

Byzantine Empire but many would agree on the year AD 330 and the end as 1453[9]. Then, second, the word *dome,* derived from the Latin *domus* and the Italian *duomo* refer to the rounded vault forming the roof of a building or chief part of it. The term was first used in 1513 after the Byzantine Empire no longer existed[10]. Furthermore, from 1549 onward, a rounded vault could also be called a *cupola* from the Latin *cuppa*[11]. Remarkably the authoritative *The Oxford Dictionary of Byzantium* does not have an entry for "cupola." Architects distinguish between a *dome* and a *cupola* where the dome is a hemispherical vault over a circular or polygonal space compared to a cupola which is a spherical roof placed like an inverted cup over a square, circular or polygonal space[12]. Interestingly enough, the author of the only extant Roman text on architecture, Vitruvius, uses the term "vaults"[13]. Then, to complicate matters even more there was no settled usage or established meanings for the hemispherical vault in Byzantine literature itself. Domical structures were variously called *ἡμισφαίριον* or *σφαῖρα*[14]. A dome could also be called a *τροῦλλος* as in the *Πάτρια* description of the construction of Hagia Sophia in Constantinople by Justinian[15]. Procopius, on the other

9. On the periodization of Byzantine History see, e.g. A.G.C. Savvides – B. Hendrickx, *Introducing Byzantine History*; Paris 2001, 19-21; cf. N. N. Patricios, *The Sacred Architecture of Byzantium: Art, Liturgy and Symbolism in Early Christian Churches,* London: I. B. Tauris & Co. Ltd., 2014, 1.

10. *Oxford English Dictionary* (hereafter *O.E.D.*), s.v. "Dome."

11. *O.E.D.*, s.v. "Cupola."

12. Fletcher, *A History*, 1532.

13. Vitruvius (Marcus Vitruvius Pollio), *De Architectura*. Trans. by R. Schofield, London: Penguin Group, 2009, V, X, 3.

14. G. Downey, On Some Post-Classical Greek Architectural Terms, *Transactions and Proceedings of the American Philological Association* 77 (1946), 22-34.

15. *Πάτρια Κωνσταντινουπόλεως,* referred to also by the latin name *Scriptores originum Constantinopolitanarum*, is a collection of short notes and anecdotes about the statues and buildings of the city of Constantinople, compiled around AD 995 and based partly on the *Παραστάσεις Σύντομοι Χρονικαί*, a guide composed probably as early as the beginning of the eighth century (on the debated problem of chronology see A. Kazhdan, *A history of Byzantine Literature 650-850*, Athens 1999, 308-313). See also the edition and translation of the *Parastaseis* by A. Cameron – J. Herrin, *Constantinople in the early eighth century: the Parastaseis syntomoi chronikai (introduction, translation, and commentary,* Leiden: Brill 1984, and the translation of the *Patria* by A. Berger, *The Patria: Accounts of Medieval Constantinople,* Cambridge, MA: Harvard University Press, 2013, 4:6, 11 & 14.

hand, uses the word *θόλος*[16]. Whichever of these expressions is used the dome is still defined as: "A vault conversing upwards and inwards towards a single centre, and having as its base a ring of masonry, commonly circular but sometimes elliptical or polygonal, which is usually but not necessarily at a point some height above the floor"[17]. In the end to be literally correct about a Byzantine vault one would have to describe it as a large hemispherical vault surmounting, most generally, the central space of an Orthodox Christian church in the Eastern Roman Empire between the sixth and fifteenth centuries AD. To avoid such a cumbersome expression the compact phrase *Byzantine church dome* that depicts a well-recognized and accepted image is adopted here.

DOME TYPOLOGY

D. S. Robertson ably traces the development of the hemispherical vault from the simple semicircular dome of the Romans in the second century BC to the dome supported on an octagonal drum of the Byzantines in the eleventh century AD[18]. What is clear is that there was a continued development in the architectural form, structure, and construction methods of domes from the Roman through to the Byzantine period. The form of Roman domes was originally conical but then mainly hemispherical

16. Procopius, *Περὶ Κτισμάτων* (*De aedificiis*), ed. J. Haury – G. Wirth, *Procopii Caesariensis opera omnia*, v. 4, Leipzig 1964, 141 [=Procopius, *Buildings*, Ed. & trans. by H. B. Dewing & G. Downey (Loeb Classical Library [hereafter LCL) VII, I, viii, 13 & 14-16.

17. D. S. Robertson, *Greek & Roman Architecture,* Cambridge, MA: Cambridge University Press 1988, 383.

18. Robertson, *Greek and Roman Architecture*, Chapter 15: Roman Construction. Arches, Vaults, and Domes, 231-266. See also J. Bardill, Vaulting*: Building Materials and Techniques,* in *The Oxford Handbook of Byzantine Studies* [as in n.5], 340-344; H. J. Cowan, A History of Masonry and Concrete Domes in Building Construction, *Building and Environment* 12 no. 1 (1977), 1-24; E. A. Dumser, Dome, in M. Gagarin and E. Fantham, *The Oxford Encyclopedia of Ancient Greece and Rome.* 1, New York, NY: Oxford University Press, Inc. 2010, 436-438; R. Mark – A. S. Cakmak – K. Hill – R. Davidson, Structural analysis of Hagia Sophia: a historical perspective, *Transactions on the Built Environment* 4 (1993), 33-46; M. G. Melaragno, *An Introduction to Shell Structures: The Art and Science of Vaulting,* New York, NY: Van Nostrand Reinhold, 1991; J. B. Ward-Perkins, Notes on the Structure and Building Methods of Early Byzantine Architecture, in D. Talbot Rice (ed.), *The Great Palace* [as in n. 3], 77-95.

covering a circular or octagonal space that became typical in Roman architecture during the reign of Trajan (r. AD 98 – 117) primarily in *θέρμαι* or bath complexes but also in palaces, mausolea and other edifices (Figure 1). Structurally domes were at first solid but then coffers were introduced to lighten the load. To decrease the weight even further the ribbed dome with infill panels was developed. Roman domes were initially constructed out of wood but this material was eventually replaced by masonry and then from the second century BC a new and revolutionary material, concrete, was used. Methods of building are conjectural but some form of wood centering would have been necessary.

In general Byzantine vaulting initially followed Roman typology but over time developed a number of refinements (Figure 2). A distinguishing feature of the typical Byzantine dome was a hemisphere raised on a drum punctured by windows[19] (Figure 3). Theories on how Byzantine builders could construct domes without centering were presented by Choisy in his work on understanding the geometry, constructions and structural behavior of Byzantine vaulted buildings[20]. As Roman domes were placed over mainly circular spaces supported by cylindrical walls, sometimes octagonal or segmented, they did not have the problem of resting a dome on an internally square structure. In the few instances they did have the precedent of the corbelled domes of the Etruscans and developed the use of squinch arches across the angles. The Romans also used primitive pendentives but it was left to the Byzantine architects of the sixth century to perfect pendentives – curved triangles between the top of a square section and the circular base of a dome[21]. The *μηχανικοί*[22], Anthemius of Tralles

19. Ousterhout, Churches and Monasteries, 208.

20. S. Huerta, The Geometry and Construction of Byzantine vaults: the fundamental contribution of Auguste Choisy, August 1, 2010:
http: //www.augustechoisy2009.net/pdfs/ponencias/12_Huerta.pdf (accessed September 26, 2017).

21. D. Yarwood, *The Architecture of Europe: The Ancient Classical and Byzantine World, 3000 BC – AD 1453.* 1, London: B. T. Batsford Ltd, 1992, 97-99; J. G. Vanderpool, A Comparison of Byzantine Planning at Constantinople and in Greece, *The Art Bulletin* 18 no. 4 (Dec., 1936), 555.

22. See J. Freely – A. Cakmak, *Byzantine Monuments of Istanbul*, Cambridge: Cambridge University Press 2004, 94, for the difference in the status of *μηχανικός*, a man of broad knowledge, and *ἀρχιτέκτων,* a master builder. Also J. Warren, Greek Mathematics

and Isidorus of Miletus, the designers of Hagia Sophia in Constantinople most likely translated the concrete dome of the Pantheon into Byzantine, largely-brick construction[23].

Recent research has shown the influence of the Roman and Byzantine dome extended to the Near East, as well as to the Balkans, Southern Italy, Calabria, and Aquitaine[24]. A review of the literature and observation reveals that the architectural role of the dome in Byzantine churches was to provide a signature architectural feature but also complexity in appearance. The geometrical forms of Byzantine dome could be hemispherical, pumpkin shape, ribbed, scalloped, or saucer shaped arrayed either singly or with multiple domes arranged symmetrically or asymmetrically. Most often the dome was raised on a drum that could be either short or long in length, cylindrical and later polygonal in form with the octagon as the most favored shape, usually pierced by windows, and often with decorated surfaces. Internally domes could be supported on four columns, or in Greece frequently two columns to the west and two piers to the east, and later on with arches and niches. Then the transition from square bay to circular base was accomplished with squinches at first and then later on with pendentives or integrated pendentive domes. Construction materials could be timber (all of which have disappeared now), brick or stone[25].

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and the Architects to Justinian, *Art and Archaeology Research Papers,* London: Coach Publishing, December 1976, 2. G. Downey, Byzantine Architects: Their Training and Methods, *Byz*. 18 (1946), 99-118.

23. R. Mark et al., Structural analysis of Hagia Sophia: [as in n. 18], 33.

24. Morvarid Mazhari Motlagh, A Comparison between Sassanid Vaults and those of the Roman and Byzantine Periods, *Iran* 48 (2010), 43-58; S. Ćurčić, The Role of Late Byzantine Thessaloniki in Church Architecture in the Balkans, *DOP* 57 (2003), 65-84; C. E. Nicklies, Builders, Patrons, and Identity: The Domed Basilicas of Sicily and Calabria, *Gesta* 43, 2 (2004), 99-114; R. Ousterhout, An Apologia for Byzantine Architecture, *Gesta* 35, 1 (1996), 21-33, here 21, notes Byzantine prototypes may have influenced the domed churches of Southern Italy and Aquitaine.

25. E. Baldwin Smith, *The Dome: A Study in the History of Ideas,* Princeton, NJ: Princeton University Press, 1971, Chaps. II, III, IV, 10-94; Ch. Bouras, Twelfth- and Thirteenth-Century Variations of the Single Domed Octagon Plan, *ΔΧΑΕ* 9 (1977-79), 21-34.

DOME SYMBOLISM

Symbolism of the dome shape

The roots of the symbolism of the domical shape as the cosmic house go back in time[26]. In different parts of the ancient world cultures desired to make permanent their primitive domed shelter as a revered and eternal home of the dead. In Syria and Palestine, for example, the conoid or beehive shape of the ancestral hut was venerated for centuries as a cosmic house (Figure 4). This gave rise to various domical traditions that in the Mediterranean basin took the form of rock-cut and corbelled tholos tombs. The idea of a domical sepulchral house was continued by the Mycenaeans and the Etruscans from whom the Romans derived much of their religious practices and funerary customs. In Hellenistic and then Roman times round and domical *ἡρῶα* were erected to the memory of dead heroes and it became customary to construct *aedicula* in cemeteries and funeral gardens for notable persons to shelter their soul. The Hellenistic ideas regarding the *θόλος* and the Roman conception of the dome as a mortuary symbol merged into the image of a celestial covering in the Christian *martyrium* and *ciborium*[27].

The Christian preoccupation with life after death led them to attach much significance to the shape of the dome as a sepulchral symbol. When martyrs became to be thought of as the successors of the classical heroes all the cosmic meanings associated with the dome were transferred to Christian imagery. Christian theologians turned to the book of Isaiah to support their view of dome symbolism where they read that God as the builder of the world who "... lives above the circle of the earth ... [who] has stretched out the heavens like a cloth, spread them like a tent ..." (40, 22) and in the question "... what house could you build me." (66, 1)[28]. There was, however, no agreement as to the shape of the vaulted chamber or celestial tent which could in fact take various geometrical forms. John of Damascus in his *Exposition on the Orthodox Faith* took Isaiah's reference to mean

26. Smith, *The Dome*, 5 ff.

27. Smith, *The Dome*, 61. The ciborium that functions as a threshold between the human and the divine was defined by the same architectural models used to define the Byzantine church building: J. Bogdanovic, *The Framing of Sacred Space: The Canopy and the Byzantine Church,* New York: Oxford University Press, 2017, 264.

28. A. Jones, *The Jerusalem Bible,* New York, NY: Double Day & Co., 1966.

heaven was a hemispherical dome[29]. Gregory of Nazianzus depicted the vault of the Great Church at Antioch as *οὐρανὸς* that "flashes down upon us from above, and it dazzles our eye with the abundant sources of light"[30]. The 6th century traveler Cosmas Indicopleustes, imagined the universe as a rectangular box with four walls and a vaulted lid representing the "heaven of heavens" and described the sky (*οὐρανὸς*) as a *θόλος*[31] (Figure 5). He also listed a number of Syrian churchmen who pictured the universe as a domical house. An influential religious teacher, the Antiochian Diodorus of Tarsus, wrote: "Two heavens there are, one visible, the other invisible; one below, the other above: the latter serves as the roof of the universe, the former as the covering of our earth .... not round or spherical (like the former), but in the form of a tent or arch"[32].

The tent metaphor, a four-sided tent pegged down at the corners, would be apparent to a worshipper in a Byzantine church when envisaging four anchored arches supporting a circular dome merged with pendentives. Antecedents of the cosmic tent may have stretched back to Egypt as the

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29. John of Damascus, *Ἔκδοσις ἀκριβὴς τῆς ὀρθοδόξου πίστεως.. Expositio Fidei*. Besorgt von P. B. Kotter O. S. B., Berlin – New York: Walter de Gruyter 1973, 52: *ἕτεροι δὲ ἡμισφαίριον τὸν οὐρανὸν ἐφαντάσθησαν ... ἐκ τοῦ λέγειν ... τὸν μακάριον Ἡσαΐαν «ὁ στήσας τὸν οὐρανὸν ὡσεὶ καμάραν*. Trans. by A. C. McGiffert, *Library of Nicene and post Nicene Fathers*, Vol. 9, New York: Charles Scribner's sons 1908.

30. Gregory of Nazianzos, *Oratio XVIII – Funebris in patrem, praesente Basilio, P.G.* 35, 1038. *Ὀκτὼ μὲν ἰσοπλεύροις εὐθείαις εἰς ἑαυτὸν ἀπαντῶντα, κιόνων δὲ καὶ στοῶν κάλλεσι διωρόφων εἰς ὕψος αἰρόμενον, καὶ τοῖς ὑπὲρ αὐτῶν πλάσμασιν οὐ λειπομένοις τῆς φύσεως· οὐρανῷ δὲ ἄνωθεν καταστράπτοντα, πηγαῖς δὲ φωτὸς πλουσίαις τὰς ὄψεις περιαυγάζοντα, ὥσπερ ἀληθῶς φωτὸς οἰκητήριον*. Trans. in Smith, *The Dome*, 31.

31. See, *The Christian Topography of Cosmas Indicopleustes, edited with geographical notes by* E. O. Winstedt, Cambridge, Cambridge University Press, 1909, IV. 8, 130: *Οὐρανὸν οὐρανοῦ καλέσας τὸν πρῶτον τὸν καμαροειδῆ, ὃς οὐρανός ἐστι τοῦ στερεώματος, ὡς ἀνώτερος καὶ ὑψηλότερος αὐτοῦ ὑπάρχων ἄνωθεν δὲ ὑψηλότατος ἑλισσόμενος ὡς θόλος λουτροῦ μεγάλη, κάτωθεν πέλμα ἔχουσα τὴν γῆν, αὐτὸς δὲ τοῖχος καὶ καμάρα ὑπάρχων*.

32. Diodoros of Tarsus, in Photius, *Bibliotheca*, cod. 223 (ed. R. Henry, Paris 1965), 42: *δύο μὲν οὐρανοὺς λέγει γεγενῆσθαι, ἕνα μὲν τοῦ ὁρωμένου ἀνώτερον, ὃν καὶ συνυφεστάναι τῇ γῇ, θάτερον δὲ τὸν ὁρώμενον· δύο δὲ ὄντων τὸν μὲν ὀροφῆς ἐπέχειν λόγον, τὸν δὲ ὡς μὲν τὴν γῆν ὀροφῆς ὡσαύτως, ἐδάφους δὲ καὶ βάσεως ὡς τὸν ὑπερέχοντα. .... Μὴ σφαῖραν δὲ τὸν οὐρανὸν εἶναι, ἀλλὰ σκηνῆς καὶ καμάρας διασῴζειν σχῆμα...* Trans. in Smith, *The Dome*, 88. See also M. Kominko. *The World of Kosmas: Illustrated Byzantine codices of the Christian Topography*, Cambridge; Cambridge University Press 2013, 43-44.

hieroglyph for "sky" was an image for a tent or canopy [33]. Then the Persians used the term "heaven" for the name of the round awning coverings for their royal tents[34]. The custom of decorating temporary awnings with heavenly representations was continued in the audience tents of Alexander the Great with its celestial decorations, in those of Achaemenid and Indian rulers, and into the Roman imperial age. Roman emperors, who saw themselves as a divine being and a cosmic ruler, represented a heavenly covering symbolizing the cosmic tent in the vaults of their palace throne rooms and audience halls[35] (Figure 6). One of the few Byzantine literary references appears in the twelfth-century short *ἔκφρασις* of the church of Hagia Sophia in Constantinople by Michael of Thessalonica[36]. He wrote that even though the interior of the church was an immense space with a gold hand-wrought roof it could not compare to the "tent of the heavens".

The difficulty in finding direct literary references to Byzantine church symbolism is that Byzantine descriptive tradition largely failed to link the appearance of the church with its religious purpose[37]. Most written works focused on the iconographic program of the ceiling mosaics and hardly on architectural form. One of the few precedents for evoking a church in term of its spiritual function is the description by Eusebius of Caesarea of the congregational church at Tyre that could have served as a model but subsequent writers did not follow through[38]. In his description Eusebius celebrates the building as an architectural manifestation of the "living temple" and one that closely echoes the Temple in Ezekiel and Josephus. In his *Ecclesiastical History* Eusebius further envisages the architecture of the church as reflecting the structure of the universe as when the Creator built the whole world beneath the sun he formed again "this spiritual image

33. A. Gardiner, Standard Sign List, in *Egyptian Grammar: Being an Introduction to the Study of Hieroglyphs*. Third Edition, London: Clarendon Press, 1957, N1.

34. K. Lehmann, The Dome of Heaven, *The Art Bulletin* 27 no. 1 (Mar. 1945), 18.

35. Lehmann, The Dome of Heaven, 26.

36. *Ἀλλὰ τι ταῦτα πρὸς τὰ ἐντὸς μεγέθη καὶ κάλλη τῆς ἀντιτύπου τῶν οὐρανίων σκηνῆς* ... : C. Mango – J. Parker, A Twelfth-Century Description of St. Sophia, *DOP* 14 (1960), 233-245, at 237.

37. R. Macrides – P. Magdalino, The architecture of *ἔκφρασις*: construction and context of Paul the Silentiary's poem on Hagia Sophia, *BMGS* 12 (1988), 51.

38. Macrides – Magdalino, The architecture of *ἔκφρασις*, 52.

upon the earth of those vaults beyond the vaults of Heaven"[39]. The church of Hagia Sophia in Constantinople was depicted by Niketas Choniates in his *Ἱστορία* as a "most great and holy of all churches, thou heaven on earth,"[40] then Romanus, the great sixth century composer of hymns, in the kontakion *On earthquakes and fires* sang of Hagia Sophia as a replica of the dome of heaven[41], and in the fifteenth century Pseudo-Phrantzes in his *Chronicon Maius* wrote that "the beautiful Cathedral of the Heavenly Wisdom, that heaven on earth"[42]. Other symbolic allusions are Paul the Silentiary's description of Hagia Sophia as Wisdom building herself a house; the church as heaven on earth; comparisons with Solomon and the Temple; and the dome as a vault in which the "wandering eye reaches up to the great circle of heaven itself"[43]. Prokopius has limited symbolic references and similarly there are restricted allusions apparent in the *Homilies* by Photius on the Pharos church and by Leo VI on the churches built by Anthony Kauleas and Stylianos Zaoutzes[44]. It was not until the eighth century that the Patriarch of Constantinople, St. Germanos, could write: "The church is heaven upon earth, the place where the God of heaven dwells and moves"[45]. Previously in

39. Eusebius *Ecclesiastical History* X, IV, 69: *Τοιοῦτος ὁ μέγας νεὼς ὃν καθ' ὅλης τῆς ὑφ' ἥλιον οἰκουμένης ὁ μέγας τῶν ὅλων δημιουργὸς λόγος συνεστήσατο, τῶν ἐπέκεινα οὐρανίων ἀψίδων πάλιν καὶ αὐτὸς νοερὰν ταύτην ἐπὶ γῆς εἰκόνα κατεργασάμενος: Eusebius of Caesarea, The Ecclesiastica*l *History*, v. II, Cambridge Mass. 1964, 443 (trans. by J. E. L. Oulton).

40. Nicetae Choniatae *Historia*, ed. J. L. Van Dieten [CFHB 25], Berlin:de Gruyter, 1975, 592. *Παμμέγιστε ναὲ καὶ θειότατε, οὐρανὲ ἐπίγειε.* Trans. in H. Kähler. *Hagia Sophia,* New York, NY: Frederick A. Praeger Publishers, 1967, 11, 6.

41. P. Maas – C. A. Trypanis, *Sancti Romani Melodi Cantica. Cantica Genuina*, Oxford 1963, 471 ... *Ὁ οἶκος αὐτὸς ὁ τῆς ἐκκλησίας / ἐν τοσαύτῃ ἀρετῇ οἰκοδομεῖται, /ὡς τὸν οὐρανὸν μιμεῖσθαι, τὸν θεῖον θρόνον. .*

42. *Georgios Sphrantzes. Memorii 1401-1477*, ed. V. Grecu [*Scriptores Byzantini* 5. Bucharest: Academia Republicae Romanicae, 1966], 456. *Τὸν δὲ περικαλλῆ καὶ θεῖον ναὸν τῆς Θεοῦ σοφίας, τὸ περιβόητον κειμήλιον, τὸν οὐρανὸν τὸν ἐπίγειον καὶ τὸ ξένον ἄκουσμα. .*

43. Macrides – Magdalino, The architecture of *ἔκφρασις*, 77.

44. Macrides – Magdalino, The architecture of *ἔκφρασις*, 78-79.

45. Germanos, *Ἱστορία Ἐκκλησιαστικὴ καὶ Μυστικὴ Θεωρία, PG* 98: 381: *Ἐκκλησία ἐστὶν ἐπίγειος οὐρανός, ἐν ᾗ ὁ ἐπουράνιος Θεὸς ἐνοικεῖ καὶ ἐμπεριπατεῖ.* Trans. in Smith, *The Dome*, 93.

the seventh century St. Maximus Confessor had expressed the church as a symbol of heaven[46].

From now on the church building as a model of heaven on earth began more frequently to be depicted as a material manifestation of immaterial beauty under the influence of Neo-Platonic philosophy[47]. Constantine of Rhodes in his tenth century poem conveys the message that the Holy Apostles church was a divinely-ordered construction with mystical numbers (2, 4, 5, 7, 12 and 48) and geometrically ordered with cubes, domes and the cross "like another star-composed celestial heavenly arc ..." (line 457)[48]. The building was shaped as a cross "for it is the glorious sceptre of Christ ..." (line 465) and the ceiling was meant to evoke a heaven that sparkled with marvelous stars and its own constellations (lines 505-529). Symbolic allusions continued to be made as late as the fifteenth century when Symeon of Thessalonica wrote: "The temple, as the House of God, is the image of the whole world ... (where) ... the sanctuary is the symbol of the higher and supra-celestial spheres ... the vault, the visible heaven ..."[49].

These testimonies indicate a growing recognition of the symbolic allusion that the Byzantine church was heaven on earth. Perhaps the most extensive evidence for the religious symbolism of church architecture comes from the seventh century Syriac hymn, known as *Another Sogitha*[50], composed

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46. Maximus the Confessor. *Μυσταγωγία,* ed. in C. Soteropoulos, *Ἡ Μυσταγωγία τοῦ Ἁγίου Μαξίμου τοῦ Ὁμολογητοῦ,* Athens, 1978, 204; *Καὶ αὖθις μόνου τοῦ αἰσθητοῦ καθ' ἑαυτὸν κόσμου τὴν ἁγίαν τοῦ Θεοῦ Ἐκκλησίαν εἶναι σύμβολον ἔφασκεν, ὡς οὐρανὸν μὲν τὸ θεῖον ἱερατεῖον ἔχουσαν, γῆν δὲ τὴν εὐπρέπειαν τοῦ ναοῦ κεκτημένην*: See also J. Wilkinson, Christian Worship in the Byzantine Period, in *Ancient Churches Revealed*, Yoram Tsafir (ed.), Jerusalem: Israel Exploration Society, 1993, 21.

47. P. A. Michelis, Neo-Platonic Philosophy and Byzantine Art, *The Journal of Aesthetics and Art Criticism,* 11 no. 1 (Sept. 1952), 21-45.

48. Constantine of Rhodes, On Constantinople and the Church of the Holy Apostles, Text. & Trans. by I. Vassis, in: Liz James, *Constantine of Rhodes*: *On Constantinople and the Church of the Holy Apostles,* Farnham: Ashgate Publishing Limited, 2012, 15-85.

49**.** Symeon of Thessaloniki, *Περὶ τοῦ Θείου Ναοῦ*, P.G. 155: 337-340. *Ὁ ναὸς δὲ ὡς οἶκος Θεοῦ ὅλον τὸν κόσμον τυποῖ ... καὶ τὸ ἱερώτατον βῆμα εἰς τύπον τῶν ὑπερουρανίων ἐστὶ καὶ τῶν ὑπεράνω ... καὶ τὰ ὑπεράνω μὲν τοῦ ναοῦ τὸν ὁρώμενον οὐρανὸν:* Trans. by Père S. Salaville, *Liturgies Orientales,* Paris 1938, 123.

50. A. Grabar, Le temoignage d'une hymne syriaque sur l'architecture de la cathedrale d'Edesse au Vie siècle et sur la symbolique de l'edifice, *Cahiers archéologiques* 2 (1947), 59-60.

in praise of the church of Hagia Sophia at Edessa. The church was rebuilt sometime between AD 543 and 554 after serious damage in the great flood of 525 but it was destroyed in 1031[51]. It is a significant literary document as it is one of the earliest texts that interpret the symbolism of a precise monument expressed poetically as a cosmic house. The church is presented as an admirable replica of the universe as its smallness should be similar to the vast World. The most remarkable and exalted feature of the church is

> *Its ceiling [which is] stretched out like the sky and without columns arched and simple, And it is also decorated with golden mosaic, as the firmament [is] with shining stars. And its lofty dome – behold, it resembles the highest heaven, ... the splendor of its broad arches – they portray the four ends of the earth*[52].

In the eyes of the poet the four great arches represent the four quarters of the world that contribute to the cosmic symbolism of the church designed by Asaph and Addai for the Bishop Amidonius[53]. In the poem it is clearly stated: "There is no wood at all in its ceiling, which as if entirely cast from stone" (strophe 10). In the poem the numbers have religious significance, the three facades and the three windows in the apse are "... as the form of the Holy Trinity ...," the eleven columns of the ambo are "... like the eleven apostles ...," the five doors into the church are "... like the five virgins ...," the ten columns that support the altar "... are the ten apostles ...," and the nine steps of the synthronon portray "... the nine orders of angels." (strophes 12-19).

Symbolism of interior dome decoration

Besides the symbolism applied to the shape of the dome allegories were also expressed in the interior decoration of the dome. Celestial connotations are first evident in ancient civilizations which were accustomed to associate the curved ceilings of their revered buildings with the sky. Hence the presence of blue ceilings with stars in Egyptian tombs, Babylonian palaces,

51. K. E. McVey, The Domed Church as Microcosm: Literary Roots of An Architectural Symbol, *DOP* 37 (1983), 91.

52. McVey, Domed Church., Text & Trans., II: strophes 5-7.

53. A. Dupont-Sommer, Une Hymne syriaque sur la cathédrale d'Edesse, *Cahiers archéologiques* 2 (1947), 34.

and decorated coffers in Greek and Roman temples[54]. But in Christian art the approach became more cosmic, the dome as a vision of heaven. At Ravenna, for example, in the dome of the Mausoleum of Galla Placidia a golden cross is set in blue sky studded with golden stars[55] (Figure 7). There was continuity between antique and Christian monuments in interior dome decoration in that the sky images in the ceilings of the villas, palaces, and baths of antiquity gave way in Christian church iconography to the image of heaven that exceeded ornamental allusion to the sky.

The earliest literary evidence of Roman astronomical ceiling decoration is the famous description of an aviary which Varro gives in his book on agriculture. He describes the aviary as "... a large domed building [*θόλος*] ..." and implies that it built of wood[56].

> *Intrinsecus sub tholo stella lucifer interdiu, noctu hesperus, ita circumeunt ad infimum hemisphaerium ac moventur, ut indicent, quot sint horae. In eodem hemisphaerio medio circum cardinem est orbis ventorum octo, ut Athenis in horologio, quod fecit Cyrrestes*;
>
> (Inside, under the dome of the rotunda, the morning-star by day and the evening-star at night circle around near the lower part of the hemisphere, and move in such a manner as to show what the hour is. In the middle of the same hemisphere, running around the axis, is a compass of the eight winds, as in the Horologium at Athens, which was built by the Cyrrestrian).

Varro's *θόλος* was of wood construction which has led to much scholarly debate on the extent of wooden domes in the ancient world. Another literary reference is the alleged description by the Greek philosopher and teacher Apollonius of Tyana (ca. AD 40 – 120) of a Babylonian hall. He wrote: ...

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54. V. Hammond, The Dome in European Architecture, in D. Stephenson (ed.), *Visions of Heaven: The Dome in European Architecture,* New York, NY: Princeton University Press, 2005, 169.

55. G. Bustacchini, *Ravenna: Mosaics, monuments and environment,* Ravenna: Cartolibreria Salbaroli, N.D., fig. 14.

56. Varro (Marcus Terentius Varro), *Res rustica* [LCL]. Trans. by W. D. Hooper, III, 1.

φασὶ δὲ καὶ ἀνδρῶνι ἐντυχεῖν, οὗ τὸν ὄροφον ἐς θόλου ἀνῆχθαι σχῆμα οὐρανῷ τινι εἰκασμένον, σαπφειρίνῃ δὲ αὐτὸν κατηρέφθαι λίθῳ—κυανωτάτη δὲ ἡ λίθος καὶ οὐρανία ἰδεῖν—καὶ θεῶν ἀγάλματα, οὓς νομίζουσιν, ἵδρυται ἄνω καὶ χρυσᾶ φαίνεται, καθάπερ ἐξ αἰθέρος

(...they saw a hall, the ceiling of which was constructed in the form of a dome, like the heavens, covered with sapphire stone – this stone being intensely blue and the color of the sky – and in the heights are the images of the gods in whom they believe and they appear golden as if it were from the ether[57]).

Painted reproductions of domes appear in Etruscan rock-cut tombs and Pompeian wall paintings with great importance to Early Christian architecture[58]. The decoration of a blue sky with ornamental stars in the bathing domes of second and first centuries BC in Pompeii continued in early imperial times, in the large stone domes of the Roman thermae, such as in the so-called Temple of Mercury in Baiae[59]. But it is Nero's (r. AD 54-68) *Domus Aurea* which marks an important development in both the construction of monumental domes and painted vision of heaven on the ceilings. The revolving wooden cupola of the grand room with its astronomical decorations became the impetus for imperial domes in Roman palace architecture[60]. Nero issued a special decree for a celebration in the theaters and as described by Dio Cassius "the curtains stretched overhead to keep off the sun were of purple and in the center of them was an embroidered figure of Nero driving a chariot, with golden stars gleaming all about him"[61]. Then there was, according to Martial, the palatial dining hall of Domitian (r. AD 81-96) in which his guests when they feasted and looked at the canopy overhead appeared that they were in the center of

57. Philostratus, *The Life of Apollonius of Tyana* [LCL]. Trans. by F. C. Conybeare, I, XXV.

58. K.A.C. Cresswell, *Early Muslim Architecture: Umayyads AD 622-750,* Oxford: Clarendon Press, 1969, I, 42 ff., 83 ff.

59. Lehmann, The Dome of Heaven, 21.

60. Smith, *The Dome*, 53.

61. Dio Cassius, *Historiae Romanae*, LXIII.6 [LCL]. Trans. by Earnest Cary): *Τά γε μὴν παραπετάσματα τὰ διὰ τοῦ ἀέρος διαταθέντα, ὅπως τὸν ἥλιον ἀπερύκοι, ἁλουργὰ ἦν, καὶ ἐν μέσῳ αὐτῶν ἅρμα ἐλαύνων ὁ Νέρων ἐνέστικτο, πέριξ δὲ ἀστέρες χρυσοῖ ἐπέλαμπον.*

the cosmos with the emperor depicted as the Lord of the Oecumene, as the Sun God amidst the stars of heaven[62]. Dio Cassius also mentions that in another imperial palace on the Palatine Hill in Rome Septimus Severus "... had caused them (the stars under which he was born) to be painted on the ceilings of the rooms in the palace where he was wont to hold court, so that they were visible to all"[63]. Perhaps the most famous building as a symbol of heaven was the Pantheon in Rome which derived its name, according to Dio Cassius, "because of its vaulted roof, it resembles the heavens"[64]. Hadrian (r. AD 117–138), who was responsible for building the Pantheon, also had elaborate celestial ceiling decorations in his villa at Tivoli[65]. In a lost ceiling decoration from the Villa of Hadrian the sky with the stars is shown the belt of the zodiac on a vault that is clearly a tent-like canopy[66]. Lehmann notes that the starry dome symbolism most like spread from Syria and Palestine to the Italian mainland converting celestial images such as the gilded rosettes as stars in the Pantheon dome, the vault of the Stabian baths in Rome, the dome in the house of Caecilius in Pompeii and most clearly in the blue mosaic ceiling embedded with golden stars in the vault of the fifth century mausoleum of Galla Placidia in Ravenna[67].

In some Byzantine dome decorations there is a central circular motif surrounded by radial or concentric patterns and groups of symbolic features[68]. The title *Ὁ Παντοκράτωρ* (*The All Ruler*) has been used to refer

62. Martial (Marcus Valerius Martialis), *Epigrams* [LCL]. Trans. by Walter C.A. Ker. II, LIX; VIII, XXXVI.

63. Dio Cassius, *Historiae*, LXXVI, 11, *ἐκ τῶν ἀστέρων ὑφ' ὧν ἐγεγέννητο καὶ γὰρ ἐς τὰς ὀροφὰς αὐτοὺς τῶν οἴκων τῶν ἐν τῷ παλατίῳ, ἐν οἷς ἐδίκαζεν, ἐνέγραψεν, ὥστε πᾶσι, πλὴν τοῦ μορίου τοῦ τὴν ὥραν, ὥς φασιν, ἐπισκοπήσαντος ὅτε ἐς τὸ φῶς ἐξῄει, ὁρᾶσθαι.*

64. Dio Cassius, *Historiae*, LIII 27,*Τό τε Πάνθειον ... προσαγορεύεται δὲ οὕτω ... ὡς δὲ ἐγὼ νομίζω, ὅτι θολοειδὲς ὂν τῷ οὐρανῷ προσέοικεν.*

65. Lehmann, The Dome of Heaven, 23.

66. Lehmann, The Dome of Heaven, 7.

67. Lehmann, The Dome of Heaven, 21, figs. 58, 59.

68. Patricios, *Sacred Architecture*, 31, 261-299, fig. 736; H. Wybrew, *The Orthodox Liturgy: The Development of the Eucharistic Liturgy in the Byzantine Rite,* Crestwood, NY: St. Vladimir's Seminary Press, 1990, 30-31; C. Cavarnos, *Orthodox Iconography,* Belmont, MA: The Institute of Byzantine and Modern Greek Studies, 2007 (Sixth Printing), 24; S. Curčić, Divine Light: Constructing the Immaterial in Byzantine Art and Architecture, in:

to the central dome image[69] (Figure 8). But this iconic image of Christ as the sole occupant of the central dome appears only in the late ninth and early tenth century but devoid of a reference to *Ὁ Παντοκράτωρ*. A variety of words are used instead, such as he who oversees the earth, he who is governor of all, or he who is the universal king[70]. So it is important to distinguish between the image of Christ as *Ὁ Παντοκράτωρ* in dome images that appear surprisingly late and in many late and post-Byzantine dome images, from other icons or images of Christ. There were also cosmological inferences as in Gregory of Nyssa's definition of *Ὁ Παντοκράτωρ* as "O Thou who bearest and holdest everything together in Thy hand"[71].

The term *Ὁ Παντοκράτωρ* can be seen in a dome image of Christ in the twelfth century Cappella Palatina at Palermo and the apse image of Christ at Monreale. In Greece the image is first labeled as *Ὁ Παντοκράτωρ* in the dome fresco of the *Ὁμορφη Ἐκκλησία* in Attica dated to the last decades of the thirteenth century[72]. Inscribed *Παντοκράτορες* proliferate in the sixteenth century frescoes on Mount Athos and Meteora, in many Byzantine churches in later centuries until the present day. Literary evidence supports the visual evidence of the late appearance of Christ with the title *Ὁ Παντοκράτωρ* as sources prior to the fifteenth century do not mention a dome image with this epithet[73]. In a tenth century homily Photios describes the lavish interior dome decoration of the Pharos church at Constantinople as Christ in the form of a "man-like" image in the midst of a throng of angels[74]. Mesarites in his description of the Church of the Holy Apostles at

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B. D. Wescoat and R. G. Ousterhout (eds.), *Architecture of the Sacred*, Cambridge: Cambridge University Press, 2012, 313; G. Mackie, Symbolism and Purpose in an Early Christian Martyr Chapel: The Case of San Vittore in Ciel d'Oro, Milan, *Gesta* 34 no. 2 (1995), 93, 95.

69. For what the *Ὁ Παντοκράτωρ* might have meant in Byzantium in the ninth century see C. Barber, From Transformation to Desire: Art and Worship after Byzantine Iconoclasm, *The Art Bulletin* LXXV, no. 1 (March 1993), 13.

70. J. T. Matthews, The Byzantine Use of the Title Pantocrator, *OCP* 44 no. 2 (1978), 454.

71. Gregory of Nyssa, *De Perfecta* Christiani Forma, *P.G.* 46, 265; Trans. in Smith, *The Dome*, 100.

72. Matthews, Pantocrator, 455, 447.

73. Matthews, Pantocrator, 454.

74. C. Mango (ed.), *The Homilies of Photius, Patriarch of Constantinople*, Cambridge, MA: Cambridge University Press, 1958, 186; V. Ruggieri, *Byzantine Religious Architecture (582-867): Its History and Structural Elements*, Roma: Pont. Institutum Studiorum Orientalium, 162.

Constantinople mentions that its "dome (*σφαίρα*) shows in picture form the God-Man Christ, leaning and gazing out as though from the rim of heaven, at the point where the dome begins, toward the floor of the Church and everything in it, but not with His whole body or in His whole form"[75].

The dome should not be seen in isolation as it is part of an iconographic program that reflects the theological dogmas of the Eastern Orthodox Church[76]. Along with Christ *Ὁ Παντοκράτωρ* the chief dogmas are Jesus as Teacher placed at the entrance to the church and the Theotokos positioned in the sanctuary apse[77]. In a domed church the floor symbolizes earth and the large dome heaven. They are united by the semi-dome of the apse which contains an image of the Theotokos, known as *Ἡ Πλατυτέρα*, holding the child Jesus and escorted by two archangels. She is the one who unites the upper world of heaven with the lower level of the earth by means of the divine child in her arms. Overall, the symbolism of the Byzantine church in Byzantine literature was either cosmic or theological, the church as a small-scale model of the universe with the association of the dome as the vault of heaven[78]. There was also cosmic symbolism alluded to in the number of doors, windows, and other architectural elements that was inspired by theological concepts such as the trinity of the Godhead.

DOME FUNCTION

After Emperors Constantine and Licinius issued the Edict of Milan in AD 313 Christianity became an officially recognized religion in the Roman Empire[79]. New purpose-built Christian churches could now be erected and some had a dome, an architectural feature previously of Roman *θέρμαι* and palaces. This meant that the function of domes now expanded from a

75. Nikolaos Mesarites, *Ἔκφρασις* (Description of the Church of the Holy Apostles at Constantinople). Text & Trans. by G. Downey, *Transactions of the American Philosophical Society* 47 pt. 6, 1957, 855-924, XIV, 1, here 901. *Αὕτη ἡ σφαῖρα ὡς ἐξ οὐρανίας ἄντυγος τῆς ταύτης ἀρχῆς πρὸς τὸ τοῦ ναοῦ ἔδαφος καὶ πάντα τὰ ἐν αὐτῷ παρακύπτοντα τὸν θεάνθρωπον ἡμῖν εἰκονικῶς ὑποδεικνύει Χριστόν, οὐχ ὁλόσωμον οὐδὲ καθ' ὁλόκληρον.*

76. C. Kalokyris, *The Essence of Orthodox Iconography*. Trans. by Peter Chamberas, Brookline, MA: Holy Cross Orthodox Press, 1985, 20.

77. Cavarnos, *Orthodox Iconography*, 23.

78. Mango – Parker, A Twelfth-Century Description of St. Sophia, 241.

79. M. White L., 2 vols., *The Social Origins of Christian Architecture,* Valley Forge, PA: Trinity Press International, 1997, I, 115.

secular to a religious use. The purpose-built churches that were constructed from the early fourth century onward can be divided into two classes, the commemorative and the congregational. In his book *Martyrium* André Grabar calls the commemorative churches shrines and the congregational as regular churches[80]. He points out that each was a clearly distinct kind of building. Until the fifth century the distinction between an *ἐκκλησία* and a *μαρτύριον* was quite clear[81]. Whether a 'church', 'palace church,' 'chapel,' or 'cathedral' the building was a place of assembly for Christians who met in the building on a regular basis for worship, that is a congregational church[82]. The *martyrium*, on the other hand, was a commemorative church and was traditionally viewed as a chapel or shrine, built over a martyr's tomb where an annual celebration was held in the martyr's memory.

Prior to the fourth century shrines consisted of reliquary chapels and tombs. After the recognition of Christianity, shrines developed into the commemorative church with the growing popularity of the Cult of the Martyrs. According to Grabar the commemorative church as a *martyrium* or *memorium* is a site which has witnessed the presence of Christ or of the Theotokos (Virgin Mary), or the tomb of a witness to Christ, or a martyr (from the Greek *μάρτυς*, a witness)[83]. The *martyrium* was originally a place of a testimony that gradually assumed a meaning of a structure, a church dedicated to a martyr. Grabar's taxonomy of *martyria* or commemorative church consists of the square, rectangular, simple apse, triconch, transept, circular or polygonal, and cruciform plan types[84] (Figure 9). The source of the square, circular or polygonal, and cross form *martyria* types was pagan funerary architecture. In particular, the square Christian *martyrium*

80. A. Grabar, *Martyrium: Recherches sur le culte des reliques et l'art chrétien antique.* 2 vols. and atlas, Paris: Collège de France, 1943-1946. Chapter I; Reviewed by eminent scholars R. Krautheimer, *The Art Bulletin* 35 no. 1, Mar. (1953), 57-61; J. B. Ward-Perkins, Memoria, Martyr's Tomb and Martyr's Church, *J. Theol. Studies* XVII no. 1 (1966), 20-37.

81. W. Mayer – P. Allen, *The Churches of Syrian Antioch (300 – 638 CE),* Leuven-Paris-Walpole MA, 2012, 166-174.

82. J. B. Ward-Perkins, Constantine and the Origins of the Christian Basilica, *Papers of the British School at Rome* 22 (1954), 69-90.

83. R. Ousterhout, The Temple, the Sepulchre, and the Martyrion of the Savior, *Gesta* 29 no. 1 (1990), 51. He points out that Early Christian writers limited their definition of *martyrium* to the shrines of martyrs and places of martyrdom.

84. Grabar, *Martyrium*, 77-94.

was a carry-over of the square mausoleum of pagan antiquity typical of the suburban cemeteries of Rome. It is significant that all these *martyria* types were domed[85]. The most famous *martyrium* was the Holy Sepulchre in Jerusalem built by order of Emperor Constantine as a memorial tomb of Christ[86]. As the Holy Sepulchre was the most revered monument in Christendom it influenced the form of other Christian tombs. One of last memorial rotunda structures of the Roman-Byzantine period is the Mausoleum of Theodoric at Ravenna (c. AD 526)[87].

The congregational or regular churches Grabar describes as the meeting places for Eucharistic assemblies of Christian congregations. In the fourth century Emperor Constantine began the process of constructing brand new church buildings to provide an architectural setting for the liturgy, the celebration of the Eucharist. There followed in the fourth and fifth centuries the construction of a large number of churches throughout the Roman Empire that displayed a number of architectural forms but more so in the East than the West. For Byzantine congregational churches a number of scholars have proposed a taxonomy[88]. The one adopted here is that of mine as it closely parallels that of André Grabar[89]. I identify the types of congregational churches as the basilica, cruciform, centralized, domed basilica, converted temple, cross-in-square and Athonite. Except for the basilica and converted temple types the remaining five types of congregational churches during the Byzantine era were all domed.

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85. Smith, *The Dome*, Chapter V, Domical Churches: Martyria, 95-131; Grabar, *Martyrium,* Chapter IV; R. Krautheimer, *Early Christian and Byzantine Architecture,* Baltimore, Maryland: Penguin Books, 1965 (Reprinted 1967), 57-58.

86. Smith, *The Dome*, 106-107; 98-99.

87. Fletcher, *A History*, 285.

88. Krautheimer, *Early Christian and Byzantine Architecture*, 68-73. H. Buchwald, *Form, Style and Meaning in Byzantine Church Architecture,* Ashgate Variorum, 1999, VII, 1-19; R. Ousterhout, Contextualizing the Later Churches of Constantinople: Suggested Methodologies and Examples, *DOP* 54 (2000), 241; M. Savage, Dome Typology in Byzantine Constantinople, *Transactions of the State Hermitage Museum LII, Architecture of Byzantium and Kievan Rus from the 9th to the 12th centuries,* St. Petersburg: The State Hermitage Publishers, 2010, 132-147.

89. Patricios, *Sacred Architecture*, 49-64; see also Mango, *Byzantine Architecture*, 51: The typological classification of early Christian churches was not based on function but architectural form.

The cruciform type of congregational church seemed to be favored in northern Italy as evidenced by the fifth century churches[90]. Three congregational churches of the cruciform type have also been identified in Palestine, those at Gerasa, Salona, and Gaza with domes constructed of timber[91]. The multi-domed cruciform plan was employed in the rebuilding by Justinian of the Church of St. John at Ephesus (Figure 10), completed before AD 565, and the late eleventh century Basilica of San Marco in Venice. Recent research has shown that the vaulting in the reconstruction of the Church of St. John at Ephesus under the auspices of Justinian is of great significance because of the sophisticated brick construction in an era where most churches were timber-roofed and that instead of domed bays cut off from each other the vaults tended to unify the spaces[92]. It is significant that Renaissance architects considered the Greek cross church plan of so great importance that Donato Bramante used this form for his AD 1506 design to rebuild St. Peter's in Rome[93]. The major centralized congregational churches were to be found in Rome, Milan, Ravenna, Constantinople and elsewhere in the vast Byzantine Empire[94]. In the sixth century the dome was fitted to the basilican form to create a new type – the domed basilica. Justinian after building the centralized Church of SS. Sergius and Bacchus, completed before AD 536, and restoring the Church of Hagia Eirene (Figure 11) completed about the same time AD 532 to 537, rebuilt the other more famous domed basilica, the nearby monumental *Ἡ Μεγάλη Ἐκκλησία* or as it is better known, Hagia Sophia[95].

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90. Krautheimer, *Early Christian and Byzantine Architecture*, 58.

91. J. W. Crowfoot, *Early Churches in Palestine,* College Park, Maryland: McGrath Publishing Company, 1971, 85-90.

92. N. Karydis, The Vaults of St. John the Theologian at Ephesos: Visualizing Justinian's Church, *Journal of the Society of Architectural Historians* 71, 4 (December, 2012), 525, 548.

93. Fletcher, *A History*, 869.

94. To mention only fifth and sixth century examples: The octagonal Church of the Theotokos on Mount Garizim; an octagonal church enclosed in a square structure at Pamukkale/Hierapolis; an octagonal church at Philippi; a circular church at Bosra; and a tetraconch church at R'safah/Sergiopolis: Krautheimer, *Early Christian and Byzantine Architecture,* figs. 47, 51, 74; Ch. Bouras. *Byzantine & Post-Byzantine Architecture in Greece,* Athens: Melissa Publishing House, 2006, 291; Mango, *Byzantine Architecture*, fig. 68.

95. Patricios, *Sacred Architecture,* 137-138; Fletcher, *A History*, 286-293. As G. Downey [The Name of the Church of St Sophia in Constantinople, *The Harvard Theological*

From the ninth century until the end of the Byzantine era the dominant church design was the cross-in-square type, a small structure that had either a single central dome or five domes with a large central dome and four smaller domes over the arms of the cross, such as the Church of the Prophets, Martyrs and Apostles (AD 464-465) at Gerasa (Figure 12), and the *Νέα Ἐκκλησία* built by Emperor Basil I at Constantinople around AD 880[96]. The five domed church became the ideal[97] (Figure 13). There has been much dispute regarding the origins of the cross-in-square church[98]. In Greek texts it is called *τετρακάμαρον* (literarily "four rooms," that is, those four vaulted spaces that form the corners of the inscribed square around the central cross shape) and appears late, AD 781[99]. This church type dominates from the

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Review 52 no. 1 (Jan. 1959), 37-41] notes different sources at different times gave different forms of the name but in most periods it was commonly called *Ἡ Μεγάλη Ἐκκλησία*. The name *Σοφία* came into use only at a later time with the name not referring to a saint but to Christ as Wisdom just as in the nearby church of Hagia Eirene the reference is to Christ as Peace. See also A. Cameron, Procopius and the Church of St. Sophia, *The Harvard Theological Review,* 38 no. 1, Jan. (1965), 161-163; R. J. Mainstone, *Hagia Sophia: Architecture, Structure and Liturgy of Justinian's Great Church,* New York: Thames and Hudson, 1988, 132; In paragraph 11 of the *Παραστάσεις Σύντομοι Χρονικαὶ* it is stated that *ἐν τῇ μεγάλῃ ἐκκλησίᾳ τῇ νῦν ὀνομαζομένῃ ἁγίᾳ Σοφίᾳ...* . A. Cameron –J. Herrin (eds.), *Constantinople in the early Eighth Century* [as in n. 15], 70-71.

96. W. MacDonald, *Early Christian & Byzantine Architecture,* New York: George Braziller, 1962, fig 67.

97. The Church of the Holy Apostles in Constantinople, now demolished, was regarded as the ideal five-domed church. Its significance, milieu, and legacy is recounted by M. Mullett – R. Ousterhout in: The Holy Apostles: Dumbarton Oaks Symposium, *DOP* 70 (2016), 325-326; Scholarly interpretations of an anonymous homily dated to the late ninth- or early tenth-century are discussed by L. James – I. Gavril, A Homily with a description of the Church of the Holy Apostles in Constantinople, *Byz.* 83 (2013), 149-160.

98. Ousterhout, *Master Builders,* 16-17, asserts that it evolved from an existing ecclesiastical architecture during the Transitional period and compares this to Cyril Mango's suggestion that it developed in the monastic context in Bithynia surviving example being the early ninth century church of Hagios Stephanos (Fatih Camii or Mosque of the Conqueror) in Trilye and the ruined church of St John at Pelekete.

99. The terms are contemporary. Ruggieri, *Byzantine Religious Architecture*, 139, notes that in Byzantine texts the term *τετρακάμαρον* was used for the "cross-in-square" a plan type which he believes originated in Bithynia. It should be noted as well that in Byzantine texts the "basilica" type is referred to as *δρομικὸς* which does not translate well into English as it literary means a "road" or "runway" to allude to its longitudinal form. It is

end of the Byzantine period to the modern day with the dome becoming the ubiquitous feature of Byzantine architecture[100] (Figure 14). On Mount Athos and elsewhere the cross-in-square form was adapted to create the so-called Athonite type that is found in the main church, the *καθολικόν*. A recent study has reached the conclusion that in all likelihood the cross-in-square type with the addition of lateral apses (*χῶροι*), the so-called 'Athonite' church, had been already completely formed in Constantinople or in the area under its influence, before its architectural plan was applied on Mount Athos[101].

The city in which all seven types of Byzantine congregational churches are still extant and operational is Thessaloniki in northern Greece. It was the second city, and also as the "co-reigning" or "co-capital" with Constantinople during the Byzantine Empire. The two cities were connected by the Roman built Via Egnatia that extended westward to Dyrrachium on the Adriatic Sea[102]. The major basilica church types in Thessaloniki are St. Demetrios (AD 412/3 rebuilt in 1917) and the Theotokos Archeiropoietos (AD 447/8). Churches with multiple polygonal and tall drums with scalloped roof lines are Panagia Chalkeon (AD 1028) and the Holy Apostles (AD 1312-15) each with a cross-in-square type plan and St. Catherine (AD thirteenth century) with a centralized plan. The church with a single dominant polygonal and tall drum is Prophet Elijah (AD 1360) which has a cruciform / Athonite plan type[103]. Hagia Sophia (AD 690-730) is the sole domed basilica church

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surprising that the authoritative Liddell and Scott Greek-English Dictionary does not refer to the meaning. In *LBGr* it is translated as "langgestreckt".

100. Ruggieri, *Byzantine Religious Architecture*, figs. 48, 114.

101. S. Mamaloukos, A Contribution to the Study of the 'Athonite' Church Type of Byzantine Architecture, *Zograf* 35 (January, 2011), 39-50; A. Tantsis, The so-called 'Athonite' type of church and two shrines of the Theotokos in Constantinople, *Zograf* 34 (2010), 3–11 also asserts that the alterations carried out in the two most important Theotokos churches in Constantinople, the Blachernae and the Theotokos in Chalkoprateia, with the addition of lateral apses to the buildings, is very likely the source of influence and also the basis for the transference of the concept of lateral apses in Athonite *καθολικά*; P. M. Mylonas, *Pictorial Dictionary of the Holy Mountain Athos: Atlas of the Twenty Sovereign Monasteries,* Tübingen: Ernst Wasmuth Verlag, 2000.

102. F. O'Sullivan, *The Egnatian Way,* Harrisburg, PA: David & Charles, 1972.

103. T. Papazotos, The Identification of the Church of 'Profitis Elias' in Thessaloniki, *DOP* 45 (1991), 121-127.

and has a single hemispherical dome[104]. St. George was originally a Roman rotunda (ca. 300 BC) built by Emperor Galerius that was converted into a church around the year 400.

While the spatial concentration of post-Byzantine churches at Meteora[105]are of interest, the Byzantine era churches at Mystras[106] deserve special attention as the reconstructed domed churches combine different ground floor and upper level plans. The Hodegetria (Aphentiko), founded about 1310, is the *καθολικὸν* of one of the oldest monasteries in Mystras. The church is a two-story, five-domed building which has a lower story basilica form with three-aisles and a cross-in-square plan form above. The *καθολικὸν* of Panagia Pantanassa (1428) similarly has a basilica plan on the ground floor and a five-domed cross-in-square style above – a central dome and four small corner domes. Interior decoration of Pantanassa with its classicizing motifs is one of the most complex achievements of fifteenth century Byzantine art[107]. The church of St. Demetrios, known as the Metropolis, was built as a three-aisled basilica with barrel vaults around 1291 or 1292 but in the fifteenth century in an attempt to emulate the Hodegetria and Pantanassa the roof was torn off and an upper story with a cross-in-square plan and five domes was added 'rather ineptly'[108]. The fourteenth century *καθολικὸν* Hagia Sophia of monastery of Christos

104. Patricios, *Sacred Architecture*, 188, 193-213. See also S. Molho, *Monuments of Thessaloniki,* Thessaloniki: S. Molho, 1968, 47-156; E. Mastrogiannopoulos, *Byzantine Churches of Greece and Cyprus,* Brookline, MA: Holy Cross Orthodox Press, 1984, 78-87; E. Kourkoutidou-Nikolaïdou – A. Tourta, *Περίπατοι στὴ Βυζαντινὴ Θεσσαλονίκη,* Athens: Kapon Editions, 1997, 177-181.

105. Theotechni, Sister, *Meteora.* Trans. by K. Koini-Moraitis. Athens: Eptalofos S.A., 1981; Mastrogiannopoulos, *Byzantine Churches,* 62-67; I. Poulos, *The Past in the Present: A Living Heritage Approach – Meteora, Greece,* Ubiquity Press, 2014, 73-87.

106. M. Chatzidakis, *Mystras: The Medieval City and the Castle,* Athens: Ekdotike Athenon S. A., 1981, 25-97; Mastrogiannopoulos, *Byzantine Churches,* 50-61; M. Acheimastou-Potamianou, *Mystras: Historical and Archaeological Guide,* Athens: Hesperos Editions, 2003, 15-99; S. Kalopissi-Verti, Mistra. A Fortified Late Byzantine Settlement in: J. Albani – E. Chalkia (eds.), *Heaven and Earth: Cities and Countryside in Byzantine Greece,* Athens: Hellenic Ministry of Culture and Sports, 2013, 224-239.

107. A. Mattielo, Visual Antiquarianism in Mystras, *Mitteilungun des Kunsthistorischen Institutes in Florenz,* 60, 1 (2018), 15.

108. Chatzidakis, *Mystras*, 29.

Zoodote and that of the monastery of Perivleptos on the other hand are simple two-columned cross-in-square churches with a central scalloped dome and a *cloisonné* masonry decorated drum. The church of the Agioi Theodoroi, built between 1290 and 1296, was unique for Mystras with its dome on an octagonal drum. Its restored drum has arched windows with alternate niches.

Mention should be made of three unusual united shrine-regular church complexes. These were built by Emperor Constantine. The first was the original Church of the Nativity complex in Bethlehem that consisted of a colonnaded forecourt, an aisled basilica, and an octagonal rather than round chapel over the cave that according to tradition Jesus was born. The structures were rebuilt by Justinian in AD 529[109]. The second was the original complex of the Church of the Holy Sepulchre which similarly consisted of a forecourt, an aisled basilica, but in this case a domed circular structure, known as the *Anastasis,* over the place where Jesus had been crucified and buried at Golgotha[110] (Figure 15). The circular chapel with a diameter of 111 feet most likely had a wooden dome originally[111]. Constantine built the Church of the Nativity and the Church of the Holy Sepulchre in Jerusalem at the behest of his mother, Augusta Helena a pilgrim to the Holy Land in AD 326-327 at the grand age of 80. The third shrine-regular church complex is in Rome and consists of a rotunda attached to rectangular basilica church. It was initially planned as Constantine's own mausoleum but in the end was used as a burial tomb for his mother, St. Helena when she died in AD 330[112]. This complex was originally known as the *Mausoleo di S. Elena* but is presently called the Pignattara Gate from the word *pignatte* (amphora) which were built into the vault to reduce its weight.

DOME ANTHROPICS

An intriguing question has been raised by the distinguished Byzantine scholar Cyril Mango: "... one of the central problems of Byzantine ecclesiastical architecture, namely, why it was that the timber-roofed basilica went

109. Patricios, *Sacred Architecture*, 183-186.

110. Patricios, *Sacred Architecture*, 183.

111. Smith, *The Dome,* 16-22.

112. Grundmann, *The Architecture of Rome*, 66.

out of fashion after the sixth century and was replaced by the domed or vaulted building for all types of church, whatever its exact destination."[113]

The anthropic approach, the humanistic dimension, is needed here to answer the question, that is, the role of major individuals, particularly emperors, played in the building of domed churches.

The Roman imperial princess Anicia Juliana, the great-granddaughter of Galla Placidia and a direct descendant of the distinguished family of Emperor Theodosius the Great, was very involved with religious affairs in Constantinople and embellished many churches in the city[114]. The turning point in her life was due to two great disappointments. The first was when her husband refused the throne of the Eastern Roman Empire following a revolt in AD 512[115]. The second was when her son did not succeed to the throne when his father-in-law died in AD 518 but instead passed to Justin I, an elderly, probably illiterate soldier of peasant background. Anicia Juliana's antipathy toward Justin increased when he brought to Constantinople his peasant nephew Flavius Peter Sabbatios from the province of Illyria who in time actually ran the empire as co-emperor. All this did not sit well with Anicia Juliana who had profound and undisguised contempt for both men[116]. She took it upon herself to build the largest church in Constantinople with a novel form in, it would seem, an act of defiance. In AD 524 she selected to rebuild on a grand scale the old church erected by Empress Eudocia, her great-grandmother, and dedicated to St. Polyeuktos in a new form, the domed basilica (Figure 16). When completed in AD 527 the church decoration included a most revealing inscribed epigram. It was discovered in 1960 in the archaeological remains of the church and survives in written form in the *Palatine Anthology* compiled about the year AD 1000[117]. The first part of the poem is in praise of the Byzantine princess Anicia Juliana and her royal lineage. The second part describes the

113. Mango, Approaches to Byzantine Architecture, 43.

114. *O.D.P.*, s.v. "Anicia Juliana," "Justinian I," "Galla Placidia."

115. Freely – Cakmak, *Byzantine Monuments of Istanbul*, 75.

116. S. Runciman, Foreword, in Martin Harrison, *A Temple for Byzantium: The Discovery and Excavation of Anicia Juliana's Palace-Church in Istanbul,* Austin, TX: University of Texas Press, 1989, 7.

117. *The Greek Anthology: Anthologia Palatina.* Trans. by W. R. Paton, revised by M. A. Tueler [LCL], Cambridge, MA: Harvard University Press, 2014, 14-15.

rich and splendid church which she erected in honor of St. Polyeuktos and compares her work to that of Constantine and her forebear Theodosius. A revealing line (*AP* 1, 10) is: *ἄξιον ἧς γενεῆς καὶ ὑπέρτερον ἤνυσεν ἔργον / εἰν ὀλίγοις ἐτέεσσι, χρόνον δ' ἐβιήσατο μούνη,/ καὶ σοφίην παρέλασσεν ἀειδομένου Σολομῶνος, / νηὸν ἀναστήσασα θεηδόχον ....* ("She alone has conquered time and surpassed the wisdom of Solomon, raising a temple to receive God, ..."), which underlined her intention to match Solomon's temple in using cubits as a measurement and for which she spared no expense on the decorations. In the same year the church was completed, AD 527, Justin died and was succeeded by his nephew who took on the name Justinian. There is a record that Justinian visited the newly completed church[118]. Not to be outdone by the princess he set about rebuilding Hagia Sophia, a basilica type church with a wooden roof built by Rufinus completed in AD 415 by Anicia Juliana's great-uncle Theodosius II, as the largest and grandest church in the whole Empire. He could have rebuilt the church as a traditional basilica on a grand scale like St. Peter's in Rome, or a larger version of the geometrically simple centralized plan of SS. Sergius and Bacchus that he had under construction, yet chose the hybrid domed basilica type. Beginning on 23 February, 532 the new church was dedicated on 27 December, 537, less than six years later[119].

Further evidence of Justinian's political rivalry with Anicia Juliana is provided in a recent study with regard to the circumstances surrounding the construction of the church of SS. Sergius and Bacchus in Constantinople[120]. While the first church built by Justinian in Constantinople, SS. Peter and Paul, was a longitudinal basilica completed either in 520 or 521 his next church dedicated to St. Sergius (later St. Bacchus was added) that he built in the mid-520 was of a centralized plan form and is most frequently linked to San Vitale at Ravenna which contains the two famous mosaic panels of

118. Harrison, *Temple for Byzantium*, 40. See J. Bardill, A New Temple for Byzantium: Anicia Juliana, King Solomon, and the Gilded Ceiling of the Church of St. Polyeuktos in Constantinople, in W. W. Bowden, A. Gutteridge and C. Machado (eds.), (Late Antique Archaeology 3), *Social and Political Life in Late Antiquity* (Leiden 2006), 339-370.

119. R. J. Mainstone, *Hagia Sophia: Architecture, Structure and Liturgy of Justinian's Great Church,* New York, NY: Thames & Hudson, 1988, 185.

120. B. Croke, Justinian, Theodora, and the Church of Saints Sergius and Bacchus, *DOP* 60 (2006), 25-63.

Justinian and Theodora[121]. Interestingly both are centrally planned churches crowned by a dome reflecting the status of Justinian's elevation to the rank of *caesar* in 525. Justinian's impulse and initiative to build the church of St. Sergius must lie in his rivalry with Anicia Juliana[122].

On completion of Hagia Sophia Justinian's remark that he had surpassed Solomon was most likely aimed at overshadowing Anicia Juliana's legacy. According to a legendary account, the *Narratio de Sancta Sophia* dating from the eighth or ninth century AD, when Justinian entered the completed church of Hagia Sophia he did exclaim: "Glory to God who has thought me worthy to finish this work. Solomon, I have surpassed thee!"[123]. Scholars have always considered this remark to refer directly to the great tenth century BC temple in Jerusalem built by King Solomon the splendor and glory of which are described in *I Kings* (ch. 6) and *II Chronicles* (chs. 2 to 7). But on careful analysis another explanation points to Justinian's choice of a domed basilica type in the rebuilding of Hagia Sophia. It involves the tendentious relationship between Justinian and Anicia Juliana.

The issue comes back to what was the novel form of the church of St. Polyeuktos. Anicia Juliana found the original church was of the longitudinal basilican form but to create an impressive space she added a dome to increase the internal height of the new building – combining the horizontality of the basilica form with the verticality represented by the dome forms (Figure 17). Her rebuilt church was thus a domed basilica with "columns standing upon sturdy columns support the rays of a golden roof ... pursuing the stars of heaven"[124]. Although there were examples of domed basilicas in western Asia Minor[125], it is not clear if Anicia Juliana followed any precedent. What she did do was perhaps stimulate Justinian to build an even grander domed basilica and after that the dome became the distinguishing architectural feature of Byzantine congregational churches although not of the domed basilica type. Another factor to consider is that in the forty days from the burning down of

121. S. E. Bassett, Style and Meaning in the Imperial Panels at San Vitale, *Artibus et Historiae* 29, 7 (2008), 49-57.

122. Croke, Justinian, Theodora, and the Church of Saints Sergius and Bacchus, 53.

123. Freely – Cakmak, *Byzantine Monuments of Istanbul*, 84.

124. Harrison, *Temple for Byzantium*, 40.

125. N. Karydis, The Early Byzantine Domes Basilicas of West Asia Minor: An Essay in Graphic Reconstruction, *Late Antique Archaeology* 9 no. 1 (2012), 358.

the second church of Hagia Sophia on January 13, 532 during the Nika Riot to the start of the rebuilding of the third Hagia Sophia on February 23 it seems highly unlikely that either Justinian or Anthemius and Isidorus could arrive at the innovative concept of a domed basilica without a precedent. That precedent more than likely was the church of St. Polyuektos. And yet the domed basilica Church of Hagia Sophia in Constantinople presents a cohesive interior space and unparalleled vision no doubt due to the symmetrical arrangement of the semi-domes flanking the large central dome (Figure 18). In the words of Prokopius this church "... boasts of an ineffable beauty, for it subtly combines its mass with the harmony of its proportions, having neither any excess nor any deficiency ..."[126]. The contrast is with the awkwardness of other domical basilicas such as the nearby Church of Hagia Eirene. Even so it is difficult to surpass the heightened experience presented by the incomparable unified and integral spaces of the central, cruciform, and cross-in-square Byzantine regular church types[127]. And so it was that the introduction of the domed basilica type by Princess Anicia Juliana and Emperor Justinian at Constantinople, between AD 527 and 537, led to the dome becoming the signature architectural feature of the Byzantine church from then on, not in domed basilica types but in cross-in-square church plans throughout the Empire.

Conclusion

There is no exact line that separates the architectural form and structure of Roman and Byzantine domes as there was continual development during these periods. Roman hemispherical domes evolved into the Byzantine semicircular and then domes supported on octagonal drums and in the Near

126. Procopius, *Περὶ Κτισμάτων* [as in n. 16] I, 23 ff. *Θέαμα τοίνυν ἡ ἐκκλησία κεκαλλιστευμένον γεγένηται τῷ τε γὰρ ὄγκῳ κεκόμψευται καὶ τῇ ἁρμονίᾳ τοῦ μέτρου, οὔτε τι ὑπεράγαν οὔτε τι ἐνδεῶς ἔχουσα.*

127. Newly available data reinforces the significance of the church: F. Wenzel, Investigations into the construction and repair history of the Hagia Sophia, *Construction History* 25 (2010), 1-20; B. Wescoat – R. Ousterhout, *Architecture of the sacred* [as in n. 68], 289; P. Niewöhner – N. Teteriatnikov, The South Vestibule of Hagia Sophia at Istanbul: The Ornamental Mosaics and the Private Door of the Patriarchate, *DOP* 68 (2014), 117-156; N. Teteriatnikov, The Last Palaiologan Mosaic Program of Hagia: The Dome and Pendentives, *DOP* 69 (2015), 273-296.

East eventually replaced the traditional conical and pyramidal forms. Early domes in the Roman world were of wood that were superseded gradually by brick, stone and concrete as a construction material except in the Near East where the change occurred very late. The Romans sought to lighten the weight of their domes through ribbed construction and placing hollow pots in the dome but it was the Byzantine builders who perfected the pendentive dome form and found ways to eliminate centering.

The Byzantine church is unique in integrating architecture, art, symbolism, and liturgy (Figure 19). The symbolism of the dome is two-fold, first in its shape and second in its interior decoration. For Byzantine Christians the shape of the dome could represent the cosmic tent or the cosmic house. The decoration of the interior the ceiling of the dome that could symbolize the celestial vault or sky, on the other hand, followed more of a development path as theological images replaced the astronomical and astrological symbols that decorated the ceiling in antiquity. From the sixth century onward the Byzantine church dome in both its shape and interior decoration was viewed as an allusion to heaven on earth. The powerful image of Christ as *Ὁ Παντοκράτωρ* in the central dome begins to dominate Byzantine church interiors only from the thirteenth century. But it was not only the dome that was being imbued with symbolism more and more but also the narthex, naos, aisles, holy bema, apse, synthronon, and solea[128]. It is the central vault, however, represented as the "dome of heaven"[129] that dominates all the metaphorical allusions.

While there was continuity in the form, structure, and symbolism of the Roman and Byzantine dome the function of the dome changed between the two eras from use in secular buildings to religious structures. The Byzantines took over the Roman tradition of domed mausolea when they began building *martyria*, commemorative churches, with varied geometrical forms but each crowned by a dome. Congregational churches of the fourth and fifth centuries were virtually all of the basilica type with domed churches of various geometrical forms appearing only in the sixth century and dominating thereafter. The construction of domed basilica types in the capital Constantinople stimulated the building of domed churches

128. Patricios, *Sacred Architecture*, Chapter 7: 389-404.

129. Lehmann, The Dome of Heaven, 1-27.

throughout the Byzantine Empire from the sixth century onward and in Eastern Orthodox churches after the Fall of Constantinople until the present day. The Byzantine church presents a building with a soaring space that leads to an uplifting sensual experience (Figure 20).

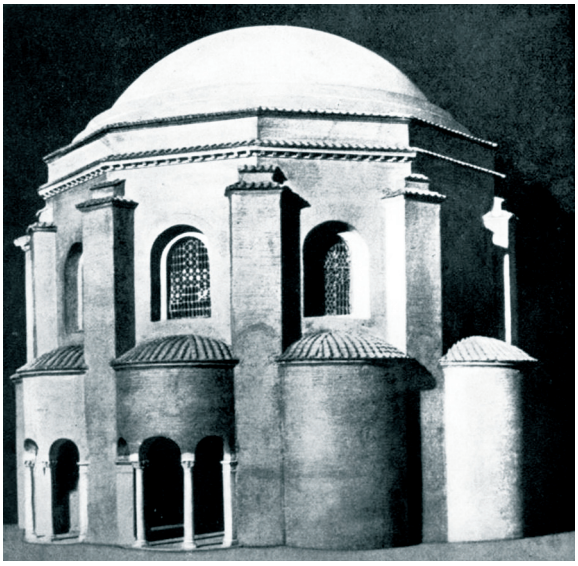

Figure 1. Roman hemispherical dome: Ninfa degli Horti Liciani / Temple of Minerva, Rome, model, AD 320 (W. McDonald, *Early Christian & Byzantine Architecture*. New York: George Braziller, 1962, fig. 7).

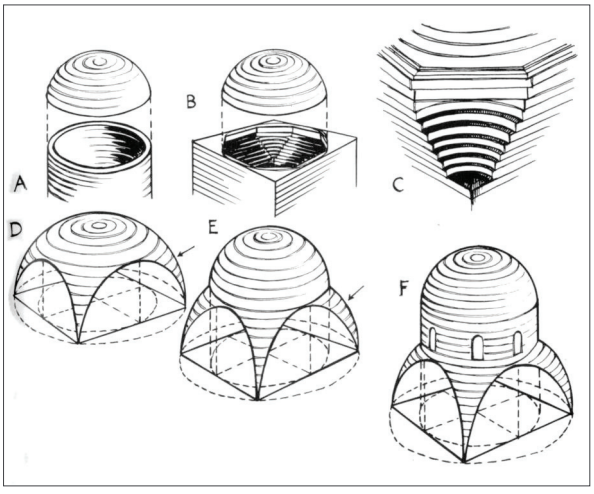

Figure 2. Dome development: Diagrams (after D. Yarwood, *The Architecture of Europe: The Ancient Classical and Byzantine World, 3000 BC–AD 1453,* London: B. T. Batsford Ltd, 1992, fig. 175). A: Dome over cylinder B: Dome over square with squinches across corners to make an octagon C: Squinch D: Pendentives integral with dome E: Pendentives independent of dome F: Dome raised on a drum.

Figure 3. Byzantine domes and roofs, St. Demetrios (Metropolis), Mystras, rebuilt in early 15th century (photograph by author).

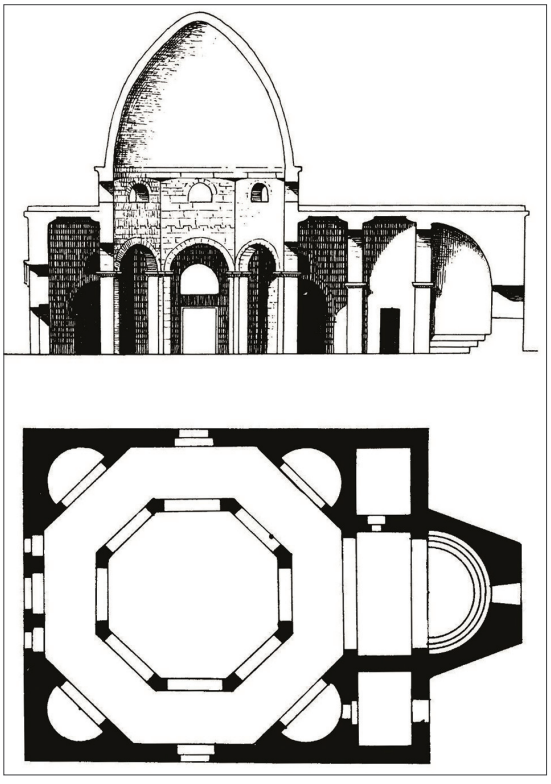

Figure 4. Near East conical dome: St. George Martyrium, Zorah, section & plan, AD 515 (E. Baldwin Smith, *The Dome: A Study in the History of Ideas.* Princeton, NJ: Princeton University Press, 1971, figs. 50 & 51).

Figure 5. Cosmos as domed (Cosmas Indicopleustes] *Χριστιανική Τοπογραφία* [Christian Topography] (Cod. Sinaiticus Gr. 1185, 65r in E. Chatzitryphonos & S. Ćurcić, *Αρχιτεκτονικη ως εικόνα* [Architecture as Icon: Perception and Representation of Architecture in Byzantine Art] Thessaloniki: Μουσείο Βυζαντινού Πολιτισμού, 2009, fig. 17).

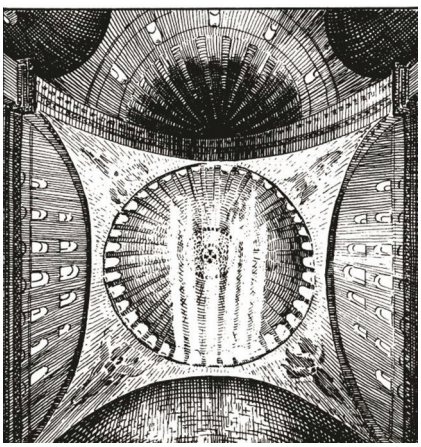

Figure 6. Cosmic tent: A Byzantine Emperor's canopy tent (top) & the Hagia Sophia "tent" (below) (H. Gagatsiu, *Byzantine Wisdom*. Athens: Papasotiriou, 2014, no p #; E. Baldwin Smith, *The Dome: A Study in the History of Ideas*. Princeton, NJ: Princeton University Press, 1971, fig. 151).

Figure 7. Sky metaphor: The ceiling of the Mausoleum of Galla Placidia, Ravenna. AD 425-30 (A. Drandaki et al. eds. *Heaven on Earth: Art of Byzantium from Greek Collections. Catalogue*. Athens: Benaki Museum, 2013, fig. 44).

Figure 8. Byzantine central dome mosaic image: Christ Παντοκράτωρ encircled by twelve prophets, Parekklesion of the Theotokos Pammakaristos ["All-Blessed"], Constantinople, AD 1320 (photograph by author).

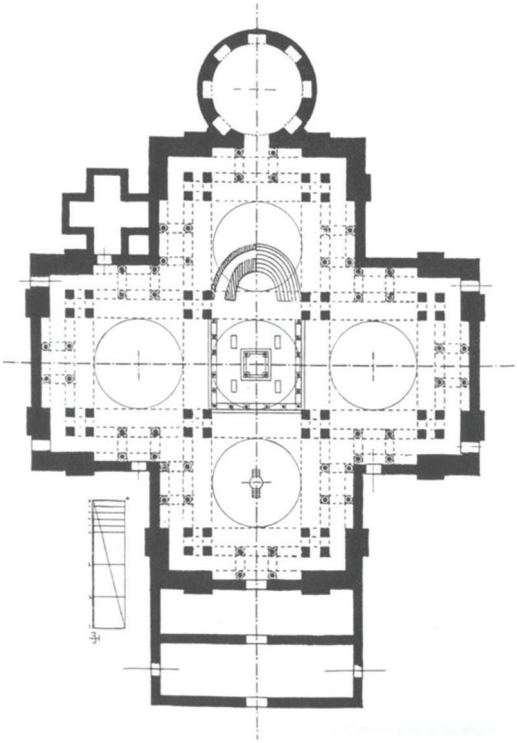

Figure 9. Cruciform martyrium: Church of the Holy Apostles, Constantinople, AD 330-357 / AD 527-565 (reconstructed plan by G. Soteriou in C. Mango, *Studies on Constantinople.* Aldershot: Variorum, 1993, 12).

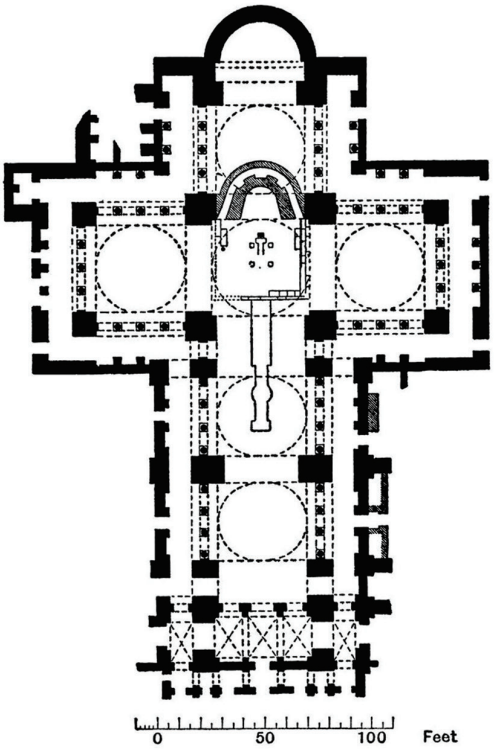

Figure 10. Cruciform regular church type: Church of St. John, Ephesus, model and plan, AD 565 (M. Büyükkolanci, *The Life and Monument of St. John*. Selçuk-Izmir: Efes 2000 Foundation, 2001, 44; H. B. Dewing & G. Downey, eds., txt. & trs. *Procopius VII*, Cambridge: Cambridge University Press, 1940, 47).

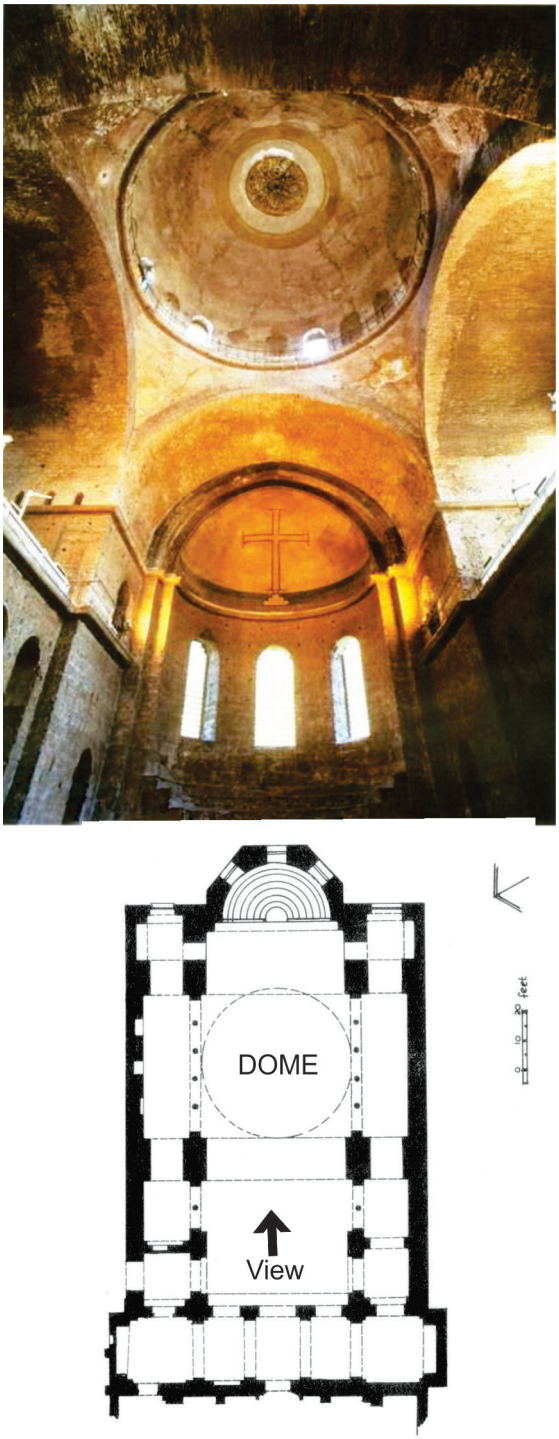

Figure 11. Domed basilica regular church type: Church of Hagia Eirene, Constantinople, AD 537 underwent several rebuildings and substantially repaired in the 8th century (J. Freely & A. Cakmak, *Byzantine Monuments of Istanbul.* Cambridge: Cambridge University Press, 2004, pl. 17; after J. Warren, Greek Mathematics and the Architects to Justinian, *Art and Archaeology Research Papers* (London: Coach Publishing, December 1976, 2).

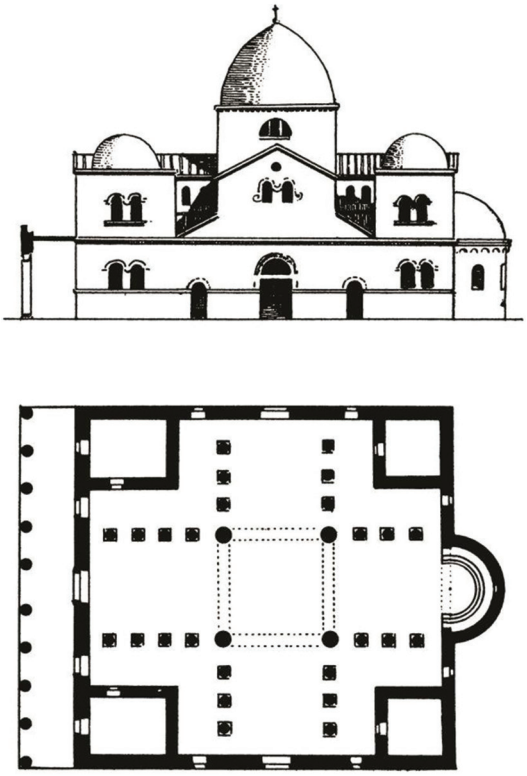

Figure 12. Cross-in-square regular church type: Church of the Prophets, Martyrs & Apostles, Gerasa, elevation and plan, AD 464-5 (E. Baldwin Smith, *The Dome: A Study in the History of Ideas*. Princeton, NJ: Princeton University Press, 1971, figs 175 & 177).

Figure 13. Ideal five-domed Byzantine church: Frontispiece. *Ομιλίαι Ιακώβου Κοκκινοβάφου* (Discourses of James Kokkinovafos), AD 1125-1150 (Cod. Gr. 1208, 3b, Paris, Bibliothèque Nationale in G. Galavaris, *Ζωγραφική Βυζαντινών χειρογράφων*. Αθήνα: Εκδοτική Αθηνών, 2006, fig. 146).

Figure 14. Byzantine dome*: Katholikon* of Nea Moni, Chios, AD 1056, restored in 1890 (N. McGilchrist, *Greek Islands:* London: Genius Loci Publications, 2010. 20 volumes, 14: Chios, 60).

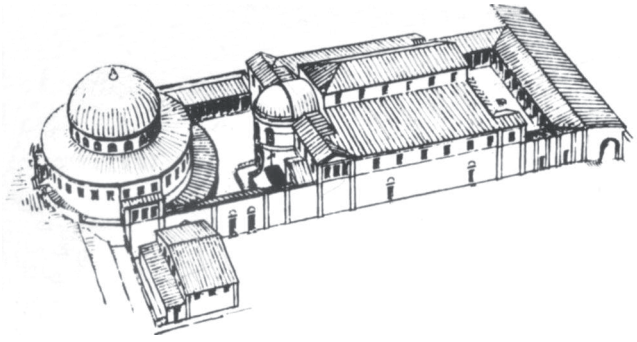

Figure 15. Shrine-regular churches complex: Church of the Holy Sepulcher, Jerusalem, ca. AD 326 (W. McDonald, *Early Christian & Byzantine Architecture*. New York: George Braziller, 1962, fig. 9).

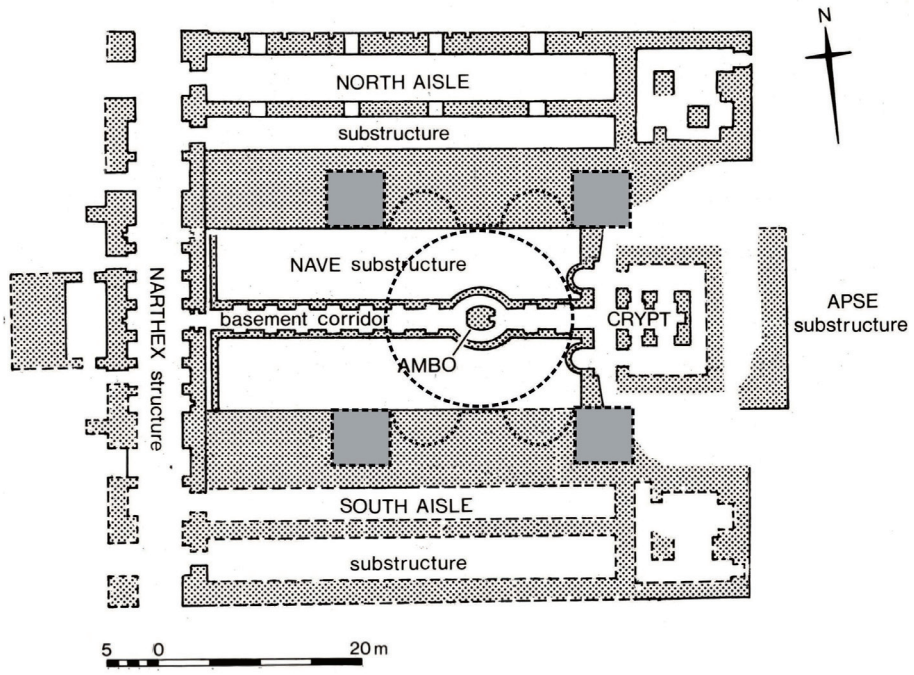

Figure 16. Domed basilica precedent: St. Polyeuktos (after M. Harrison, *A Temple for Byzantium: The Discovery and Excavation of Anicia Juliana's Palace-Church in Istanbul.* Austin, TX: University of Texas Press, 1989, fig. 48).

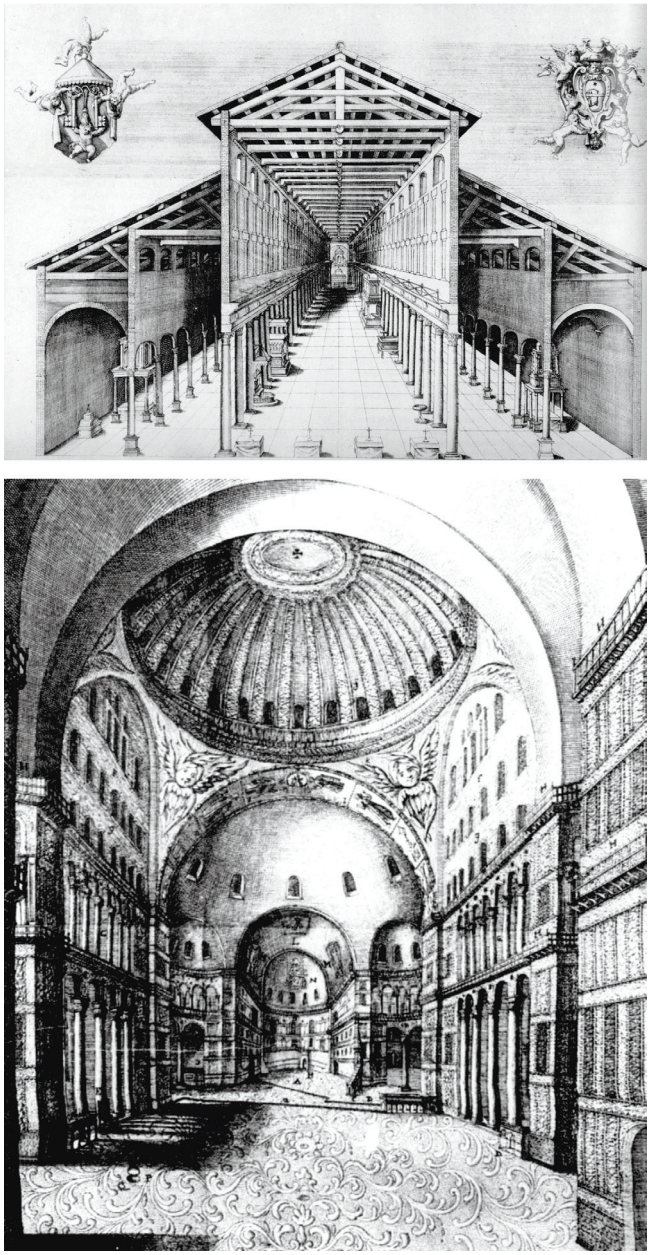

Figure 17. Horizontality vs Verticality: Original St. Peter's, Rome vs Hagia Sophia, Constantinople (R. Mainstone, *Hagia Sophia: Architecture, Structure and Liturgy of Justinian's Great Church*. London: Thames and Hudson, 1988, figs. 155 & 150).

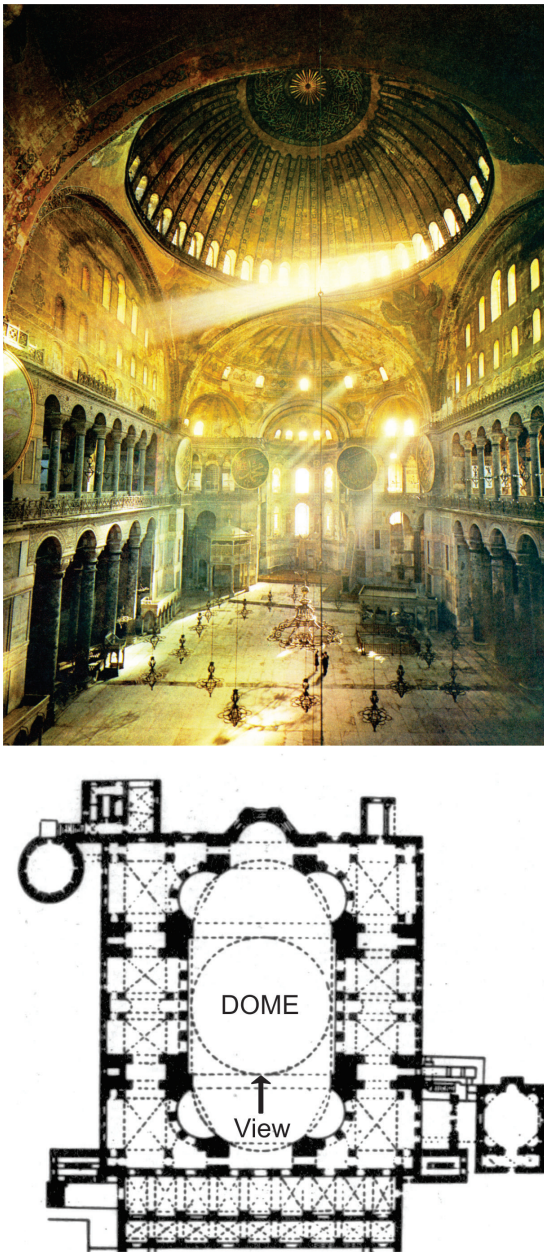

Figure 18. Domed basilica regular church type: Hagia Sophia, Constantinople, AD 563 (A. Grabar, *The Golden Age of Justinian: From the Death of Theodosius to the Rise of Islam.* Trans. by Stuart Gilbert and James Emmons, New York: Odyssey Press, 1967, fig 4; after J. Warren, Greek Mathematics and the Architects to Justinian, *Art and Archaeology Research Papers* (London: Coach Publishing, December 1976, 7).

Figure 19. Artist's rendition of the fusion of architecture, iconography, and theology. St. Gregory of Nazianzus writing his 'Liturgical Homilies' (Cod. Sinaiticus Gr. 338, fol 4v. Holy Monastery of St. Catherine, Sinai in E. Chatzitryphonos & S. Ćurcić, *Αρχιτεκτονικη ως εικόνα* [*Architecture as Icon: Perception and Representation of Architecture in Byzantine Art*] Thessaloniki: Μουσείο Βυζαντινού Πολιτισμού, 2009, fig. 22).

Figure 20. Byzantine church heightened experience: Parekklésion of the Theotokos Pammakaristos ["All-Blessed"], Constantinople (photograph by author).

Ο Τρουλλος στην Βυζαντινη Εκκλησιαστικη Αρχιτεκτονικη

Ο τρούλλος ήταν ένα σημαντικό αρχιτεκτονικό χαρακτηριστικό τόσο στη ρωμαϊκή όσο και στη βυζαντινή περίοδο. Υποστηρίζεται ότι υπήρξε συνεχιζόμενη ανάπτυξη της αρχιτεκτονικής μορφής και του συμβολισμού του τρούλλου μεταξύ των δύο περιόδων, αλλά με επέκταση της τυπολογίας του και σημαντική ενίσχυση του συμβολισμού του στην εκκλησιαστική αρχιτεκτονική της βυζαντινής εποχής. Στο ερώτημα τί διακρίνει τον τρούλλο μεταξύ των δύο περιόδων, η απάντηση πρέπει να αναζητηθεί κατά κύριο λόγο στην λειτουργία τους – στην χρήση του τρούλλου στα κοσμικά κτήρια κατά την Ρωμαϊκή περίοδο σε σύγκριση με τα κατά κύριο λόγο θρησκευτικά κτήρια του Βυζαντίου. Ο τρούλλος δεν είναι μόνο ένα σταθερό αρχιτεκτονικό χαρακτηριστικό των βυζαντινών εκκλησιών διαφόρων αρχιτεκτονικών τύπων αλλά συγχρόνως φορτίστηκε με συμβολικά και θεολογικά μηνύματα και θεωρήθηκε ότι συμβολίζει τον ουρανό και τον παράδεισο, ενώ στον εσωτερικό διάκοσμο προσδόθηκε μυστικιστική σημασία.