



## Summary :

Byzantine glass findings originating from Constantinople have been detected, so far, in St Polyeuktos (Saraçhane) and in the monasteries of Pantokrator (Zeyrek Camii) and Chora (Kariye Camii). A large number of valuable enamel and glass-decorated objects, possibly from the Byzantine capital, can be seen in collections and museums all over the world. However, insufficient written evidence, as well as inadequate excavation findings, does not allow us to form a complete image on glass-working activities in Byzantine Constantinople.

## Date

Late Antiquity - 13<sup>th</sup> century

## Geographical Location

Istanbul

## 1. Written documentation

The term «yalopsos», a glassmaker, and the activities linked with it can be found already in early Byzantine codices and hagiological texts.<sup>1</sup> Later texts contain much less information, but they do confirm the existence of glass-making activity in Byzantine Constantinople.

The Theodosian Code (439) mentions glassmakers among the craftsmen that were granted tax-exemption,<sup>2</sup> while John Moschos<sup>3</sup> talks about the existence of [Jewish](#) glassmakers in Constantinople. Paul Silentiarios, a member of Justinian's court, in his *Ekphrasis on St Sophia*,<sup>4</sup> vividly describes the [polycandela](#), where the glass [ouriachoi](#) were placed. During this early period there are no specific references on glass-making workshops in the city. It is possible that these were not situated within the city, especially if the study of the architect Julian from the Palestinian city Askalon had been taken into account; written between 531 and 522, it mentions that the glassmakers' workshops should be situated outside the towns because of the danger of fire.<sup>5</sup>

Written sources on glass working in the Middle Byzantine period in Constantinople are scarce. The [Book of the Eparch](#) by Leo the Wise (912) does not mention a glassmakers' guild in the capital. However, there is evidence of glass production in Constantinople and of the existence of a workshop inside the city during the Byzantine Middle Ages in the *Miracles of St Foteini*. This text describes that a fire broke out in a glassmaking workshop (‘εργαστήριον υελοψεστικόν’), situated on the road leading from the Strategion to [St Sophia](#) ([fig. 1](#)), and that it also spread in the quarter of the coppersmiths.<sup>6</sup> The remaining surviving information comes from inventories, [typika](#) of monasteries and notary texts, which attest, among other things, to the existence of glass objects as part of the equipment of a monastery or a middle-class household.<sup>7</sup>

## 2. Evidence from excavations

### 2.1. Glass finds in St Polyeuktos (Saraçhane)

The church of [St Polyeuktos](#) was situated in one of the main roads of Constantinople, the [Mese](#), and was attached, according to archaeologists, to the palace of Anikia Juliana.<sup>8</sup> Excavations from Saraçhane, despite some chronological gaps, offer the most credible evidence concerning glass working activity in the Byzantine capital so far. Finds from the 6<sup>th</sup> and 7<sup>th</sup> centuries include mainly drinking vessels and lamps, but also glass fragments. Most glass objects belong to the 11<sup>th</sup>, 12<sup>th</sup> and 13<sup>th</sup> centuries and are, apart from the aforementioned objects, fragments of bracelets of several types.

Glass vessels dating in the 6<sup>th</sup> and 7<sup>th</sup> century mainly consist of wine glasses on a stem that leads to a disk-like base. They are simple, clear, without decorations and of a soft green or yellow colouring. This type of drinking vessel can also be found in the Aegean and the greater Mediterranean area; it is difficult, therefore, to securely assume that these glass objects were manufactured locally. Local



manufacture of glass can be verified by other significant finds, as far as quantity is concerned; these are oil lamps, and lamps with three handles.<sup>9</sup> Fragments of rectangular glass pieces in several pale yellow, olive green and light blue colourings can also be dated to the early Byzantine period. They have been constructed with the **cylinder method**, already known from Roman times.<sup>10</sup>

Only a fraction of the Middle Byzantine glass finds from St Polyeuktos can be securely dated to the period under study. It appears that the major vessels continue to be wine glasses and lamps; these look so similar, that it is difficult to distinguish between them. The main divergence from the previous period is the abandonment of the yellow colouring of vessels; this is also evident in middle Byzantine glass pieces. Among them, disc-shaped pieces can be dated with certainty and they are made with the mouth-blown glass discs technique.<sup>11</sup>

The remaining finds, even two enamel vessel fragments, are unique and cannot lead to any conclusions concerning the glass working activities in Constantinople during this period.

## 2.2. Pantokrator and Chora monasteries: stained glass windows

The excavations of the churches of **Pantokrator** (Zeyrek Camii) and **Chora** (Kariye Camii) in Constantinople brought to light coloured glass windows (vitraux), published by Arthur Megaw in 1963 ([fig. 2](#)).<sup>12</sup> The first group of these glass windows has been dated around 1126, while the second one ten to twenty years later.

Near the glass finds of the Pantocrator there were also lead plates, in the shape of an H, where the glass would be decorated with whole figures ([fig. 3](#)). Lead straps must have been used to hold the window panels with the glass boards together. These rectilinear glass fragments have been cast in disks and then cut in the required shapes. The finds in Chora that are similar to quantity and shape were accompanied by lead straps forming a frame with a geometrical theme.

Due to the iconographic programme of the glass windows and their colours, and due to the inscriptions accompanying them, Megaw assumed that the technique for making stained glass was a Byzantine invention that later spread to the West.<sup>13</sup> Jean Lafond disputed this opinion, arguing that the West influenced Byzantium, during the period of the **Latin occupation of Constantinople** (1204-1261).<sup>14</sup>

Apart from the fact that the Constantinopolitan finds are placed to an earlier date, recent chemical analysis proved that western European cathedrals were decorated with stained glass windows of a different artistic tradition.<sup>15</sup> What is more, glass fragments of several shapes and colours in the extramural basilica in Philippi, dated to the period of **Justinian** (second phase), and lead bands that were found during the excavation of the Museum basilica<sup>16</sup> in the same city offer further evidence on the early presence of stained-glass technique in the Greek world.

## 3. Byzantine glass objects in collections and museums

### 3.1. Minor-glass working

Nothing is known of the conditions of minor-glass production in Constantinople; however, it should be mentioned that a large number of glass jewellery, amulets, σταθμίων and **cloisonné enamels**, has been found that could be attributed to the imperial workshops. Today they are scattered in collections and museums all over the world. A significant example comes from a pair of bracelets, ornamented with valuable stones and glass ([fig. 4a](#)); these probably derive from the capital, as they resemble the wristlets worn by Theodora's servants in the mosaic of St Vitale in Ravenna ([fig. 4b](#)).<sup>17</sup> Frescoes and mosaics in general, as well as manuscript details, often depict lavish examples of clothing, but also of books and sacred objects, thus informing us of additional uses of glass in their decoration.<sup>18</sup>

### 3.2. The Treasury of San Marco in Venice



The collection of treasures in the San Marco Treasury includes, among other things, a series of luxurious vessels, thought to be part of the spoils of the Crusaders, brought from Constantinople after [1204](#). The most renowned among them, the cup of San Marco ([fig. 5](#)) bears gold decorations and clear coloured enamel. It is dated to the period of the [Macedonian dynasty](#), because of the archaic motifs in its decorations and the [pseudo-Kufic](#) characters inscribed on it.<sup>19</sup>

#### 4. Glass tesserae

Glass tesserae were probably produced in mass quantities and in several places. Constantinople must have evolved into an importance location of coloured tesserae production, since mosaic decoration was the most wide-spread type of decoration in churches and palaces. There is, in fact, an account of an Arabian prince, who requested from the Byzantine emperor tesserae for the decoration of his new palace.<sup>20</sup>

#### 5. Evaluation

Our information on glass-working in Byzantine Constantinople is too fragmented and unclear to answer questions about production and distribution of Constantinopolitan products and about Constantinople's presence within the glass-making activity of the period. Excavations have not yet confirmed the existence of a glass-making workshop in Constantinople. On the contrary, other areas, such as Corinth and [Sardis](#), have shown clear evidence of Byzantine workshops and mass production of glass objects.<sup>21</sup> Therefore, we could suppose that Constantinople was not a very significant production centre for glass objects. It is possible that its production was just enough to cover the city's needs; glass was imported as feedstock and glass-workers processed it. Besides, recycled use of glass trimmings was a common practice of glass-workers in every period.<sup>22</sup> The shipwreck of Serçe Limani opposite [Rhodes](#) has brought to light 3 tonnes of glass, ready to be processed. It had been loaded in Syria and, according to the latest studies, was on its way towards a Byzantine centre.<sup>23</sup> Why not Constantinople?

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1. Hagiological texts often refer to everyday events, as they made their claims appear more truthful.

2. *Codex Theodosius XIII.4.2*: François, V. – Spieser, J. M., "Η κεραμική και το γυαλί στο Βυζάντιο", in Λαΐου, Α. (ed.), *Οικονομική Ιστορία του Βυζαντίου Β'* (Αθήνα 2006), p. 316. The Theodosian Code contained all the imperial decrees from 312 onwards and was the main means of administering justice; it was put into effect on January 439.

3. John Moschos, a 6th-century monk, travelled all around the Byzantine territories, accompanied by one of his pupils; his aim was to record all the religious communities, monasteries and churches, as well as the miracles he would witness. On his reference to glassmakers see Kazhdan, A. P. (ed.), *Oxford Dictionary of Byzantium* 2 (Oxford 1991), p. 853.

4. Paul Silentiarius, *Description of Hagia Sophia*, verses 823-6, in Crowfoot, G. M. – Harden, D. B., "Early Byzantine and Later Glass Lamps", *The Journal of Egyptian Archaeology* 17 (3,4) (1931), p. 200, note. 4. The *Description of Hagia Sophia* is a poem of 900 lines, whose composition was assigned to Paul Silentiarios by Justinian on the occasion of the second anniversary of the church.

5. Mango, M. M., "The Commercial Map of Constantinople", *Dumbarton Oaks Papers* 54 (2000), p. 191. The most recent publication on Julian's study is that by Hakim, B. S., "Julian of Askalon's Treatise of Construction and Design Rules from Sixth-Century Palestine", *Journal for the Society of Architectural Historians* 60:1 (2001), pp. 4-25.

6. Halkin, F. (ed.), *Hagiographica inedita decem* (Turnhout 1989), ch. 9, 111-125, and Mango, M.M., "The Commercial Map of Constantinople", *Dumbarton Oaks Papers* 54 (2000), p. 202, note 119.

7. Oikonomides, N., "The Contents of the Byzantine House from the Eleventh to the Fifteenth Century", *Dumbarton Oaks Papers* 44 (1990), pp. 206, 208, 211, 212 (notes 51, 54).



8. Harrison, R. M., "The Church of St. Polyeuktos", in Harrison, R. M. (ed.), *Excavations at Saraçhane in Istanbul I: The Excavations, Structures, Architectural Decoration, Small Finds, Coins, Bones and Molluscs* (Princeton 1986), p. 405.
9. Hayes, J. W., *Excavations at Saraçhane in Istanbul II: The Pottery* (Princeton 1992), p. 400. For the distribution of the finds on an archaeological plan see pp. 406-409.
10. Κουρκουτίδου-Νικολαΐδου, Ε., "Υαλοπίνακες και Υαλοστάσια στο Βυζάντιο", in Κόρδας, Γ. – Αντωνάρας, Α. (ed.), *Ιστορία και Τεχνολογία Αρχαίου Γυαλιού* (Αθήνα 2002), p. 122.
11. Hayes, J. W., *Excavations at Sarachane in Istanbul II: The pottery* (Princeton 1992), σελ. 401, and Harrison, R. M. – Gill, M. V., "The Window Glass", in Harrison, R. M. (ed.), *Excavations at Sarachane in Istanbul I: The excavations, structures, architectural decoration, small finds, coins, bones and molluscs* (Princeton 1986), pp. 204-205.
12. For a more detailed description of these sheet glasses see Megaw, A. H. S., "Notes on Recent Work of the Byzantine Institute in Istanbul", *Dumbarton Oaks Papers* 17 (1963), pp. 348-367.
13. Megaw, A. H. S., "Notes on Recent Work of the Byzantine Institute in Istanbul", *Dumbarton Oaks Papers* 17 (1963), pp. 362-364.
14. Lafond, J. "Découverte de vitraux historiés du Moyen Age à Constantinople", *Cahiers Archéologiques* 18 (1968), pp. 231-237.
15. On the results from the chemical analysis and the relevant discussion see Henderson, J. – Mango, M. M., "Glass at Medieval Constantinople. Preliminary Scientific Evidence", στο Mango, C. – Dagron, G. (eds), *Constantinople and its Hinterland. Papers from the 27th Symposium of Byzantine Studies held in Oxford, April 1993* (Society for the Promotion of Byzantine Studies 3, Cambridge 1995), pp. 352-354.
16. Κουρκουτίδου-Νικολαΐδου, Ε., "Υαλοπίνακες και Υαλοστάσια στο Βυζάντιο", in Κόρδας, Γ. – Αντωνάρας, Α. (επιμ.), *Ιστορία και Τεχνολογία Αρχαίου Γυαλιού* (Αθήνα 2002), pp. 124-125.
17. Brown, K. R., "The Mosaics of San Vitale: Evidence for the Attribution of Some Early Byzantine Jewelry to Court Workshops", *Gesta* 18:1 (1979), p. 58.
18. See Evans, H. (ed.), *The Glory of Byzantium: Art and Culture of the Middle Byzantine Era, A.D. 843-1261. Catalogue Accompanying an Exhibition at the Metropolitan Museum of Art, March 11 - July 6, 1997*, and Evans, H. (ed.), *The Arts of Byzantium* (The Metropolitan Museum of Art 2001).
19. Αντωνάρας, Α., "Εισαγωγή στην ιστορία του Βυζαντινού Γυαλιού", in Κόρδας, Γ. – Αντωνάρας, Α. (ed.), *Ιστορία και Τεχνολογία Αρχαίου Γυαλιού* (Αθήνα 2002), p. 184; François, V. – Spieser, J. M., "Η κεραμική και το γυαλί στο Βυζάντιο", in Λαΐου, Α. (ed.), *Οικονομική Ιστορία του Βυζαντίου Β'* (Αθήνα 2006), p. 319.
20. Dalton, O. M., *East Christian Art. A Survey of the Monuments* (Oxford 1925), p. 348.
21. von Saldern, A., *Ancient and Byzantine Glass from Sardis* (Archaeological Exploration of Sardis Monograph, Harvard 1980), pp. 98-102; Davidson, G. R., *Corinth XII: The Minor Objects* (Princeton 1952), pp. 107-122.
22. Foy, D., *Le verre Médiéval et son artisanat en France méditerranéenne* (Paris 1989), pp. 39-40.
23. von Doorninck, F. H. , "The Serçe Limani Shipwreck: An 11th Century Cargo of Fatimid Glassware Cullet for Byzantine Glassmakers", in *First Anatolian Glass Symposium 26th-27th April 1988* (Istanbul 1990), pp. 58-63.

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## Glossary :

- cloisonné enamel**  
Powdered frit placed in between empty spaces created by a thin metal wire that follows the shape of a preconsidered pattern. After being heated, this enamelled glass could intensify the colours of the depicted design.
- cylinder method**  
A method of glass-making. Molten glass is blown into a mould is worked upon in order to take cylindrical shape. After cooling, the glass cylinder is cut along with heated knife and put into the furnace again, where it splits.
- ouriachos**  
A conical vigil oil candle.
- polycandelon**  
The polycandelon used a varying number of small glass bowls or cones in a metal frame. Hanging by chains, it illuminated churches and rich houses.
- pseudo-Kufic**  
A decoration motif which imitates the arabic writing, especially its angular form (Kufic).
- typikon**  
Foundation document of a monastery compiling the rules regarding its administrative organization and liturgic rituals, as well as the comportment inside a cenobitic monastery.  
The monastic typika could also include the biography (vita) of the monastery founder along with a catalogue of the movable or immovable property of the monastery. They constitute an important source for the study of the monastic life, while at the same time they shed light on many aspects of the Byzantine society.  
The liturgical typika were calendars with instructions for each day's services, liturgical books with rules arranging the celebration rituals.

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