

# ZENITH LIGHTING IN CHRISTIAN PLACES OF WORSHIP BETWEEN REALITY AND FICTION (WEST-EAST, 4<sup>TH</sup>-13<sup>TH</sup> CENTURIES)

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UDC: 726:27-523.4"03/12"  
628.973.5

Original scientific paper

Manuscript received: 12. 12. 2019.

Revised manuscript accepted: 21. 01. 2020.

DOI: 10.1484/J.HAM.5.121706

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*This article analyses the light irradiation from the top in the places of worship of medieval Christianity, whether as phenomenon of natural origin, produced by an oculus, or figuratively, through the creation of two-dimensional medallions at the summit of the vault. Few but significant examples refer to the first aspect of the question, such as the Rotunda of the Anastasis and Santa Maria ad Martyres (Pantheon). The image of the zenithal light, instead, often occurs inside the coverings of the domes, especially in the mosaic decorations (Santa Costanza, Baptistry of the Orthodox, Rotunda of Saint George, etc.). In these and other contexts, the effect of a circular window open at the top of the vault is suggested by the iconographic theme, which evokes the vertical motion of transcendence, ascendant (Resurrection and Assumption) or descendant (Pentecost, Baptism, Second Coming), and through the fake frames or particular colour combinations (gold/silver, gold/blue, degrading shades from blue to white, rainbow bands). Both in the physical manifestation and in the iconographic representation, the light from above plays a central role in some medieval rituals related to the celebration of Baptism, Pentecost and Resurrection.*

*Keywords: Oculus, Zenith lighting, Pantheon, Anastasis Rotunda, zenithal medallions, theophany of light, gold and silver tesserae, iridescent light.*

On Sunday, 13 May 613 AD, Pope Boniface IV reopened the doors of the Pantheon – sealed by will of Theodosius I at the end of the 4<sup>th</sup> century<sup>1</sup> – and transformed the former temple “of all the gods” into the Church of Sancta Maria ad Martyres<sup>2</sup>. On that occasion, or shortly after, the new sanctuary was endowed with a *Hodegetria* icon, which incredibly has been preserved up to the present day<sup>3</sup>. However, even after the building’s consecration, Hadrian’s *rotunda* continued to be considered a pagan venue, and its large upper *oculus* (nine meters of diameter)<sup>4</sup>, was regarded with fear and suspicion (fig. 1)<sup>5</sup>. Hence the fictional anecdote, reported in the *Legenda Aurea* (1260-1298), according to which “the Romans made a globe of gilded bronze, shaped like a pine cone, and set it at the highest point [of the Pantheon]”<sup>6</sup>. The German mystic Hermann of Fritzlar (13<sup>th</sup>-14<sup>th</sup> centuries) added a curious detail to that fanciful legend: “The false god of the Romans, the Devil, took the pine cone away from the top of the [Pantheon]... and placed it in front of Saint Peter;

[...] the opening in the Church is still visible where the pine cone used to be, and no one was ever able to seal it”<sup>7</sup>. The meteorological setback of having an opening in the dome that let the rain, wind and winter cold inside the building, disturbing the liturgical functions, were certainly not lost on medieval clergymen and worshippers<sup>8</sup>.

Despite these drawbacks, however, ever since the Pantheon’s conversion into a Christian place of worship, its *oculus* must have served as a religious catalyst: framing the view of the sky into a perfect circle, it could not fail to be perceived by worshippers as a window into the world of transcendence, a physical and metaphysical channel between the human and the divine. The 12<sup>th</sup>-century source *Liber Censuum Romanae Ecclesiae* mentions the ceremony celebrated inside the building for the Pentecost<sup>9</sup>: “Rose Sunday, Station at *Santa Maria della Rotonda*, where the pontiff solemnly officiates the sung Mass and the Pentecost, whereupon roses are thrown from the top of the temple in the image [of the De-

<sup>1</sup> *Codex Theodosianus*, XVI, 10,10, in Th. MOMMSEN, P.M. MEYER (eds.), Berlin 1905, pp. 899-900.

<sup>2</sup> P. GEERTMAN, *More veterum: il Liber Pontificalis e gli edifici ecclesiastici di Roma nella tarda antichità e nell’alto medioevo*, Groningen, 1975, esp. p. 135, and n. 1 on p. 226; S. DE BLAAUW, *Das Pantheon als christlicher Tempel*, in *Bild- und Formensprache der spätantiken Kunst: Hugo Brandenburg zum 65. Geburtstag*, M. JORDAN-RUWE, U. REAL (eds.), Berlin, 1994, pp. 13-26 (p. 13); E. THUNØ, *The Pantheon in the Middle Ages*, in *The Pantheon. From Antiquity to the Present*, T. A. MARDER, M. W. JONES (eds.), New York, 2015, pp. 231-254.

<sup>3</sup> C. BERTELLI, *La Madonna del Pantheon*, in *Bollettino d’Arte*, 46, 1961, pp. 24-32; M. ANDALORO, *Icona con l’Odighitria*, in *Aurea Roma: dalla città pagana alla città cristiana* (exhibition catalog, Rome, Palazzo delle Esposizioni, 22 december 2000-20 april 2001), S. ENSOLI, E. LA ROCCA (eds.), Rome, 2000, pp. 660-661.

<sup>4</sup> F. LUCCHINI, *Pantheon*, Rome, 1996, p. 111.

<sup>5</sup> T. BUDDENSIEG, *Criticism and praise of the Pantheon in the Middle Ages and the Renaissance AD 500-1300*, in *Classical influences on European culture, A.D. 500-1500*, R. R. BOLGAR (ed.), Cambridge, 1971, pp. 259-267.

<sup>6</sup> “Denique Romani pineam eneam et deauratam fabricant et in summitate collocant”: JACOPUS DE VORAGINE, *Legenda Aurea*, CLVIII (*De festivitate omnium sanctorum*), in G. P. MAGGIONI (ed.), Florence, 1998, II, p. 1100. Unless otherwise stated, the translations are my own.

<sup>7</sup> Cfr. T. BUDDENSIEG, *Criticism and praise... op. cit.*, p. 260.

<sup>8</sup> On the inconveniences caused by the Pantheon’s *oculus*, see S. DE BLAAUW, *Das Pantheon als christlicher Tempel*, in *Bild- und Formensprache der spätantiken Kunst: Hugo Brandenburg zum 65. Geburtstag*, M. JORDAN-RUWE, U. REAL (eds.), Berlin, 1994, pp. 13-26, esp. pp. 22-23.

<sup>9</sup> This Medieval rite has been recently reintroduced with a similar ceremony: see the news reported on 4 June 2017 by C. Fabiano on the website of the daily newspaper *Il Messaggero*: [http://www.ilmessaggero.it/roma/cronaca/roma\\_pentecoste\\_petali\\_rose\\_pantheon-2482561.html](http://www.ilmessaggero.it/roma/cronaca/roma_pentecoste_petali_rose_pantheon-2482561.html) (last accessed 26/11/2019).



Fig. 1. Rome, Pantheon, interior (G. P. Pannini 1732 New York, private collection).

scent] of the Holy Ghost”<sup>10</sup>. According to Mariano Armellini, the festivity of the Assumption also dates from the Middle Ages: “during those centuries of primitive, imaginative faith, [...] the Assumption was celebrated by means of machines and other devices that lifted the simulacrum of the Virgin among floating angels and clouds to the top of the dome, where it was artificially made to disappear. People came in droves to behold that wonderful spectacle”<sup>11</sup>.

The *rotunda* of the Abbey of St. Bénigne in Dijon, built by order of William of Volpiano around the 11<sup>th</sup> century and

destroyed at the end of the 18<sup>th</sup> century, is often compared to the Pantheon and is rightfully considered a direct tribute to the latter (fig. 2)<sup>12</sup>. Despite the reduced proportions<sup>13</sup> and the different inner configuration, there are several striking coincidences: the building was consecrated on the 13<sup>th</sup> of May<sup>14</sup>; it was dedicated to the Virgin and “all the saints”<sup>15</sup>; one of its annex chapels contains an icon of the Virgin<sup>16</sup>; and, last but not least, it presents a zenithal *oculus*<sup>17</sup>. The circular opening at the highest and most central point of the dome is an architectural solution closely associated with the construction stage of the building, as confirmed by the chronicle of the monastery of St. Bénigne (ca. 1060), almost contemporary to the foundation of the abbey: “an intense light shines brightly through the surrounding windows and through the opening on top of the vault”<sup>18</sup>.

At the centre of the *rotunda* of Saint-Bénigne, articulated into three levels, was an entirely empty and inaccessible light-well (called *celsum fastigium* in the chronicle) that had the double function of endowing the dome with a zenithal window while also possibly offering a solution to problems of statics by supporting the hemispheric vault<sup>19</sup>. Carolyn Marino Malone aptly underlines how the aesthetic value of the zenithal lighting in St. Bénigne is also echoed in the liturgy: the antiphon *Venit lumen* was sung during a procession held inside *rotunda* on the eve of the Feast of the Purification of the Virgin Mary (or Feast of the Presentation of Jesus at the Temple), while priests would be lighting candles around the *celsum fastigium* and wait for the morning light to descend through the *oculus*: “Thou light comes oh Jerusalem, and the glory of God rises above you; the people walk in your light”<sup>20</sup>.

Another place of worship characterised by a highly symbolic upper *oculus* is the rotunda of the Anastasis of Jerusalem. This structure from Late Antiquity (although possibly subsequent to Constantine’s surrounding walls of the Holy Sepulchre), built to commemorate the place of the burial and resurrection of Christ, was destroyed and reconstructed several times throughout the centuries (fig. 3)<sup>21</sup>. While the zenithal opening of the Church of Sancta Maria ad Martyres was a Roman legacy, in the case

<sup>10</sup> *Liber Censuum Romanae Ecclesiae*, in P. FABRE, L. DUCHESNE (eds.), II, Paris, 1910, p. 157.

<sup>11</sup> M. ARMELLINI, *Chiese di Roma dal secolo IV al XIX*, Rome, 1891, p. 485.

<sup>12</sup> W. SCHLINK, *Saint-Bénigne in Dijon: Untersuchungen zur Abteikirche Wilhelms von Volpiano (962-1031)*, Berlin, 1978, esp. pp. 34-55; C. M. MALONE, *Saint-Bénigne et sa rotonde: archéologie d'une église bourguignonne de l'an mil*, Dijon, 2008, pp. 121-156.

<sup>13</sup> A. OLIVIER, *La rotonde de Saint-Bénigne: quelques comparaisons architecturales dont le temple de Vésone à Périgueux*, in Guillaume de Volpiano et l'architecture des rotondes, M. JANNET, CH. SAPIN (eds.), Dijon, 1996, pp. 195-202 (fig. 4 on p. 196).

<sup>14</sup> C. M. MALONE, *Saint-Bénigne de Dijon en l'an mil, 'totius Galliae basilicis mirabilior': interprétation politique, liturgique et théologique*, Turnhout, 2009, pp. 61, 69.

<sup>15</sup> *Ibidem*, p. 69.

<sup>16</sup> *Ibidem*, p. 182.

<sup>17</sup> *Ibidem*, p. 183.

<sup>18</sup> “Fenestra undique ac desuper patulo caelo lumen infundentibus micat eximia claritate”: *Chronica Sancti Benigni Venerandorum Abbatum*, XXVI, in PL, 162, Paris, 1854, col. 821. See W. SCHLINK, *Saint-Bénigne in Dijon... op. cit.*, p. 174.

<sup>19</sup> “Hujus desuper culmen celso erectum fastigio viginti quator columnarum, ac triginta duorum arcuum, tripertita comparis numeri machina, divisione, eleganti transvolutum est opere”: *Chronica Sancti Benigni... op. cit.*, coll. 820-821. See C. M. MALONE, *Saint-Bénigne de Dijon... op. cit.*, p. 138.

<sup>20</sup> “Venit lumen tuum, Jerusalem, et gloria Domini super te orta est; et ambulabunt gentes in lumine tuo, alleluia”: *Consuetudines antiquiores Sancti Benigni*, in *Corpus consuetudinum monasticarum*, 7/1, in K. HALLINGER (ed.), Siesburg, 1983, p. 40 (antiphon of the Feast of the Purification). See C. M. MALONE, *Interprétation des pratiques liturgiques à Saint-Bénigne de Dijon d'après ses coutumiers d'inspiration clunisienne*, in *Du cœur de la nuit à la fin du jour. Les coutumes clunisiennes au Moyen Âge*, S. BOYNTON, I. COCHELIN (eds.), Turnhout, 2005, pp. 221-250 (“Quoi qu’il en soit, la rotonde et sa lumière zénithale fournissaient un cadre parfait pour des occasions comme Noël, l’Épiphanie et la Purification, au cours desquelles l’arrivée de la nouvelle lumière était soulignée par la liturgie et ses chants”: p. 233).



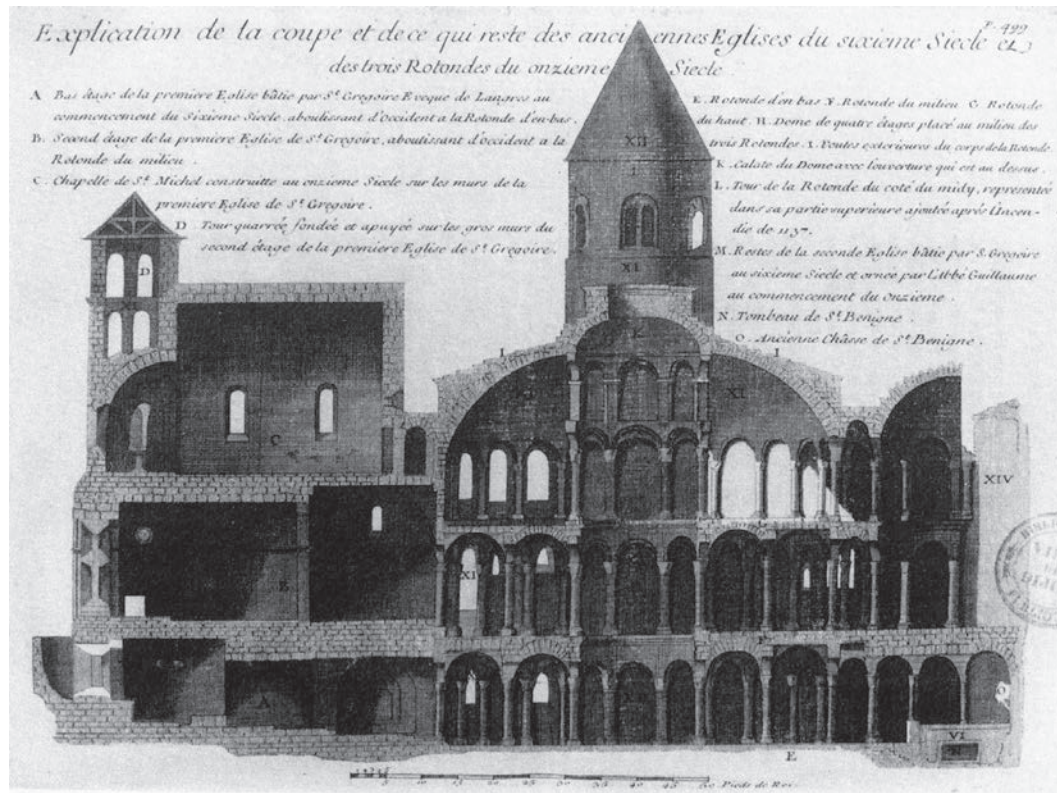


Fig. 2. Dijon, rotunda of Saint-Bénigne, reconstruction.

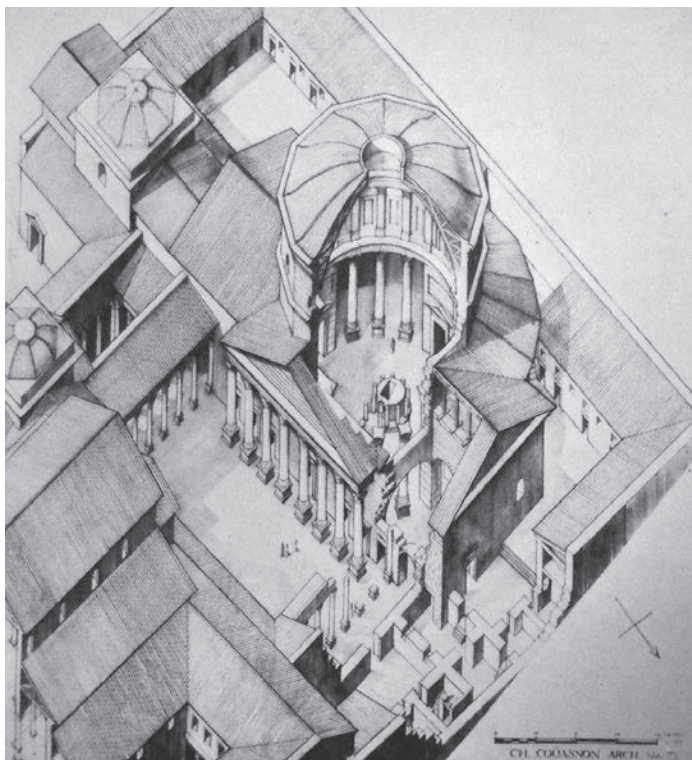


Fig. 3. Hypothetical reconstruction of the Anastasis at the time of Constantine (COUASSON 1974).

of the Anastasis the structure was created *ex novo* during the paleo-Christian era in order to leave an opening between the tomb of Christ and the sky above it, hinting at the threshold crossed by the Son to ascend to His Father. Explicit references to the *oculus* of the Jerusalem cupola can be found as early as in the 12<sup>th</sup> century: in the words of the pilgrim Theodericus, “[The building] is topped by a led roof supported by cypress panels, with a large circular opening that illuminates the entire church from above”<sup>22</sup>. Iconographic and literary sources tell us that the dome, shaped like a truncated cone and culminating with an *oculus*, was covered for three quarters of its height with a hemispheric lead shell. This double casing is accurately described by Eutychius, the Patriarch of Alexandria, in his annals of the Holy Land (10<sup>th</sup> century), where he refers to the cupola’s restoration during the previous century: “After repairing the cupola by placing a series of trunks, attached to one another and covered with mortar above and below, the patriarch [of Jerusalem] Thomas [807-820] built a new cupola in lead above the wooden one, leaving between the two enough space for a man to walk in”<sup>23</sup>. One can clearly infer from this source that the *oculus* of the Anastasis dates from the early Middle Ages if not from the Late Antiquity, and in any case predates the 9<sup>th</sup> century.

A surprising imitation of the double couple of the Anastasis can be observed inside the Pisa Baptistery (12<sup>th</sup>-13<sup>th</sup>

<sup>22</sup> R. KRAUTHEIMER, *Early Christian and Byzantine Architecture*, London, 1981 (1<sup>st</sup> ed. 1965), pp. 62-63 and n. 145 on pp. 488-489; V. CORBO, *Il Santo Sepolcro di Gerusalemme*, Jerusalem, 1981-1982, I, pp. 51-211; D. PRINGLE, *The Churches of the Crusader Kingdom of Jerusalem. A corpus*, III, Cambridge [u.a.], 2007, pp. 6-40.

<sup>23</sup> “Tectum ipsius operis ex tabulis cupreis deauratis consistit, in medio foramine rotundo existente...”: THEODERICUS, *Libellus de Locis Sanctis*, VI, M. L. BULST, W. BULST (eds.), Heidelberg, 1976, p. 14.

<sup>24</sup> EUTYCHIUS (Patriarch of Alexandria), *Annales*, XVIII (caliphate of Al-Ma’mūn), in B. PIRONE (ed.), Cairo, 1987, pp. 401-402. See L.-H. VINCENT, F.-M. ABEL, *Recherches de topographie, d’archéologie et d’histoire. Jérusalem nouvelle*, Paris, 1914, II, p. 220. On the cupola of the Anastasis rotunda and on the interpretation of the sources, see M. L. TESTI CRISTIANI, *Riflessioni e ipotesi sui sistemi di copertura della Rotonda del S. Sepolcro di Gerusalemme*, in *Verso Gerusalemme. Il Convegno internazionale nel IX centenario della I Crociata (1099-1999)*, F. CARDINI, M. BELLOLI, B. VETTERE (eds.), Bari, 1999, pp. 67-97.





Fig. 4. Pisa Baptistery, exterior.

centuries)<sup>24</sup>, which, incidentally, must have originally presented a similar zenithal opening, although it was presumably soon covered with a roof lantern (fig. 4)<sup>25</sup>. The evocation of the shape of the *Anastasis rotunda* in a baptistry should not surprise us, considering the close theological connection between the sacrament of baptism and the resurrection of the Christ, explicitly commented upon in patristic literature and in particular by St. Augustine<sup>26</sup>. As in the cases of *Sancta Maria ad Martyres* and *Saint-Bénigne*, the zenithal openings of the Holy Sepulchre and of the Pisa Baptistery also inspired liturgical celebrations associated with theophanic transcendence, be it ascending (the Resurrection) or descending (the descent of the Holy Spirit). In Jerusalem, it was the “Feast of the Holy Fire”<sup>27</sup>, celebrated to this day during Easter by lighting thousands of candles and documented in a famous 14<sup>th</sup>-century illustration (fig. 5)<sup>28</sup>. A 12<sup>th</sup>-century source reveals the stratagem used to stage

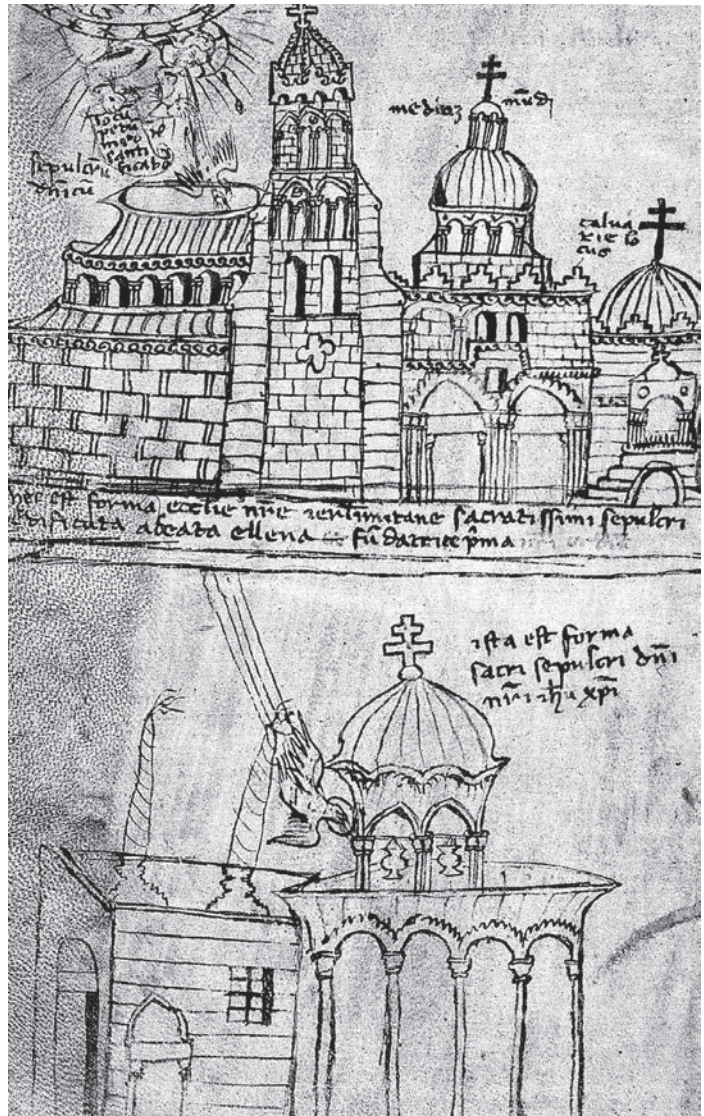


Fig. 5. BAV, *Codex Urbinatensis lat. 1362*, f. 1v: Feast of the Holy Fire.

the supposed miracle: “[The Christians] suspend the lamps above the altar and use a device to light them by burning oil [...]. By resorting to a stratagem, they connect the candles by means of a metallic wire, which they oil up. The wire is disposed in such a manner that it connects all the candles without being visible”<sup>29</sup>.

Another interesting aspect of the function of the *oculus* at the Holy Sepulchre is its association with astral conjunction phenomena, as highlighted by the Icelandic monk Nicholas Saemundarson (mid 12<sup>th</sup> century), who writes in his travel log

<sup>24</sup> The construction of the Pisa Baptistery was started by Diotisalvi in 1153 and completed by Giovanni Pisano toward the end of the 13<sup>th</sup> century: A. CALECA, *La dotta mano: il Battistero di Pisa*, Bergamo, 1991, pp. 13-27, 97-122, 157-166, 189-195; M. L. TESTI CRISTIANI, *Il Santo Sepolcro di Gerusalemme e il Battistero di Pisa, da Diotisalvi a Nicola Pisano*, in *La Terrasanta e il crepuscolo della Crociata. Oltre Federico II e dopo la caduta di Acri, Atti del I Convegno internazionale di studio (Bari-Barletta-Matera, 19-22 maggio 1994)*, M. S. CALÒ MARIANI (ed.), Bari, 1999, pp. 239-266.

<sup>25</sup> A. CALECA, *La dotta mano...*, op. cit., p. 193.

<sup>26</sup> “Hodie completur in vobis signaculum fidei, quod apud antiquos patres in circumcissione carnis fiebat octavo die carnalis natiuitatis; figurabatur enim expoliatio mortalitatis in eo membro humano, per quod moriturus nascitur homo. Unde et ipse dominus mortalitate carnis resurgendo se expolians, et non quidem aliud, sed tamen ultra non moriturum corpus exsuscitans, dominicum diem in sua resurrectione”: AUGUSTINUS, *Sermo VIII in octava Paschatis ad infantes*, in PL, 46, Paris, 1845, coll. 840-841.

<sup>27</sup> G. FIACCADORI, ΠΡΟΣΟΨΙΣ non ΠΡΟΟΨΙΣ: *Efeso, Gerusalemme, Aquileia (nota a IEph 495, 1 S.)*, in *La parola del passato*, 58 (330), 2003, pp. 182-249 (p. 193).

<sup>28</sup> BAV, Urb. lat. 1362, f. 1v: A. NESSELRATH, *I libri di disegni di antichità*, in *Memoria dell'antico nell'arte italiana*, III, S. SETTIS (ed.), Turin, 1986, pp. 89-147, esp. pp. 97-98 and fig. 48.

<sup>29</sup> IBN AL-QALANISI († 1160), *Cronaca di Damasco*: See M. CANARD, *La destruction de l'Église de la Résurrection par le calife Hakim et l'histoire de la descente du feu sacré*, in *Byzantion*, 35, 1965, pp. 16-43 (22-23).





Fig. 6. Florence Baptistery, cupola mosaic.

in the Holy Land: “A heavenly light descends upon it on Easter eve. They call it the Church of the Holy Sepulchre; it has an opening above the tomb. It is the centre of the world and, on the Feast of Saint John the Baptist [24 June], the sun appears right in the middle of the sky”<sup>30</sup>. The idea that Jerusalem was the centre of the world was a widespread belief during the Middle Ages, likely supported by the fact that, during the Summer solstice, the sun would be at the zenith of the cupola of the Anastasis. Beyond this specific case, however, if we think of the relationship between the zenithal *oculus* and the sky, it is clear that any building endowed with this kind of opening could potentially be used to record the periodic movements of the sky, moon and stars, and hence to measure time. In the case of the pre-Christian Pantheon, leaving aside the numerous unfounded astrological conjectures, it has been hypothesized that the cone of light descending from above illuminated, depending on the time of year, the statues of different gods, probably arranged in the *rotunda*’s niches according to their respective holidays<sup>31</sup>.

A separate discussion should be devoted to the Florence Baptistery, whose 13<sup>th</sup>-century floor of marble slabs presents a large solar clock, presumably associated with the zenithal entrance of daylight (fig. 6-7)<sup>32</sup>. The device,



Fig. 7. Florence Baptistery, flooring, detail of the solar clock.

featuring the signs of the zodiac, carries at its centre a palindrome inscription referring to the medieval legend about the retrograde motion of the planets: *EN GIRO TORTE SOL CICLOS ET ROTOR IGNE* (“I, the Sun, rotate with fire so as to reverse the direction”)<sup>33</sup>. In his *Nuova Cronica* on

<sup>30</sup> “Vocatur ecclesia sancti sepulchri; habet super sepulchrum aperturam. Ibi est medium est orbis; ibique sol festo S. Johannis stat in centro caeli”: NICHOLAS SAEMUNDARSON (1151-1154), *Iter ad Loca Sancta*, IV, 1, in S. DE SANDOLI (ed.), 2, *Tempore regum francorum (1100-1187)*, Jerusalem, 1980, pp. 218-219. See S. HEID, *Kreuz, Jerusalem, Kosmos. Aspekte frühchristlicher staurologie*, Münster, 2001, p. 193.

<sup>31</sup> E. LA ROCCA, *Agrippa’s Pantheon and its origin*, in *The Pantheon From Antiquity... op. cit.*, pp. 49-78, esp. p. 71.

<sup>32</sup> S. BARBOLINI, G. GAROFALO, *Le meridiane storiche fiorentine*, Florence, 2011, pp. 60-65.

<sup>33</sup> L. XIMENES, *Del vecchio e nuovo gnomone Fiorentino e delle osservazioni astronomiche fisiche ed architettoniche fatte nel verificarne la costruzione*, Florence, 1757, pp. XVII-XVIII.



the history of Florence, Giovanni Villani († 1348) hints at the astronomical function of the Baptistery, which he attributes to the fact that, on the Summer solstice, the light of the sun entered the building through the octagonal opening in the cupola, as it did in the above-mentioned case of the Jerusalem Anastasis<sup>34</sup>. During the Middle and Modern Ages, many buildings with similar zenithal openings probably ended up serving as solar clocks, although this function appears to be secondary rather than part of the initial design.

As for the presence of a zenithal *oculus* in medieval places of worship, to the witnesses mentioned so far (which constitute the best known and most emblematic examples) one could add a number of other cases associated with pre-Christian architectural reuse or with *ex-novo* medieval buildings<sup>35</sup>. While considering the probable existence of examples that have now been lost, zenithal *oculi* were clearly rare in medieval architecture, due to the above-mentioned inconvenience of exposing the liturgical space to the whims of the weather. This problem was occasionally addressed by resorting to more or less efficient forms of covering<sup>36</sup>, but it was not until the early Renaissance that zenithal openings, hermetically closed by lanterns, became widespread: starting with Brunelleschi, the ancient architectural structure of the *oculus* was successfully and elegantly revived, no longer only for symbolic reasons but also for aesthetic ones<sup>37</sup>.

Beside the survival of the *oculus* in medieval places of worship as an architectural device designed to let in the sunlight, the conceptual legacy of the ancient zenithal opening can also be observed in the figurative dimension. Circular windows set against the empyrean sky are often depicted on the central medallions that decorate the zenithal point of cupolas and the centre of cross vaults and intrados. The case of the mausoleum of Santa Costanza (ca. mid 4<sup>th</sup> century) is halfway between fiction and reality, as the centre of the *rotunda*'s dome features a circular recess (fig. 8)<sup>38</sup>. This may



Fig. 8. Rome, Mausoleum of Santa Costanza, intrados of the cupola, detail of the fake oculus.

suggest a change of mind, namely an *oculus* created during the construction and eventually sealed up, but the analysis of the bricklaying inside the recess excludes this hypothesis<sup>39</sup>. A detailed section of the monument, drawn by an anonymous late 16<sup>th</sup>-century author (Berlin, Kunstbibliothek, ms. 4151, f. 73r)<sup>40</sup>, provides an important key to our understanding of the building's aesthetic and formal configuration: at the highest point of the cupola's intrados, the author documents the presence of a circular overhanging frame (fig. 9), decorated with an egg-and-dart pattern in classical style reminiscent of the bronze decoration of the Pantheon's *oculus*<sup>41</sup>. If we consider that the cupola was originally decorated with mosaics, removed in 1620 but documented in the descriptions of the erudite Pompeus Ugonius and in 15<sup>th</sup>- and 16<sup>th</sup>-century sketches and watercolours<sup>42</sup>, we can assume that such a lav-

<sup>34</sup> "E troviamo per antiche ricordanze ... e quando il sole entra nel segno del Cancro, in sul mezzogiorno, in quello luogo luce per lo aperto di sopra ov'è il capannuccio": GIOVANNI VILLANI, *Nuova cronica*, libr. II, cap. XXIII, G. PORTA (ed.), Parma, 1991, I, p. 90. See Ch. FRUGONI, *Il ruolo del battistero...* *op. cit.*, p. 80.

<sup>35</sup> Ch. SPULER, *Opaion und Laterne. Zur Frage der Beleuchtung antiker und frühchristlicher Bauten durch ein Opaion und zur Entstehung der Kuppellaterne*, PhD, Universität Hamburg, 1973, esp. pp. 69-96; S. PIAZZA, *Allo zenit della cupola. L'eredità dell'oculus nell'arte cristiana fra Medio Evo e Bisanzio*, Rome, 2018, pp. 35-144.

<sup>36</sup> *Ibidem*, pp. 57-59, 67, 91, 93, 98, 106, 110, 113, 116-117.

<sup>37</sup> S. DI PASQUALE, *Brunelleschi: la costruzione della cupola di Santa Maria del Fiore*, Venice, 2002, esp. pp. 157-158.

<sup>38</sup> S. PIAZZA, *Il fluvius argenteus, scene dell'Antico e del Nuovo Testamento nella cupola*, in M. ANDALORO, *L'orizzonte tardoantico e le nuove immagini*, 312-468 (*"La Pittura medievale a Roma, 312-1431"*, I, Corpus), Milan, 2006, pp. 72-78.

<sup>39</sup> G. DE ANGELIS D'OSSAT, *La forma e la costruzione delle cupole nell'architettura romana*, in *Atti del III Convegno nazionale di storia dell'architettura (Roma, 9-13 ottobre 1938)*, Rome, 1940, pp. 223-250 (p. 233); J. J. RASCH, *Zur Konstruktion spätantiker Kuppeln vom 3. bis 6. Jahrhundert*, in *Jahrbuch des Deutschen Archäologischen Instituts*, 106, 1991, pp. 311-383, esp. pp. 336-337; IDEM, *Der Bau*, in J. J. RASCH, A. ARBEITER, *Das Mausoleum der Constantina in Rom*, Mainz am Rhein, 2007, pp. 3-100 (pp. 42-44).

<sup>40</sup> A. A. AMADIO, *I mosaici di Santa Costanza. Disegni, incisioni e documenti dal XV al XIX secolo*, in *Xenia. Quaderni*, 7, 1986, pp. 39-41, fig. 14.

<sup>41</sup> A. DESGODETS, *Les édifices antiques de Rome dessinés et mesurés très exactement*, Paris, 1682, tab. XIX; G. BELARDI, *I restauri*, in *Il Pantheon. Storia, tecnica e restauro*, IDEM (ed.), Viterbo, 2007, pp. 45-262 (see the colour photographs p. 234).

<sup>42</sup> S. PIAZZA, *Il fluvius argenteus...* *op. cit.*



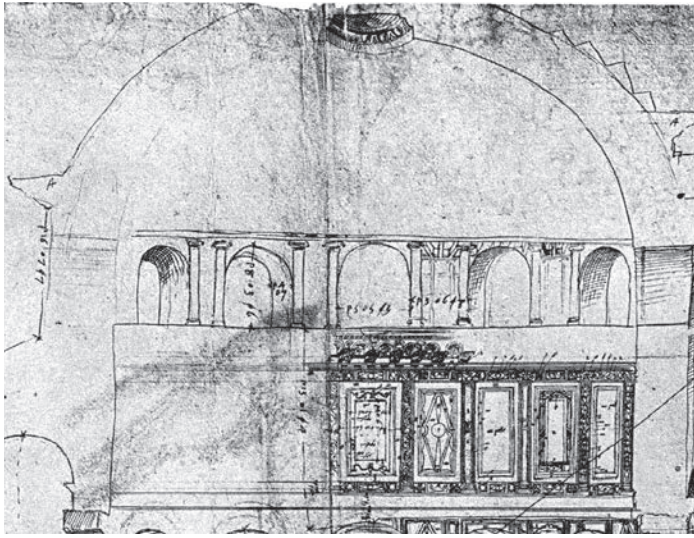


Fig. 9. Section of the Mausoleum of Santa Costanza, by 16<sup>th</sup>-century anonymous (Berlin, Kunstbibliothek, ms. 4151, f. 73r).

ish context, destined to receive the mortal remains of the emperor Constantine, may well have included a fictional *oculus* – a *trompe-l'oeil* of sorts, framed in relief and probably featuring a mosaic depicting the illusion of an open space. In the graphic reconstructions by Pietro Santi Bartoli (1635–1700), the medallion presents an umbrella pattern, quite typical of the figurative repertoire of Late Antiquity<sup>43</sup>. The artist's depiction was therefore probably accurate.

The mosaic on the cupola of the Baptistery of San Giovanni in Fonte in Naples (357–409) features instead a blue sky spangled with stars, as well as a monogrammatic cross placed between the alpha and the omega, a symbol of the resurrected and triumphant Christ, at the centre of the Universe (fig. 10)<sup>44</sup>. The intense blue of the mosaic sky enhances the sparkle of the stars and of the golden tiles used both in the *chrismon* and in the apocalyptic letters. In order to understand the symbolic connection between the zenithal monogram and the baptismal rite performed underneath, let us quote Lucien De Bruyne: “One can observe that this artistic motif [the zenithal medallion of the mosaic in the Baptistery of San Giovanni in Fonte] invited the viewers to meditate on two interconnected notions associated with baptism: during this rite, the baptised are ‘illuminated’ by the Christ, whose name is sealed upon them. The name written above the head of the neophytes reminds them both of the *φωτισμα* [illumination] and *σφραγίς* [seal]. The choice of placing a luminous *chrismon* at the centre of the celestial vault must be seen in relation with the commentaries that describe the baptism as the Holy Ghost sealing the name of the Christ upon the soul of the baptised”<sup>45</sup>.

The cupola of the Orthodox Baptistery in Ravenna (ca. mid 5<sup>th</sup> century) adopts a different aesthetic and symbolic solution, despite the evident intent to endow the central clipeus with the illusion of an *oculus* open onto the world of transcendence (fig. 11)<sup>46</sup>. A significant element is the presence of a fake marble frame in relief, in classical style.



Fig. 10. Naples, Baptistery of San Giovanni in Fonte, cupola mosaic.

<sup>43</sup> G. G. CIAMPINI, *Vetera Monumenta*, II, Rome, 1699, tab. 1 between pp. 2 and 3; A. A. AMADIO, *I mosaici... op. cit.*, pp. 70–71, fig. 43.

<sup>44</sup> G. BOVINI, *I mosaici del Battistero di S. Giovanni in Fonte a Napoli*, in *Corso di cultura sull'arte ravennate e bizantina*, 6, 1959, 1, pp. 5–26; Ch. CROCI, *Una 'questione campana'. La prima arte paleocristiana tra Napoli, Nola e Capua (secc. IV–VI)*, Rome, 2017, pp. 49–117.

<sup>45</sup> “On observera que ce thème artistique (médaillon étoilé avec un symbole théophanique) permettait d’offrir à la méditation des spectateurs deux concepts combinés de la donnée baptismale: dans le baptême, on était ‘illuminé’ par le Christ, et on y recevait son nom comme un sceau; ce nom apparaissant au-dessus des néophytes leur rappelait le *φωτισμα* et la *σφραγίς* tout à la fois. (...) Le choix d’un chrisme comme centre lumineux d’une voûte céleste est parallèle aussi aux commentaires qui considèrent le baptême comme une marque au nom du Christ imprimée par l’Esprit-saint dans l’âme des baptisés...”. L. DE BRUYNE, *La décoration des baptistères paléochrétiens*, in *Actes du V<sup>e</sup> Congrès International d’Archéologie Chrétienne*, Vatican City, 1957, pp. 341–369 (356–357).

<sup>46</sup> F. W. DEICHMANN, *Ravenna. Hauptstadt des spätantiken Abendlandes*, Wiesbaden, 1969–1989, I, pp. 138–143; A. J. WHARTON, *Ritual and reconstructed meaning: the Neonian Baptistery in Ravenna*, in *The Art Bulletin*, 69, 1987, pp. 358–375 (pp. 370–371); R. WISSKIRCHEN, *Zum Medaillon im Kuppelmosaik des Orthodoxenbaptisteriums*, in *Jahrbuch für Antike und Christentum*, 36, 1993, pp. 164–170.





Fig. 11. Ravenna, Orthodox Baptistery, cupola mosaic.

The zenithal medallion features a predominantly golden landscape that imbues with divine light the scene of the Baptism of Christ depicted in the *imago clipeata*. The golden tiles give a universal meaning to the evangelical scene, making it eternal and opening a vertical communication channel with the baptismal font below: Christ in the waters of the Jordan river, the Holy Ghost in the form of a dove and the divine light radiating from the golden sky are revealed to the baptised at the high point of the ritual.

An interesting alternative to this zenithal golden gleam is found in the mosaic of the St. George *rotunda* in Thessaloniki (5<sup>th</sup> century)<sup>47</sup>. At the highest and most central point of the cupola, featuring a grandiose depiction of the Paradise, traces of sinopia on the supporting wall and a surviving mosaic fragment indicate the original presence of a silver sky<sup>48</sup>, serving as a background to the effigy of a triumphant Christ (*figg. 12-13*)<sup>49</sup>. Although widely documented in medieval mosaics, especially in the Byzantine context, silver tiles were always employed in limited amounts, due to their being highly oxidizable and difficult to use<sup>50</sup>. If they were never entirely abandoned, it was because of the special aesthetic and symbolic value of silver in the Greek and eastern mosaic

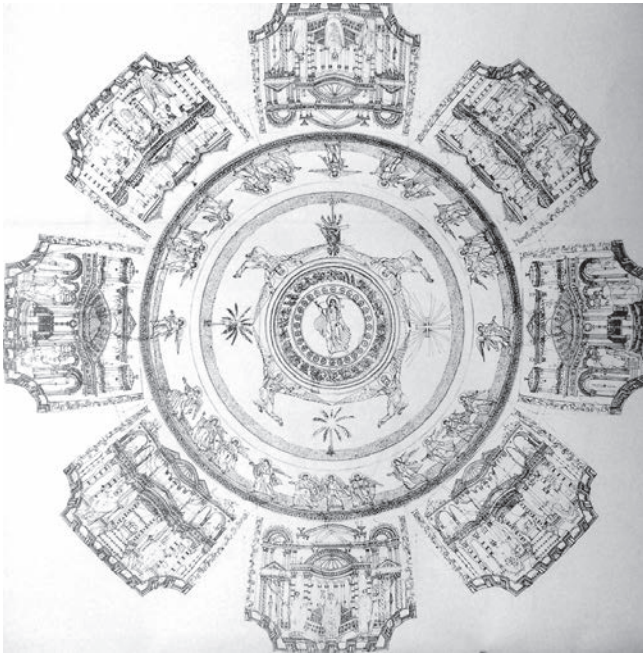


Fig. 12. Thessaloniki, St. George rotunda, graphic reconstruction of the cupola (SOTIRIOU 1982).



Fig. 13. Thessaloniki, St. George rotunda, cupola mosaic.

<sup>47</sup> On the mosaics of the cupola of the Thessaloniki *rotunda*, see this recent and exhaustive study: H. TORP, *La Rotonde Palatine à Thessalonique: architecture et mosaïques*, Athènes, 2018, I, pp. 143-388, II, esp. pp. 114-115 (fig. 1a-1b), p. 129 (fig. 3c), p. 173 (tab. XII), p. 177 (tab. XVII).

<sup>48</sup> On the presence of silver tiles in the mosaics of the Thessaloniki *rotunda* and in particular on the zenithal medallion, see C. BAKIRTIS, *Rotunda*, in *Mosaics of Thessaloniki: 4<sup>th</sup>-14<sup>th</sup> century*, Ch. BAKIRTZIS, E. KOURKOUTIDOU-NIKOLAIDOU, Ch. MAVROPOULOU-TSIOUMI (eds.), Athens, 2012, pp. 48-119 (p. 114); H. TORP, *La Rotonde Palatine... op. cit.*, I, pp. 357, 364-365, 410-411. On the use of silver tiles in medieval mosaics, see: P. J. NORDHAGEN, *Gli effetti prodotti dall'uso dell'oro, dell'argento e di altri materiali nell'arte musiva dell'alto Medio Evo*, in *Colloqui del Sodalizio*, 4, 1973/74, pp. 143-155, esp. p. 148; L. JAMES, *Mosaics in the Medieval World. From Late Antiquity to the Fifteenth Century*, 2017, New York, 2017, esp. pp. 84, 94.

<sup>49</sup> For a graphic reconstruction of the subject represented on the central medallion, now lost, see: H. TORP, *Mosaikkene i St. Georg-Rotunden i Thessaloniki*, Oslo, 1963, p. 12 and fig. on p. 37 (reprinted in IDEM, *La Rotonde Palatine... op. cit.*, II, p. 122, fig. 7); M. G. SOTIRIOU, *Sur quelques problèmes de l'iconographie de la coupole de Saint-Georges de Thessalonique*, in *Eis mnēmyn Panayōtis A. Michelis*, in *In memoriam Panayotis A. Michelis*, Αθήνα, 1972, pp. 218-230 (fig. 1).

<sup>50</sup> "Adhesion was a persistent problem with metallic tesserae, especially silver tesserae, since silver has a lower melting point than glass and so fusing the glass of the two layers was tricky. Losing the top layer (the cartellina) led in the case of silver to the exposed metal tarnishing and peeling off". L. JAMES, *Mosaics... op. cit.*, p. 36.





Fig. 14. Nicaea, Church of the Dormition, detail of the top of the apsal mosaic.

tradition: its intense, white-blue iridescent light was mostly used to represent the theophany making its entrance in the rarefied and unchanging atmosphere of the transcendence, which by contrast was represented by the warm gleam of gold<sup>51</sup>. Unsurprisingly, the shine of silver is associated with the Verb: “The words of the Lord are pure words, like silver refined in a furnace on the ground, purified seven times (Psalm 12,6)”<sup>52</sup>. According to Pseudo-Dionysius the Areopagite (5<sup>th</sup>-6<sup>th</sup> centuries), the two metals evoke the light of angels: gold “denotes the incorruptible”, while silvers refers to “spotless brilliancy”, and the union of the two produces the alloy known as *electron*<sup>53</sup>. For the Byzantine philosopher Proclus († 485), both gold and silver have astral origins: the former comes from the sun and the latter from the moon<sup>54</sup>. One century later, this theory was taken up by Olympiodorus the Younger (6<sup>th</sup> century), who argued: “and the moon is associated with silver, as silver, when placed next to gold, seems to receive light from it and gains in splendour, just like the moon takes light from the sun”<sup>55</sup>.

While silver took the shape of a luminous disk on top of the Thessaloniki *rotunda*, in the apsidal mosaic of the Church of the Dormition in Nicaea (7<sup>th</sup> century), now lost but documented in old black-and-white photographs, the precious metal was used in the beams of light radiating from the zenithal *Dextera Domini* through the blue rings of the empyrean down to the golden sky below (fig. 14)<sup>56</sup>. Silver light beams against a golden background are also present in the apsidal decoration of the Basilica of Saint Catherine on Mount Sinai (6<sup>th</sup> century)<sup>57</sup> and in the mosaics of the Daphni Katholikon (second half of the 11<sup>th</sup> century)<sup>58</sup>. Regarding the association of silver tiles with the medallion at the centre of the vault, the case of Thessaloniki is not unique: in the 12<sup>th</sup> century, similar solutions were adopted in the *Pentecost* and *Ascension* cupolas of the Basilica of St. Mark in Venice<sup>59</sup>.

Beside silver and gold, divine light was sometimes evoked in the decoration of cupolas through the iridescent light of the rainbow, as in the case of the above-mentioned Daphni mosaics, where the bust of the Pantocrator is

<sup>51</sup> On the juxtaposition of golden and silver tiles in Byzantine mosaics to create different lighting effects and on the greater intensity of the latter tiles, see: *Ibidem*, pp. 85-86.

<sup>52</sup> See M. R. MARCHIONIBUS, *I colori nell'arte sacra a Bisanzio*, in *Rivista di Studi Bizantini e Neoellenici*, 48, 2011, pp. 3-30, esp. pp. 29-30.

<sup>53</sup> “Electron, as being partly like gold, partly like silver, denotes the incorruptible, as in gold, and unexpended, and undiminished, and spotless brilliancy, and the brightness, as in silver, and a luminous and heavenly radiance”, PSEUDO-DIONYSIUS THE AREOPAGITE, *The Heavenly Hierarchy* (in PG, III, Paris, 1857, col. 355), transl. Rev. John Parker, chapter 5, section 7, Aetherna Press, 2015, p. 115.

<sup>54</sup> PROCLUS, *Commentarius in Platonis Timaeum graece*, 14, b, in C. E. Ch. SCHNEIDER (ed.), Bratislava, 1847, p. 30.

<sup>55</sup> OLYMPIODORUS, *Fourth Book of Aristotle's Meteorologica*, in C. VIANO (ed.), *La matière des choses: le Livre IV des Météorologiques d'Aristote et son interprétation par Olympiodore*, Paris, 2006, p. 168.

<sup>56</sup> The apse of the Church of the Dormition in Nicaea was destroyed along with the rest of the building in the fire of 1922, and there are no colour photographs of the zenithal mosaic. However, the use of blue and silver tiles to represent respectively the concentric skies of the empyrean and the light beams radiating from the right hand of God can be inferred from a black-and-white photograph (fig. 14) where the two motifs stand against the golden background of Heaven: T. SCHMIT, *Die Koimesis-Kirche von Nikaia: das Bauwerk und die Mosaiken*, Berlin, 1927, tab. XX (see also pp. 22, 31, 44, on the presence of silver tiles in the mosaics of the Church in Nicaea). For a detailed analysis of the lost mosaics of the church and its various construction stages, see P. A. UNDERWOOD, *The Evidence of Restorations in the Sanctuary Mosaics of the Church of the Dormition at Nicaea*, in *Dumbarton Oaks Papers*, 13, 1959, pp. 235-242.

<sup>57</sup> J. MIZIOLEK, *Transfiguratio Domini in the apse of Mount Sinai and the symbolism of light*, in *Journal of the Warburg and Courtauld Institutes*, 53, 1990, pp. 42-60, esp. pp. 43-44.

<sup>58</sup> In Daphni, silver tiles were used to represent the beams radiating from the *Christ of the Transfiguration* and the luminous wake of the Holy Ghost in the scene of the Baptism: E. DIEZ, O. DEMUS, *Byzantine Mosaics in Greece: Hosios Loukas and Daphni*, Cambridge [Mass.], 1931, pp. 37-76. On the Daphni mosaics, see most recently L. JAMES, *Mosaics... op. cit.*, pp. 339-344 (and bibliography in the notes). On the use of silver in the Daphni mosaics to evoke divine light: J. GAGE, *Colour and culture: practice and meaning from antiquity to abstraction*, London, 1993, pp. 58-61.

<sup>59</sup> O. DEMUS, *The mosaics of San Marco in Venice*, Chicago [u.a.], 1984, I, 1, pp. 148-159, 171-195, I, 2, figg. 158, 234-235, tabb. 4-5.





Fig. 15. Daphni Katholikon, cupola mosaic.

surrounded by a halo composed of a tessellation of multi-coloured glass tiles (fig. 15)<sup>60</sup>. A similar chromatic effect was

probably achieved in the central cupola of the Church of the Holy Apostles in Constantinople, now lost but commemorated in the verses of an *Ekphrasis* by Nikolaos Mesaritēs: “The lines [surrounding the Pantocrator] are not monochromatic, but gratify our perception and impress our minds with the variety of their colours, their gilding and brilliance. It is as if they emanated from the solar sphere when it is at the zenith, a sphere of iridescent light surrounding the *Sol Iustitiae*”<sup>61</sup>.

The cupola of the Florence Baptistery constitutes a special case: its *oculus*, as mentioned above, is real, but the physical light that descends through it becomes the figurative and gravitational centre of the surrounding mosaic (fig. 6). From an iconographic perspective, the protagonist of the long biblical narrative deployed across the eight segments of the vault is the Christ of the Last Judgment<sup>62</sup>. Due to the presence of the zenithal opening, however, the Messiah is placed at mid-height and not on top of the vault, contrary to traditional hierarchy. From a symbolic point of view, the whole narrative revolves around the octagon of zenithal light. The latter is not framed with the same narrative motifs found below, but with classical decorative patterns that appear to anticipate the themes of salvation: symmetrical couples of paradisiacal animals, candelabra, and heads enclosed into medallions like effigies on ancient medals<sup>63</sup>. Conceptually speaking, this aniconic and ornamental repertoire appears ideally suited to the descent of divine light into the temple.

<sup>60</sup> “Le médaillon du Christ, dessiné en damier, avec des tons rouges et verts, plus clairs vers le centre où de l’or brille, plus foncés vers les bords cernés de noir, imite, ainsi que le prescrira le Manuel [the Mount Athos Painter’s Guide of Dionysius of Fournia] ‘l’arc qui apparaît par les temps de la pluie’. A Saint-Marc, dans la coupole orientale, le même dessin et le même jeu de couleurs enferment un ciel étoilé. Enfin, à Kiev, le Pantocrator bénit au milieu de deux cercles concentriques irisés. Ces tons diaprés, autour du Pantocrator, symbolisent la pensée du verset biblique qui remplace, à la Palatine, sur le rebord du médaillon: ‘Le ciel est mon trône; la terre me sert d’escabeau’. Ils présentent l’image de l’arc en ciel et la coupole, dans laquelle ils brillent, figure le ciel lui-même”: G. MILLET, *Le monastère de Daphni: histoire, architecture, mosaïques*, Paris, 1899, p. 80.

<sup>61</sup> NIKOLAOS MESARITĒS, *Description of the Church of the Holy Apostles at Constantinople*, XIII, 9, G. DOWNEY, *Nikolas Mesarites: Description of the Church of the Holy Apostles at Constantinople*, in *Transactions of the American Philosophical Society*, 47, 6, 1957, pp. 855-924 (p. 869); the translation of the Greek text presented here is partly different from the one proposed by Glanville Downey.

<sup>62</sup> For an iconographic reading of the lavish mosaic on the cupola of the Florence baptistery, see: A. M. GIUSTI, *I mosaici della cupola*, in *Battistero di San Giovanni a Firenze*, A. PAOLUCCI (ed.), Modena, 1994, I, pp. 281-342, 473-475.

<sup>63</sup> *Ibidem*, p. 473.