

# STAROKRŠĆANSKE STAKLENE SVJETILJKE

## EARLY CHRISTIAN GLASS LAMPS

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### KLJUČNE RIJEČI:

starokršćanske staklene svjetiljke, držači fitilja, polikandila, monokandila

Staklene svjetiljke važan su dio materijalne kulture starokršćanskih lokaliteta. Predstavljaju gotovo neizostavan dio liturgijskog namještaja crkvenih prostora od druge polovice 4. stoljeća o čijoj važnosti svjedoče brojni tekstovi i likovni prikazi. Osim oko crkvenih objekata, svjetiljke su čest nalaz i na nekropolama, gdje su osim funkcionalnog mogle imati i simbolički karakter. Unutar istraživanja javljaju se različiti oblici koji se mogu podijeliti u pet osnovnih oblika: svjetiljke u obliku šalice/zdjelice (Uboldi I), konične svjetiljke (Uboldi II), svjetiljke koje završavaju dnom s ispupčenjem (Uboldi III), svjetiljke u obliku lijevka (Uboldi IV) te svjetiljke u obliku kaleža (Uboldi V), uglavnom datiranih od kraja 4. do 8. stoljeća. Staklene svjetiljke sastojale su se od staklenog recipijenta punjenog vodom i slojem ulja na kojem je mogao plutati fitilj. U odnosu na glinene i metalne uljanice, staklene su predstavljale znatan napredak jer su s istom količinom ulja omogućavale dvostruko više svjetla. Rezultat je to prozirnih stjenki kroz koje se sjaj plamena lako širio. Paralelno s širenjem uporabe staklenih svjetiljki razvijaju se i dijelovi koji su zajedno sa staklenim recipijentima činili dio rasvjetnog uređaja. Osim staklenih dijelova, elementi rasvjetnog uređaja bili su i držači fitilja te metalni elementi (monokandila i polikandila) koji su omogućavali vješanje svjetiljki.

### KEY WORDS:

Early Christian glass lamps, wick holders, polycandela, monocandela

Glass lamps are important element of Early Christian material culture. They are almost inevitable part of liturgical furnishings of church interiors from the second half of the fourth century onwards. Their significance is attested by numerous historical sources and visual depictions. They are common find in the churches and necropolae where they can have symbolic meaning also. Their typology can be divided into five basic forms: cup/bowls (Uboldi I), conical lamps (Uboldi II), lamps with base knob (Uboldi III), funnel-shaped lamps (Uboldi IV), chalice-shaped lamps (Uboldi V), mostly dated from the end of the 4th century to the 8th century. Glass lamps consisted of glass vessels filled with water and oil layer with a floating wick which could be made of flax or cotton fibres or obtained from some other plant fibres. They represented a technological advancement in comparison to clay and metal oil lamps since oil and water, together with transparent vessel, enabled much stronger light with the same amount of oil used. In addition to glass parts, elements of lighting device also comprised wick holders and metal elements (monocandela and polycandela) that enabled suspension of lamps.

## UVOD

Staklene svjetiljke jedna su od najvažnijih karakteristika materijalne kulture kasne antike. Korištene su za osvjetljavanje javnih i privatnih prostora od zapadnog do istočnog Mediterana i u njegovu zaleđu od 4. do 8. stoljeća, a pojedini oblici će se uz određene modifikacije rabiti tijekom dužeg perioda. Širenjem uporabe staklenih svjetiljki krajem 4. stoljeća dolazi do znatnih promjena u načinu osvjetljavanja. Bile su tehnološki napredak jer su ulje i voda s prozirnim recipijentom omogućavali bitno jače svjetlo od glinenih i metalnih uljanica. Razvojem tehnike slobodnog puhanja staklo postaje jeftinije te se počinje sve češće upotrebljavati i u svakodnevnom životu.<sup>1</sup> Tako dolazi do razvoja staklenih svjetiljki, a time i ostalih dijelova koji su omogućavali njihovo funkcioniranje.<sup>2</sup> Staklene svjetiljke, kao takve, važne su u arheološkom kontekstu jer su jedan od najčešćih staklenih nalaza unutar starokršćanskih objekata. One su u crkvama, uz prozorsko staklo, gotovo jedini stakleni materijal.<sup>3</sup>

Tekstovi kršćanskih autora prvi donose podatke o različitim oblicima rasvjete osvrćući se često na simboličku ulogu svjetlosti. Staklene svjetiljke bile su dio liturgijskog namještaja velikih bazilika i manjih crkava, a uključivale su veliki broj elemenata za osvjetljenje. Pisane dokaze o njihovoj upotrebi donose brojni povijesni izvori od kojih su u ovom slučaju najvažniji popisi crkvenih inventara i djela crkvenih otaca.<sup>4</sup>

Neiscrpan izvor informacija, *Liber Pontificalis*, donosi podatke o nazivima lusteri, svjetiljki i svijećnjaka, o njihovoj hijerarhiji unutar crkvenog prostora i donacijama zaslužnim za njihovu opskrbu. Lusteri i svjetiljke od pleme-

<sup>1</sup> M. UBOLDI, 1995, 94; M. TOPIĆ, 1999, 96.

<sup>2</sup> Ovaj rad temelji se na diplomskom radu *Starokršćanske staklene svjetiljke* autorice Petre Nikolić. Rad pod mentorstvom doc. dr. sc. Josipe Barake Perice obranjen je 28. veljače 2018. na Odjelu za arheologiju Sveučilišta u Zadru.

<sup>3</sup> M. UBOLDI, 1995, 95.

<sup>4</sup> P. CHEVALIER, 1999, 162-165.

## INTRODUCTION

Glass lamps are one of the most important characteristics of the material culture of Late Antiquity. They were used for lighting public and private spaces from the western to eastern Mediterranean and its hinterland from the 4th to the 8th century, and some forms remained in use, with certain modifications, for a longer period. Lighting concepts changed significantly after the spread of use of glass lamps by the end of the 4th century. They represented a technological advancement since oil and water together with transparent vessel enabled much stronger light in comparison to clay and metal oil lamps. Owing to development of free blowing technique glass became cheaper and its use in everyday life became common.<sup>1</sup> That was the beginning of the development of glass lamps, and consequently other parts that enabled their functioning.<sup>2</sup> Glass lamps as such are important in archaeological context since they represent one of the most frequent glass finds in the Early Christian structures. They are almost only glass objects in churches in addition to windowpanes.<sup>3</sup>

Christian authors were the first to write about different lighting forms often paying attention to symbolical meaning of light. Glass lamps were a part of liturgical furnishings in big basilicas and small churches, and they included a number of lighting elements. Written evidence on their use is found in many historical sources, in this case the most important being the church inventory records and the works of the church fathers.<sup>4</sup>

*Liber Pontificalis* as an inexhaustible source of information offers data on names of chandeliers, lamps and candle holders, their hierar-

<sup>1</sup> M. UBOLDI, 1995, 94; M. TOPIĆ, 1999, 96.

<sup>2</sup> This paper is based on the graduation thesis *Early Christian glass lamps* by the author Petra Nikolić. The thesis under the mentorship of Josipa Baraka Perica, PhD, assistant professor, was defended on February 28, 2018, at the Department of Archaeology of the University of Zadar.

<sup>3</sup> M. UBOLDI, 1995, 95.

<sup>4</sup> P. CHEVALIER, 1999, 162-165.

nitih metala ili mjedi bili su jedan od najčešćih elemenata crkvenog namještaja koji su osvjetljavali ne samo prostore oltara u crkvama nego i baptisterije i kripte.<sup>5</sup>

Osim činjenice da su lusteri od plemenitih metala ili brončani elementi monokandila bili skupi, održavanje tih rasvjetnih tijela i njihova opskrba uljem također je zahtijevala velika sredstva koja su u velikom broju slučajeva omogućavali vjernici svojim donacijama. Za ovakve informacije posebice su dragocjene oporuke vjernika što upućuje na očito veliku važnost osvjetljavanja unutar crkava. U testamentu iz Bologne, datiranom u drugu polovicu 6. stoljeća doznajemo o donaciji sto zlatnih solidusa za osvjetljenje *svih svetih crkava Božjih* na otoku Mljetu. Također se spominje sto zlatnih solidusa namijenjenih, između ostalog, i za održavanje svjetiljki *svetih crkava* na prostoru oko Salone.<sup>6</sup> U apostolskim kanonima se čak vjernicima zabranjuje da krađu ulje ili vosak iz crkava što svjedoči kako korištenje uljanica nije mogao svatko priuštiti.<sup>7</sup>

Rasvjetne uređaje spominju još i Pavao Silencijar (*De Ceremoniis*<sup>8</sup>), Prudencije (*Cahtemerimon V*) te sv. Paulin iz Nole (*Carmina natalica, VII*).<sup>9</sup>

Osim u pisanim povijesnim izvorima, o uporabi ove vrste osvjetljenja doznajemo i s mozaika unutar starokršćanskih crkava, a najstarije potvrde uključuju mozaike crkve sv. Jurja (Galerijeva rotunda) u Solunu te mozaici u trijumfalnom luku u crkvi sv. Marije Velike u Rimu (Sl. 1).<sup>10</sup>

Najraniji oblici staklenih svjetiljki bile su zdjele s ravnim dnom i trima ručkama pomoću kojih su se mogle vješati. Širenjem uporabe staklenih svjetiljki krajem 4. stoljeća počinju se razvijati i raznovrsni oblici. Staklene svjetiljke sastojale su se od staklenog recipijenta

chy in the church space and donations used for their supply. Chandeliers and lamps made of precious metals or brass were one of the most common elements of the church furniture that lighted not only altar spaces in churches but also baptisteries and crypts.<sup>5</sup>

Except for the fact that chandeliers made of precious metals or bronze elements of monocandela were expensive, maintenance of these lighting devices and their supply with oil was also costly and usually funded by believers' donations. Wills of believers are especially important with regard to information of this type suggesting evidently big importance of lighting the church interiors. In the testament from Bologna, dated to the second half of the 6th century, we learn about a donation of a hundred gold solidi intended for lighting *all holy churches of God* on the island of Mljet. A hundred golden solidi are also mentioned that were intended, among other things, for maintenance of lamps of *holy churches* in the Salona region.<sup>6</sup> The Apostolic Canons prohibited believers from stealing oil or wax from churches testifying to the fact that use of oil lamps was not widely affordable.<sup>7</sup>

Lighting devices are also mentioned by Paul de Silentiary (*De Ceremoniis*<sup>8</sup>), Prudentius (*Cahtemerimon V*) and Saint Paulinus of Nola (*Carmina natalica, VII*).<sup>9</sup>

In addition to written historical sources, the use of this kind of lighting can also be found in mosaics in the early Christian churches, and the oldest confirmations include the mosaics of the church of Saint George (Rotunda of Galerius) in Thessaloniki and the mosaics of the triumphal arch in the church of Santa Maria Maggiore in Rome (Fig. 1).<sup>10</sup>

The earliest forms of glass lamps were bowls with flat base and three handles for suspen-

<sup>5</sup> P. CHEVALIER, 1999, 162.

<sup>6</sup> G. MARINI, 1805, 121.

<sup>7</sup> P. CHEVALIER, 1999, 162-165.

<sup>8</sup> Za engleski prijevod vidi: W. R. LETHABY, H. SWAINSON, 1984, 35 i d.

<sup>9</sup> M. UBOLDI, 1995, 94.

<sup>10</sup> M. UBOLDI, 1995, 95.

<sup>5</sup> P. CHEVALIER, 1999, 162.

<sup>6</sup> G. MARINI, 1805, 121.

<sup>7</sup> P. CHEVALIER, 1999, 162-165.

<sup>8</sup> For English translation see: W. R. LETHABY, H. SWAINSON, 1984, 35ff.

<sup>9</sup> M. UBOLDI, 1995, 94.

<sup>10</sup> M. UBOLDI, 1995, 95.



SLIKA 1. Mozaik na trijumfalnom luku crkve sv. Marije Velike, Rim, detalj s prikazom monokandila (preuzeto iz V. JOVIĆ GAZIĆ, B. ŠTEFANEC, 2018, 33).

FIGURE 1 Mosaic of the triumphal arch in the church of Santa Maria Maggiore in Rome, detail with a depiction of a monocandela (after V. JOVIĆ GAZIĆ, B. ŠTEFANEC, 2018, 33).

različitih oblika koji se punio vodom i slojem ulja na kojem je mogao plutati fitilj. Fitilj je mogao biti od lanenog ili pamučnog vlakna ili dobiven iz nekih drugih biljnih vlakana. Fitilj je mogao plutati na površini tekućine, biti pričvršćen na komad pluta ili drva ili poduprt držačima fitilja različitih oblika i materijala.<sup>11</sup> Dok su se metalne i glinene svjetiljke cijele punile uljem, staklene svjetiljke bile su punjene vodom na kojoj je plutao sloj ulja. Osim što je ovaj način bio ekonomičniji, davao je i bolje rezultate u osvjetljavanju jer je omogućavao duplo jače svjetlo.<sup>12</sup> Staklene svjetiljke su, za razliku od prethodnih rasvjetnih uređaja, duže gorjele te nisu stvarale sjene, tako da je osvjetljenje površine bilo kvalitetnije. Istraživanja pokazuju kako je efikasnost osvjetljavanja ovisila o faktorima poput: količine vode, oblika recipijenta te visine na kojoj su svjetiljke bile

various forms started to develop with the expansion of the use of glass lamps at the end of the 4th century. Glass lamps consisted of glass vessels in various shapes filled with water and oil layer with a floating wick which could be made of flax or cotton fibres or obtained from some other plant fibres. The wick could float on the surface of the liquid, be attached to a piece of cork or wood, or supported by wick holders made of different materials and in various shapes.<sup>11</sup> While metal and clay lamps were filled with oil, glass lamps were filled with water with oil layer floating on top. Furthermore, this method was more economical and gave better lighting results because it provided twice as much light.<sup>12</sup> Glass lamps, unlike the clay lamps, had longer burning time and did not create shadows, so the surface brightness was higher. Studies show that the efficiency of lighting depended on factors

<sup>11</sup> M. UBOLDI, 1995, 93.

<sup>12</sup> E. M. STERN, 1999, 479-480.

<sup>11</sup> M. UBOLDI, 1995, 93.

<sup>12</sup> E. M. STERN, 1999, 479-480.

postavljene.<sup>13</sup>

Još jedan od važnih faktora kod kvalitete osvjetljavanja jest i korištena vrsta ulja. Primjerice, ricinusovo ulje, koje spominje već Plinije Stariji kao izrazito korisno u osvjetljavanju,<sup>14</sup> pokazalo je bolje rezultate od maslinova ulja.<sup>15</sup> *Liber Pontificalis* spominje čestu uporabu nardova ulja, *oleum nardium pisticum*,<sup>16</sup> dok nalazi svjetiljki s tragovima ulja u Francuskoj svjedoče o uporabi orahova ulja te životinjske masti na tom području u srednjem vijeku.<sup>17</sup>

Svijeće se u ovom periodu nisu upotrebljavale u tolikom opsegu jer su bile skupe, a njihova će se uporaba raširiti tek u 7. stoljeću.<sup>18</sup>

Svjetiljke su se mogle rabiti kao samostalni rasvjetni uređaji, kada je oblik svjetiljke imao stabilno dno, a mogle su i biti dio metalnih uređaja polikandila i monokandila. Metalni uređaji služili su za vješanje jedne svjetiljke (monokandila) ili većeg broja uljanica (polikandila).

Hodočasnica Egerija pri posjetu Svetoj zemlji 380. godine spominje važnu simboličku i praktičnu ulogu koju igraju svjetiljke u liturgiji u Jeruzalemu, osobito tijekom slavlja Uskrsa.<sup>19</sup> Svjetiljke su se, osim u praktične svrhe osvjetljavanja crkava noću, rabile i simbolički.<sup>20</sup> Svjetlost je predstavljala definiciju, aklamaciju i simbol božanstvenosti.<sup>21</sup> Pozicija svjetiljki unutar crkvene arhitekture služila je za naglašavanje oltara ili grobova mučenika, kao suprotnost ostalom, mračnom dijelu građevine, ali i za osvjetljavanje ikona ili prolaza u bazilikama što još uvijek možemo vidjeti u nekim pravoslavnim crkvenim građevinama. Da bi se postigla maksimalna osvjetljenost, uljanice su se vješale pred oltarom ili pod krovom ciborija

such as the amount of water, the vessel shape and the height at which lamps were placed.<sup>13</sup>

Another important factor related to the quality of illumination was the type of oil used. For example, castor oil, which is mentioned by Pliny the Elder as exceptionally useful in lighting,<sup>14</sup> has shown better results than olive oil.<sup>15</sup> *Liber Pontificalis* mentions the frequent use of nard oil, *oleum nardium pisticum*,<sup>16</sup> while the finds of lamps from France with traces of oil testify to use of walnut oil and animal fat in that region in the Middle Ages.<sup>17</sup>

The candles were not used that much in this period because they were expensive, and their use will expand only in the 7th century.<sup>18</sup>

The lamps could be used as freestanding lighting devices when they had a stable base or they could have been a part of the metal devices called polycandelon and monocandelon. These metal devices were used to hang a single lamp (monocandelon) or a number of oil lamps (polycandelon).

Pilgrim Egeria, while visiting the Holy Land in the year 380, mentioned an important symbolic and practical role of the liturgical lamps in Jerusalem, especially during the Easter celebration.<sup>19</sup> In addition to the practical purposes of illuminating churches at night, the lamps also had a symbolical function.<sup>20</sup> Light was the definition, acclamation, and symbol of divinity.<sup>21</sup> The position of lamps within church architecture was used to emphasize altars or graves of martyrs, as opposed to the other, darker part of the building, as well as to illuminate icons or passages in the basilicas, which is still the case in some Orthodox churches. To achieve maximum illumination,

<sup>13</sup> D. MOULLOU et al., 2012, 110.

<sup>14</sup> Plinije Stariji, *Historia Naturalis* 15.7., Za engleski prijevod vidi: J. BOSTOCK et al., 1855, knjiga 15, poglavlje 7.

<sup>15</sup> E. M. STERN, 1999, 479.

<sup>16</sup> M. UBOLDI, 1995, 93–94.

<sup>17</sup> D. FOY, G. SENNEQUIRE, 1989, 343–344.

<sup>18</sup> T. MILAVEC, 2017, 199–200.

<sup>19</sup> Usp. A. MCGOWAN, P. F. BRADSHAW, 2018, 115.

<sup>20</sup> LEKSIKON, 2000, 589.

<sup>21</sup> M. XANTHOPOULOU, 2010, 70.

<sup>13</sup> D. MOULLOU et al., 2012, 110.

<sup>14</sup> Pliny the Elder, *Historia Naturalis* 15.7., for English translation see: J. BOSTOCK et al., 1855, book 15, chapter 7.

<sup>15</sup> E. M. STERN, 1999, 479.

<sup>16</sup> M. UBOLDI, 1995, 93–94.

<sup>17</sup> D. FOY, G. SENNEQUIRE, 1989, 343–344.

<sup>18</sup> T. MILAVEC, 2017, 199–200.

<sup>19</sup> Cf. A. MCGOWAN, P. F. BRADSHAW, 2018, 115.

<sup>20</sup> LEKSIKON, 2000, 589.

<sup>21</sup> M. XANTHOPOULOU, 2010, 70.

(obično bi se stavljao jedan u sredini i četiri na lukovima ciborija), porticima atrija, prolazima arkada, a oltar je obično bio flankiran velikim oltarnim svijećnjacima.<sup>22</sup>

Prvi su se proučavanjem pozicija svjetiljki unutar crkve bavili D. Keller i J. Lindblom koji su se uhvatili ukoštac s poznatim izvorima i ustanovili kako su polikandila vjerojatno korištena za osvjetljavanje broda crkve, a monokandila, s ručkama za vješanje, za osvjetljavanje oltara, baptisterija ili grobova mučenika, ali i kao „vječno svjetlo“.<sup>23</sup> Tina Milavec s druge strane, proučavajući podatke o crkvama u jugoistočnim Alpama, dolazi do zaključka da su svjetiljke pretežito pronađene u prezbiteriju građevine, a rijetko u brodu. Slična situacija je i s prozorskim staklom iz čega zaključuje da je taj dio crkve, koji je bio osvjetljen prirodnim svjetlom, bio dodatno naglašen umjetnim, čime je kreiran kontrast između prostora oko oltara i ostatka crkve.<sup>24</sup>

Zanimljiva situacija javlja se u samostanskom kompleksu u Jabal Harunu blizu Petre u Jordanu.<sup>25</sup> Naime, ulomci staklenih svjetiljki, zajedno s drugim ulomcima stakla pronađeni su na mjestima koja su imala funkciju odlagališta, dok je vrlo mali broj ulomaka pronađen na prostoru same bazilike. Moguće je pretpostaviti da su pri promjeni namještaja u crkvi uklonjene sve svjetiljke i zakopane u otpadnoj jami. Ulomci pronađeni unutar bazilike zajedno s držačima fitilja također su pronađeni na području apsida i u pastoforijama te u kapeli i to razrađeniji lusteri i veće pojedinačne svjetiljke, ali i sobama i hodnicima samostanskog kompleksa za koje su korišteni uobičajeni lusteri te manje pojedinačne svjetiljke za osvjetljavanje.<sup>26</sup>

Brojni ulomci svjetiljki pronađeni su pri istraživanju nekropola. Međutim, u većini slučajeva podaci s istraživanja ne dopuštaju

oil lamps were hanging in front of the altar or under the roof of ciborium (one was usually placed in the middle and four in the ciborium arches), atrium porticoes, arcade passages, and the altar was usually flanked with large altar candle holders.<sup>22</sup>

D. Keller and J. Lindblom were the first scholars to study the position of the lamps inside the church. They analyzed familiar sources and found that polycandela were probably used to illuminate the church nave, and the monocandela, with handles for hanging, for illuminating altars, baptisteries, or graves of martyrs and as “eternal light”.<sup>23</sup> T. Milavec, on the other hand, studying the information about the churches in the southeastern Alps concluded that the lamps were mostly found in the building presbytery, and only rarely in the nave. Situation is similar with the window glass. Therefore, the author concluded that this part of the church, which was illuminated by natural light and additionally accentuated by artificial light, created a contrast between the space around the altar and the rest of the church.<sup>24</sup>

An interesting situation can be found in the monastery complex at Jabal Harun near Petra in Jordan.<sup>25</sup> Namely, fragments of glass lamps, together with other glass fragments, were found at sites that functioned as landfill, while a very small number of fragments were found in the basilica itself. We can assume that all the lamps were removed and buried in the waste pit when the furniture in the church was changed. Fragments found inside the basilica along with the wick holders were also found in the area of the apse and pastophoria, and in the chapel; those were more elaborate chandeliers and larger single lamps. Same finds were also recovered from the rooms and halls of the monastery complex where usual chandeliers and smaller individual lamps were used for

<sup>22</sup> LEKSIKON, 2000, 588.

<sup>23</sup> D. KELLER, 2010, 266–268.

<sup>24</sup> T. MILAVEC, 2017, 211.

<sup>25</sup> Za više informacija vidi: J. LINDBLOM, 2005, 207.

<sup>26</sup> J. LINDBLOM, 2005, 208–209.

<sup>22</sup> LEKSIKON, 2000, 588.

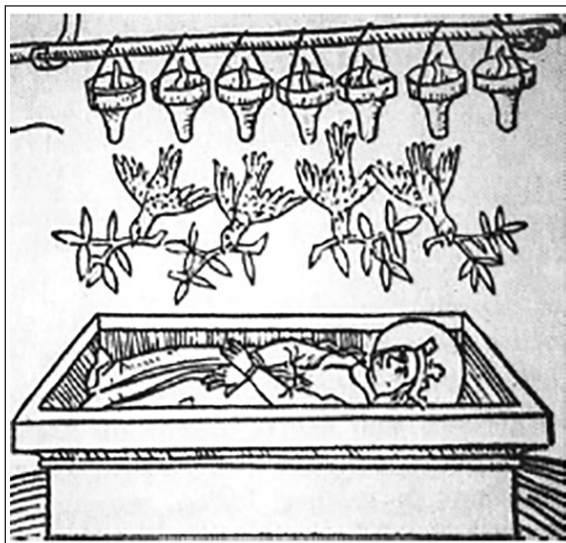
<sup>23</sup> D. KELLER, 2010, 266–268.

<sup>24</sup> T. MILAVEC, 2017, 211.

<sup>25</sup> For more information see: J. LINDBLOM, 2005, 207.

interpretaciju specifične upotrebe svjetiljki. Dakle, ne možemo sa sigurnošću tvrditi jesu li bile korištene kao zavjetni predmeti, kao oznaka grobova, ili su pak ti dijelovi jednostavno ostatci iz građevina u blizini nekropola.<sup>27</sup>

Svjetlost je igrala važnu ulogu i u funeralnim ceremonijama. Svjetiljke su neprekidno gorjele tijekom različitih rituala funeralne ili memorijske službe, ali su bile i obješene iznad grobova svetaca i mučenika (Sl. 2).<sup>28</sup> U bizantskim izvorima spominje se posebni svećenik *ecclesiarch*<sup>29</sup> čija je glavna zadaća danonoćna briga o svjetiljkama iznad grobova svetaca i mučenika. Ovi su svećenici bili zaduženi i za brigu o grobnim kapelama osnivača samostana, kako klerika, tako i laika.<sup>30</sup> Iz izvora doznajemo kako je svećenik koji je vodio brigu o grobnoj kapeli sv. Sabe, utemeljitelja glasovitog samostana Mar Saba 478. godine, bio zadužen osim za brigu o mijenjaju ulja i fitilja svjetiljki i za izvođenje memorijske službe.<sup>31</sup>



SLIKA 2. Grob sv. Katarine, drvorez; prikaz svjetiljki koje su se vješale iznad grobova mučenika (preuzeto iz R. STUPPERICH, 2009, 23).

FIGURE 2 Tomb of St. Catherine, woodcut; depiction of the lamps hung above martyrs' graves (after R. STUPPERICH, 2009, 23).

<sup>27</sup> M. UBOLDI, 1995, 96.

<sup>28</sup> D. KOTOULA, 2013, 185–188.

<sup>29</sup> *Pantokrator Typikon*, 81, redovi 874–878.

<sup>30</sup> D. KOTOULA, 2013, 188.

<sup>31</sup> *BMAD*, 2000, 1311–1318.

lighting.<sup>26</sup>

Numerous lamp fragments were found in the excavations of necropoles. However in most cases research information does not allow interpretation of the specific use of lamps meaning that we cannot state with certainty if they were used as votive objects, grave marks, or they are simply remains from the buildings in the vicinity of the necropoles.<sup>27</sup>

Lighting played an important role in funerary ceremonies. Lamps were constantly burning during various rituals of funerary or memorial services, but they were also hung above the graves of saints and martyrs (Fig. 2).<sup>28</sup> In the Byzantine sources, a special priest called *ecclesiarch*<sup>29</sup> is mentioned whose main task was to take care of the lamps above the graves of saints and martyrs. These priests were also in charge of the grave chapels of the monastery founders, both clerics and laymen.<sup>30</sup> We can read in the sources that the priest who maintained the grave chapel of St Saba, the founder of the famous Saba Monastery in 478, was in charge of changing oil and wick in lamps, but he also performed memorial service.<sup>31</sup>

Miraculous properties were ascribed to lamp oils from famous sanctuaries.<sup>32</sup> For instance, oil from lamps above the grave of St Menas was used for healing and to help women with infertility, but it was also sold as a pilgrims' souvenir.<sup>33</sup> Presence and independence of a monastery community depended on the cult of a martyr, as practice founded in the first years of Christianity.<sup>34</sup>

An interesting local find was recovered from the islet of Majsan where hundreds of fragments of bases of glass chalices were found

<sup>26</sup> J. LINDBLOM, 2005, 208–209.

<sup>27</sup> M. UBOLDI, 1995, 96.

<sup>28</sup> D. KOTOULA, 2013, 185–188.

<sup>29</sup> *Pantokrator Typikon*, 81, lines 874–878.

<sup>30</sup> D. KOTOULA, 2013, 188.

<sup>31</sup> *BMAD*, 1311–1318.

<sup>32</sup> For more information see: M. XANTHOPOULOU, 2010, 65–70.

<sup>33</sup> D. MONTERRAT, 1995, 438.

<sup>34</sup> D. KOTUOLA, 2013, 188.

Uljima svjetiljki u poznatim svetištima pripisivala su se čudesna svojstva.<sup>32</sup> Tako se ulje svjetiljki iznad groba sv. Mene rabilo u ljevakovite svrhe i služilo za pomoć ženama kod neplodnosti, ali se prodavalo i kao suvenir za hodočasnike.<sup>33</sup> O kultu mučenika, praksi utemeljenoj tijekom prvih godina kršćanstva, često je ovisilo postojanje, ponekad čak i samostalnost samostanske zajednice.<sup>34</sup>

Zanimljiv podatak s našeg područja jest nalaz s otočića Majsana gdje su uz memoriju i okolne prostorije pronađene stotine ulomaka postolja staklenih kaleža.<sup>35</sup> Smatram kako ovdje postoji mogućnost da je riječ o uljanicama koje su bile vješane iznad groba mučenika upravo zbog konteksta i brojnosti nalaza.

Još jedna od mogućih funkcija jest korištenje prigodom funeralnih banketa. Kao potvrda ovoj interpretaciji može poslužiti staklena građa s nekropole Cornus na Sardiniji gdje su se staklene svjetiljke u nekim slučajevima nalazile zajedno sa stolnom i kuhinjskom keramikom i ostacima životinjskih kostiju.<sup>36</sup> Među materijalom s ove nekropole fragmenti koničnih svjetiljki mogli su imati funkciju oznake na grobu.<sup>37</sup>

## TIPOLOGIJA STAKLENIH SVJETILJKI I ELEMENTI RASVJETNOG UREĐAJA

Cjeloviti primjeri svjetiljki vrlo se rijetko pronađu tijekom arheoloških istraživanja. Posljedica toga su poteškoće u razlikovanju svjetiljki od ostalog staklenog materijala. Osim toga, problem je i što se jednaki oblici posuda upotrebljavaju za različite funkcije. Oblici se vrlo malo razlikuju (vrsta stakla, obrada oboda, oblik ručke), tako da je vrlo teško identi-

next to *memoria* and adjoining rooms.<sup>35</sup> I believe that these might be oil lamps hung above the martyr's grave exactly because of the context and multitude of finds.

Another possible function is their use in funerary banquets. Confirmation of this interpretation can be found in glass material from Cornus necropolis in Sardinia where glass lamps were found, in certain cases, with tableware, kitchenware and animal bone remains.<sup>36</sup> Fragments of conical lamps from this necropolis could have functioned as grave marks.<sup>37</sup>

## TIPOLOGY OF GLASS LAMPS AND ELEMENTS OF LIGHTING DEVICE

Complete examples of lamps are rarely found in the archaeological excavations. Therefore it is difficult to differentiate glass lamps from other glass finds. Furthermore the problem is that identical forms of vessels are used for different functions. Forms differ only slightly (glass type, rim modelling, handle shape), so it is very difficult to identify lamps if we only have tiny glass fragments.<sup>38</sup>

On the basis of current state of research, it is difficult to set typology based on morphological characteristics since these objects were used in Late Antiquity, and then with few variations throughout the Middle Ages. Therefore most typologies were based on stratigraphic situation during the excavations. Production technique of glass lamps is very simple so it is likely that their function was purely practical as opposed to chandeliers that also had an artistic function.<sup>39</sup>

One of the oldest typologies of glass lamps was made by G. M. Crowfoot and D. B. Harden on the basis of finds from the site of Karanis

<sup>32</sup> Za više informacija vidi: M. XANTHOPOULOU, 2010, 65–70.

<sup>33</sup> D. MONTSERRAT, 1995, 438.

<sup>34</sup> D. KOTUOLA, 2013, 188.

<sup>35</sup> C. FISKOVIĆ, 1983, 77.

<sup>36</sup> D. STIAFFINI, 1985, 55–63.

<sup>37</sup> M. UBOLDI, 1995, 96–97.

<sup>35</sup> C. FISKOVIĆ, 1983, 77.

<sup>36</sup> D. STIAFFINI, 1985, 55–63.

<sup>37</sup> M. UBOLDI, 1995, 96–97.

<sup>38</sup> M. UBOLDI, 1995, 100–103.

<sup>39</sup> M. UBOLDI, 1995, 103–104.



ficirati svjetiljke kada smo suočeni sa sitnim ulomcima stakla.<sup>38</sup>

Prema trenutnom stanju istraživanja, postavljeni tipologiju na temelju morfoloških značajki vrlo je teško jer je riječ o predmetima koji se rabe u kasnoj antici, a zatim s vrlo malo varijacija tijekom cijelog srednjeg vijeka. Iz toga razloga, većina je tipologija postavljena na temelju stratigrafske situacije tijekom iskopavanja. Tehnika proizvodnje staklenih svjetiljki je vrlo jednostavna pa je vjerojatno kako je njihova funkcija bila čisto praktična za razliku od lusteri koji su imali i umjetničku funkciju.<sup>39</sup>

Jednu od najstarijih tipologija staklenih svjetiljki izradili su G. M. Crowfoot i D. B. Harden na temelju nalaza s lokaliteta Karanis u Egiptu. Njihova tipologija dijeli svjetiljke u pet skupina. Prvoj skupini pripadaju konične svjetiljke i forme koje su iz njih razvijene, a datirane su u razdoblje od 4. do 6. stoljeća. Drugoj skupini pripadaju svjetiljke u obliku polukružne zdjele i forme koje su se iz njih razvile, trećoj skupini svjetiljke u obliku šalice/zdjelice i forme razvijene iz njih. U četvrtoj su grupi svjetiljke tipa pehara, a petoj skupini pripadaju tzv. svjetiljke koje su služile kao svijetljaci, međutim, one ne pridaju staklenim svjetiljkama.<sup>40</sup>

Od ostalih autora koji su se bavili tipologijom staklenih svjetiljki svakako treba spomenuti D. Foy,<sup>41</sup> koja daje tipologiju na temelju nalaza s prostora sjeverne Francuske, A. Turno na temelju nalaza s lokaliteta Novae u Bugarskoj<sup>42</sup> te A. von Salderna za nalaze s lokaliteta *Sardis*.<sup>43</sup>

Ovaj rad oslanja se na tipologiju M. Uboldi koja se sastoji od pet glavnih oblika svjetiljki sa svojim podtipovima. Postavljena je na temelju nalaza s prostora cijele Italije zbog čega joj dajem prednost u odnosu na druge tipologije

in Egypt. Their typology divides lamps into five groups. The first group comprises conical lamps and derived forms, dating to the period from the 4th to 6th century. The second group includes lamps in shape of a hemispherical bowl and derived forms. Lamps in shape of a cup/small bowl and derived forms constitute the third group. Chalice-shaped lamps are in the fourth group, and so-called lamps used as candle holders constitute the fifth group, but they do not belong to glass lamps.<sup>40</sup>

Out of other authors dealing with typology of glass lamps, D. Foy<sup>41</sup> should definitely be mentioned, offering typology on the basis of finds from northern France, as well as A. Turno for the finds from the site of Novae in Bulgaria,<sup>42</sup> and A. von Saldern for the finds from the site of *Sardis*.<sup>43</sup>

This paper uses typology by M. Uboldi that consists of five main lamp types with additional subtypes. It was conceived on the basis of finds from entire Italy which is why I prefer it to other typologies which are usually based on finds from individual sites.

## UBOLDI TYPE 0 / BOWL LAMPS

Uboldi's typology starts with hemispherical shallow bowls, with flat base and curved walls, type Isings 116 (Fig. 3). They are included in the typology, but marked with 0 because it is not certain that they were used as glass lamps.<sup>44</sup> This vessel form was widely used in western and eastern Europe in the second half of the 4th and early 5th century.<sup>45</sup> Although uncertain about its function, Crowfoot and Harden also introduced this type in their typology under group 2 because these lamps are very similar, both in technique and decoration, to lamps recovered in Karanis which made them

<sup>38</sup> M. UBOLDI, 1995, 100–103.

<sup>39</sup> M. UBOLDI, 1995, 103–104.

<sup>40</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 196–208.

<sup>41</sup> D. FOY, 1995, 187–242.

<sup>42</sup> A. TURNO, 1989, 163–170.

<sup>43</sup> A. VON SALDERN, 1980, 38–60.

<sup>40</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 196–208.

<sup>41</sup> D. FOY, 1995, 187–242.

<sup>42</sup> A. TURNO, 1989, 163–170.

<sup>43</sup> A. VON SALDERN, 1980, 38–60.

<sup>44</sup> M. UBOLDI, 1995, 104.

<sup>45</sup> C. ISINGS, 1957, 143–147.

koje se najčešće temelje na nalazima s pojedinačnih lokaliteta.

### UBOLDI TIP 0/SVJETILJKE U OBLIKU ZDJELE

Uboldi započinje tipologiju polukružnim plitkim zdjelama, ravnog dna i zakrivljenih stjenki, tipa Isings 116 (Sl. 3). Uvrštava ih u tipologiju, međutim, označava ih nulom zato što dvoji jesu li ove posude zaista služile kao staklene svjetiljke.<sup>44</sup> Ovaj oblik posuda je u drugoj polovici 4. i početkom 5. stoljeća u zapadnoj i istočnoj Europi bio široko rasprostranjen.<sup>45</sup> Crowfoot i Harden su također u svojoj klasifikaciji uveli ovaj tip pod skupinu 2 premda ni oni nisu bili sigurni u njegovu funkciju. Uvrstili su ovaj oblik u tipologiju jer jako sličice, tehnikom i dekoracijom, svjetiljkama pronađenim u Karanisu zbog čega su pretpostavili da su mogle imati funkciju svjetiljki. Ne postoje ni pisani ni slikani izvori koji bi potkrijepili ovu tvrdnju. Ono što ne ide u prilog interpretaciji posuda kao uljanica jest činjenica kako bi u tom slučaju kod ovih posuda postojala kontinuirana opasnost od prolijevanja jer je posuda zbog nedostatka težine u donjem dijelu bila nestabilna. Također, ako je unutar njih korištena druga posuda s uljem i fitiljem, opet postoji problem nestabilnosti posude i time mogućnost izlivanja ulja.<sup>46</sup> Usprkos navedenom, ne treba odbaciti mogućnost da su posude takve vrste mogle poslužiti kao svjetiljke.

Opisani primjerci su plitke zdjele, a smatram kako bi se ovoj skupini mogle pripisati i zdjele dublje varijante s izvijenim obodom, tipa Isings 96, koje su mnogo zastupljenije i koje su pojedini autori interpretirali kao posude koje su služile kao svjetiljke.<sup>47</sup> A. C. Antonaras spominje ih među nalazima s prostora Soluna među kojima su zastupljeni primjerci s ručkama i bez ručki. Prema tome, vjerojatno su bile

assume they might have functioned as lamps. This thesis is confirmed neither in written sources nor in painting. The interpretation is contested by the fact that there was a constant danger of spilling as the vessel was unstable due to insufficient weight in the lower part. Furthermore, even if another vessel with oil and wick was used inside of them, this does not eliminate the problem of instability and possible oil spilling.<sup>46</sup> Despite all the aforementioned, it is still possible that this type of vessels might have been used as lamps.

Described examples are shallow bowls, and I believe that deeper bowl with an everted rim (type Isings 96) could also be ascribed to this group. They are far more numerous and they have already been interpreted as vessels used as lamps by certain authors.<sup>47</sup> A. C. Antonaras mentions them among finds from Thessaloniki where examples with and without handles were recorded. Accordingly they were probably hung inside of monocandelon or polycandelon.<sup>48</sup> One of the most famous examples of this vessel type is a complete vessel, exhibiting quite elaborate craftsmanship, inserted in the monocandelon kept in the Corning Museum of Glass (Corning, NY) (Fig. 4).<sup>49</sup>

### UBOLDI TYPE I / LAMPS

Lamps in shape of a cup/small bowl, type Isings 134, mostly have curved walls with thickened, everted rim and concave base.<sup>50</sup> On most examples three small bent handles were applied under the rim or in the middle of the body. Applied handles suggest that this type might have been used as a freestanding lamp or a lamp inserted in polycandelon or monocandelon. Uboldi divided this type into five subtypes with minor variations in vessel shape and number and shape of the handles (Fig.

<sup>44</sup> M. UBOLDI, 1995, 104.

<sup>45</sup> C. ISINGS, 1957, 143–147.

<sup>46</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 200.

<sup>47</sup> A. VON SALDERN, 1980, 45–46.

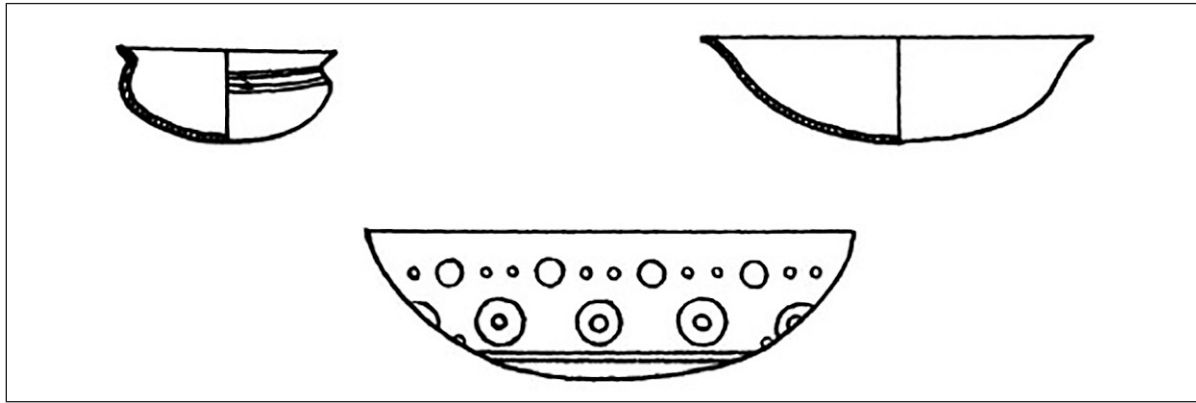
<sup>46</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 200.

<sup>47</sup> A. VON SALDERN, 1980, 45–46.

<sup>48</sup> A. C. ANTONARAS, 2006, 25.

<sup>49</sup> D. WHITEHOUSE, 1997, 192.

<sup>50</sup> C. ISINGS, 1957, 162.



SLIKA 3. Svjetiljke tipa zdjele (preuzeto iz G. M. CROWFOOT, D. B. HARDEN, 1931, pl. XXIX).

FIGURE 3 Bowl lampss (after G. M. CROWFOOT, D. B. HARDEN, 1931, pl. XXIX).

vješane ili unutar monokandila ili unutar polikandila.<sup>48</sup> Jedan od najpoznatijih primjeraka ovakvog tipa posude je cjeloviti primjerak, poprilično raskošne izvedbe, umetnut unutar monokandila koji se čuva u *Corning Museum of Glass* (Corning, NY) (Sl. 4).<sup>49</sup>



SLIKA 4. Svjetiljka tipa polukružne zdjele iz *Corning Museum of Glass* (preuzeto iz D. WHITEHOUSE, 1997, 192).

FIGURE 4 Hemispherical lamp from the *Corning Museum of Glass* (after D. WHITEHOUSE, 1997, 192).

#### UBOLDI TIP I/SVJETILJKE U OBLIKU ŠALICE/ZDJELICE

Svjetiljke tipa šalice/zdjelice, oblika Isings 134, uglavnom su zakošenih stjenki sa za-

5). It is assumed that their provenance can be found in the Near East at the end of the 4th century.<sup>51</sup> In the remaining parts of the Mediterranean they are dated mostly to the same period. In Gerasa they are dated to the late 4th and the 5th century,<sup>52</sup> and in Italy from the second half of the 4th and early 5th century until the 7th century,<sup>53</sup> in Bulgaria also to the 4th and 5th centuries.<sup>54</sup> Examples from Bosnia and Herzegovina are also corresponding in terms of dating.<sup>55</sup> Ivo Fadić states that in Croatia they can be dated without particular context to the time span from the late 4th to 6th century.<sup>56</sup>

#### UBOLDI TYPE II / CONICAL LAMPS

Conical lamps are found across the Roman Empire and they are usually dated from the 4th to 6th century. This is one of the simplest types of glassware. We could say that they are, in a certain way, a prototype of other late antique forms related to sacral buildings. Paul de Silentiary in his hymn of praise of the magnificence of reopened Hagia Sophia in Constantinople during Justinian in the year 563, offers an extensive description of the entire church

<sup>48</sup> A. C. ANTONARAS, 2008, 25.

<sup>49</sup> D. WHITEHOUSE, 1997, 192.

<sup>51</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 205.

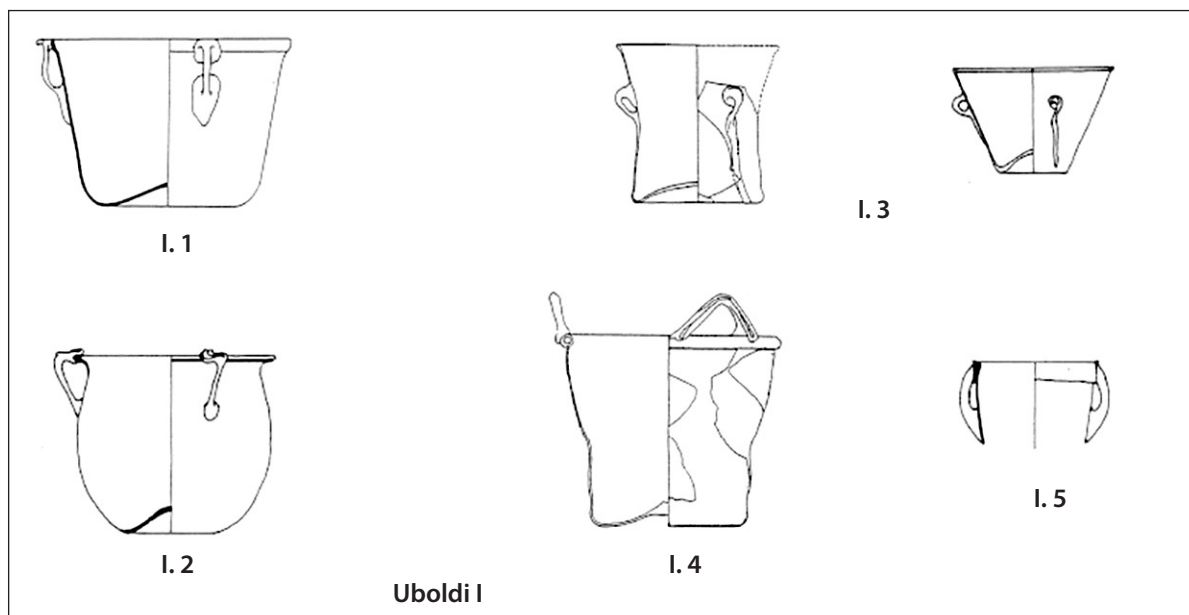
<sup>52</sup> C. ISINGS, 1957, 162.

<sup>53</sup> S. H. AUTH, 1976, 151.

<sup>54</sup> A. TURNO, 1989, 167.

<sup>55</sup> I. MARIJANOVIĆ, 1990, 109.

<sup>56</sup> I. FADIĆ, 1994, 225-226.



SLIKA 5. Svjetiljke u obliku šalice/zdjelice, Uboldi tip I (preuzeto iz M. UBOLDI, 1995, 106–111).

FIGURE 5 Lamps in shape of a cup/small bowl, Uboldi type I (after M. UBOLDI, 1995, 106-111).

debljanim izvijenim obodom i konkavnim dnom.<sup>50</sup> Kod većine primjeraka ispod oboda ili na sredini tijela aplicirane su tri male koljenaste ručke. Aplicirane ručke upućuju na to da je ovaj tip mogao služiti ili kao slobodnostojeća svjetiljka ili kao svjetiljka umetnuta unutar polikandila ili monokandila. Uboldi je ovaj oblik podijelila u pet podtipova s manjim varijacijama u obliku posude te broju i obliku ručki (Sl. 5). Pretpostavlja se da podrijetlo vuku s Bliskog istoka s kraja 4. stoljeća.<sup>51</sup> U ostalim dijelovima Sredozemlja se također datiraju otprilike u isto vrijeme. U Gerasi se datiraju na kraj 4. i u 5. stoljeće,<sup>52</sup> u Italiji su datirane od druge polovice 4. i početka 5. stoljeća sve do 7. stoljeća,<sup>53</sup> u Bugarskoj također u 4. i 5. stoljeće,<sup>54</sup> a vremenski se podudaraju i primjerci iz Bosne i Hercegovine.<sup>55</sup> Ivo Fadić navodi da ih se i u Hrvatskoj bez posebnog konteksta nalaza može datirati od kraja 4. do 6. stoljeća.<sup>56</sup>

and its furniture.<sup>57</sup> As for the lighting, he mentions long chains hanging from a high cornice and holding a circular form with suspended perforated silver discs for inserting glass lamps. His description of lamps indicates that these were exactly conical lamps. Oil lamps of this type might have been used inside polycandelson or individually hung on chains, as monocandelson. In the 6th century this form was adapted by adding a vertical tube for wick.<sup>58</sup>

Several examples of conical lamps recovered from the site of Karanis contained traces of oil and soot suggesting they were used as lamps. These examples could have been placed in wooden holders in shape of tripods, of the type found in Karanis,<sup>59</sup> used either as lamps or beakers for drinking. The 4th century mosaic from the Hammat synagogue in Tiberias also testifies to their use as lamps depicting seven conical lamps on menorah branches (Fig. 6).<sup>60</sup> A proof that they were used as beakers for drinking is found in an inscription *accipe*

<sup>50</sup> C. ISINGS, 1957, 162.

<sup>51</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 205.

<sup>52</sup> C. ISINGS, 1957, 162.

<sup>53</sup> S. H. AUTH, 1976, 151.

<sup>54</sup> A. TURNO, 1989, 167.

<sup>55</sup> I. MARIJANOVIĆ, 1990, 109.

<sup>56</sup> I. FADIĆ, 1994, 225–226.

<sup>57</sup> Cf. W. R. LETHABY, H. SWAINSON, 1894.

<sup>58</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 200-202.

<sup>59</sup> E. MAGUIRE, H. MAGUIRE, M. J. DUNCAN-FLOWRES, 1989, 62.

<sup>60</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 200-202; *ANCIENT GLASS*, 1998, 24.

## UBOLDI TIP II/KONIČNE SVJETILJKE

Konične svjetiljke pronalaze se diljem Rimskog Carstva i uobičajeno se datiraju od 4. do 6. stoljeća. Ovaj tip svjetiljki jedan je od najjednostavnijih tipova staklenog posuda. Moglo bi se reći da su one, na neki način, prototip ostalim kasnoantičkim oblicima koji su povezani sa sakralnim objektima. Pavao Silencijar u svojoj odi za ponovno otvaranje Sv. Sofije u Konstantinopolu za vrijeme Justinijana 563. godine, daje opširan opis cijele crkve i njezina namještaja.<sup>57</sup> Kod osvjetljenja spominje dugačke lance koji su visjeli iz visokog vijenca i podržavali veliku kružnu formu iz koje su bili obješeni perforirani srebrni diskovi u koje su se umetale staklene svjetiljke. Prema opisu svjetiljki koji donosi smatra se da je najvjerojatnije riječ upravo o koničnim svjetilkama. Uljanice ovoga tipa također su se mogle rabiti ili unutar polikandila ili pojedinačno vješane pomoću lanca, odnosno kao monokandila. U 6. stoljeću dolazi do adaptacije ovog oblika time što mu se dodaje vertikalna cijev za držanje fitilja.<sup>58</sup>

Nekoliko primjeraka koničnih svjetiljki pronađenih na lokalitetu Karanis sadržavalo je tragove ulja i mrlje čađe koji upućuju na njihovu uporabu kao svjetiljki. Ovi primjeri su vjerojatno mogli biti postavljeni u drvene stative u obliku tronošca kakvi su pronađeni u Karanisu,<sup>59</sup> bilo da su se upotrebljavale kao svjetiljke ili kao čaše za piće. Mozaik iz 4. stoljeća iz sinagoge Hammat u Tiberiasu također svjedoči o njihovoj uporabi kao svjetiljki prikazujući sedam koničnih svjetiljki na granama menore (Sl. 6).<sup>60</sup>

Dokaz kako su korištene kao čaše za piće jest natpis *accipe calice pie zes* ugraviran oko

*calice pie zes* around the rim on the find from Vojvodina, but also in the depictions from the 4th century tombs in Thessaloniki and Osenovo near Varna, as well as in glass plaques from Beit She'arim in Israel that bear incised depictions of conical beakers used by the Jews in the water blessing ceremony.<sup>61</sup> Another interesting interpretation of the function of the conical type, incited by the discovery from Karanis, is that they were used in games.<sup>62</sup> Namely, four gaming dice were found in one of conical vessels so it is possible they were used for games at one point.<sup>63</sup> Uboldi classified conical lamps into three subtypes. They are all basically of the same form, differing only in base modelling. Lamps of type II.1 have flat bottom that makes an almost stable base, type II.2 has pointed or thickened base while type II.3 has a bottom that consists of unevenly modelled base applied on a finished vessel (Fig. 7).<sup>64</sup>

## UBOLDI TYPE III / LAMPS WITH BASE KNOB

Unfortunately lamps with base knob are usually evidenced only by fragments that relate to the lower part of the vessel. Uboldi distinguishes two types of late antique lamps with this kind of base. The first one, that has a rather big knob, is earlier. It is referred to as a lamp with a button-shaped ending in the literature. The second, later form has much smaller knob, and a drop-shaped ending, thence the name. Modelling of the base suggests that both types were almost definitely used for inserting into polycandelon or for individual suspension. Knob on the base can be flattened, but it is never a stable base for a lamp enabling its unsupported standing on the surface.<sup>65</sup>

<sup>57</sup> Usp. W. R. LETHABY, H. SWAINSON, 1894.

<sup>58</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 200–202.

<sup>59</sup> E. MAGUIRE, H. MAGUIRE, M. J. DUNCAN-FLOWRES, 1989, 62.

<sup>60</sup> G. M. CROWFOOT, D. B. HARDEN, 1931, 200–202; *ANCIENT GLASS*, 1998, 24.

<sup>61</sup> A. MINČEV, P. GEORGIEV, 1981, 11–12; V. SARANOVIĆ-SVETEK, 1986, 6; V. SARANOVIĆ-SVETEK, 1986, 61; D. PAPANICOLA BAKIRTZI, 2002, 532–533.

<sup>62</sup> D. B. HARDEN, 1936, 155.

<sup>63</sup> A. C. ANTONARAS, 2006, 23–24.

<sup>64</sup> M. UBOLDI, 1995, 115.

<sup>65</sup> T. MILAVEC, 2012, 98.



SLIKA 6. Mozaik sinagoge Hammat u Tiberiasu (preuzeto iz ANCIENT GLASS, 1998, 24).

FIGURE 6 Mosaic from the Hammat synagogue in Tiberias (after ANCIENT GLASS, 1998, 24).

oboda na nalazu iz Vojvodine, ali i prikazi u grobnicama iz 4. stoljeća u Solunu i Osenovu blizu Varne te na staklenim pločama iz Beth She'arima u Izraelu koje imaju urezane prikaze koničnih čaša kojima su se židovi koristili u ritualu blagoslivljanja vode.<sup>61</sup> Još jedna zanimljiva interpretacija funkcije koničnog tipa, potaknuta otkrićem iz Karanisa, jest da su služile u igrama.<sup>62</sup> Naime, četiri kocke za igru pronađene su unutar jedne od koničnih posuda tako je moguće da su u jednom trenutku poslužile i u tu svrhu.<sup>63</sup> Konične svjetiljke Uboldi je podijelila u tri podtipa. Sva tri tipa u osnovi su istog oblika, ali se razlikuju po obliku dna. Svjetiljke tipa II.1 imaju ravno dno koje tvori gotovo stabilnu bazu, tipa II.2 imaju šiljasto ili zadebljano dno dok tip II.3 ima bazu koja se sastoji od neravnomjerno oblikovanog dna nanesenog na već gotovu posudu (Sl. 7).<sup>64</sup>

The first type with a knob is known as Uboldi type III.1, dated to the 5th century (Fig. 8).<sup>66</sup> They are quite similar to the conical examples of type Uboldi type II.3, however they can be distinguished from parts of the previous group on the basis of a more rounded and wider body in the lower part. Another recognizable element is manner of modeling, knob as a base was not added separately, but it is a part of the lamp body, while it was subsequently added on the conical ones.<sup>67</sup> A complete example was found in Obrenovac<sup>68</sup> in Serbia that is ascribed to another variant (with drop-shaped ending) by some authors (Fig. 9).<sup>69</sup> However on the basis of study of the material I believe it is more likely that this is the type with button-shaped ending as knob is more massive on this specimen than on forms with drop-shaped ending.

The second type of lamp has a cylindrical body with a drop-shaped ending (Uboldi III.2), and

<sup>61</sup> A. MINČEV, P. GEORGIEV, 1981, 11–12; V. SARANOVIĆ-SVETEK, 1986, 6; V. SARANOVIĆ-SVETEK, 1986, 61; D. PAPANICOLA BAKIRTZI, 2002, 532–533.

<sup>62</sup> D.B. HARDEN, 1936, 155.

<sup>63</sup> A. C. ANTONARAS, 2008, 23–24.

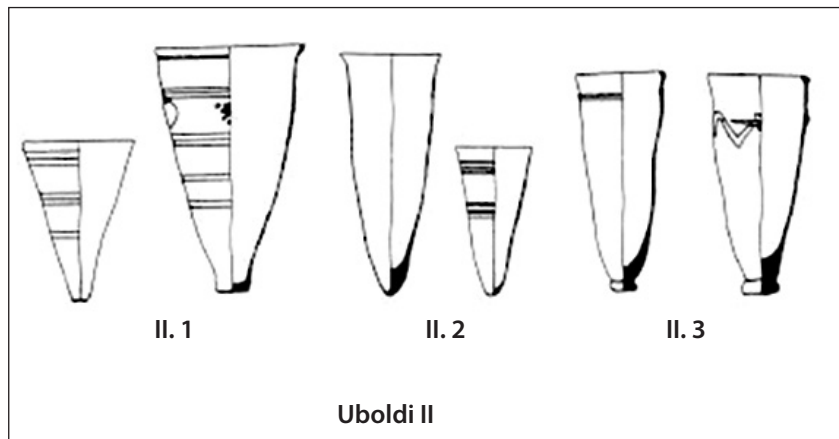
<sup>64</sup> M. UBOLDI, 1995, 115.

<sup>66</sup> M. UBOLDI, 1995, 116–119.

<sup>67</sup> M. UBOLDI, 1995, 116–117.

<sup>68</sup> Cf. M. RUŽIĆ, 1994.

<sup>69</sup> T. MILAVEC, 2012, 99.



SLIKA 7. Konične svjetiljke, Uboldi tip II (preuzeto iz M. UBOLDI, 1995, 111).  
FIGURE 7 Conical lamps, Uboldi type II (after M. UBOLDI, 1995, 111).

### UBOLDI TIP III/SVJETILJKE S DNOM KOJE ZAVRŠAVA ISPUPČENJEM

Nažalost, svjetiljke s dnom koje završava ispupčenjem potvrđuju u većini slučajeva samo fragmenti koji se odnose na donji dio posude. Uboldi izdvaja dvije vrste kasnoantičkih svjetiljki s ovakvim dnom. Prva ima dosta veliko ispupčenje i datira se ranije, a u literaturi se javlja pod nazivom svjetiljka sa završetkom u obliku gumba. Drugi oblik ima mnogo manje ispupčenje, javlja se kasnije te ima kapljicastr završetak po kojem je i dobio ime. Oba su se tipa, zbog načina na koje je oblikovano dno, gotovo sigurno rabila za umetanje u polikandila ili za pojedinačno vješanje. Ispupčenje na dnu ponekad može biti lagano spljošteno, ali nikada ne čini stabilnu bazu kako bi svjetiljka mogla samostalno stajati na površini bez potpore.<sup>65</sup>

Prvi oblik s gumbom poznat je kao tip Uboldi III.1 i datira se u 5. stoljeće (Sl. 8).<sup>66</sup> Dosta su slične koničnim primjercima Uboldi II.3 tipa, međutim, možemo ih razlikovati od dijelova prethodne skupine na temelju toga što je kod ovih sa završetkom u obliku gumba tijelo mnogo zaobljenije i šire u donjem dijelu od koničnih. Još jedan prepoznatljiv element je način izrade, gumb kao dno nije dodan zasebno, već je dio tijela svjetiljke, dok je kod

Uboldi dates it to the period from the beginning of the 5th century and throughout the 6th century (Fig. 10).<sup>70</sup> The first complete example of this type of oil lamps was found in the early Christian basilica at the site of Turbe Varošluk in Bosnia.<sup>71</sup> The biggest problem is the fact that only drop-shaped base is usually found at most sites leading to problems in interpretation. Namely, almost identical drop-shaped ending is also found on balsamaria Isings type 9 which are amphora-shaped, coming in variants with or without handles. They are dated to the early Roman period but they are obviously present in later period as well. In Italy they are found among glass finds in tabernae close to the Temple of Magna Mater in Rome where they are dated to the 5th or very beginning of the 5th century since complete vessels with bases, rims and typical handles were preserved.<sup>72</sup> Usually balsamaria are rather small, with elongated body and sometimes hardly visible drop-shaped base. The fragments interpreted as late antique in the literature are usually somewhat bigger and more massive. However when drop-shaped bases are all that we have, it is difficult to determine the vessel function. Therefore probably the best approach is to rely on the context of the find whenever possible.<sup>73</sup>

Lamps with drop-shaped ending were most-

<sup>65</sup> T. MILAVEC, 2012, 98.

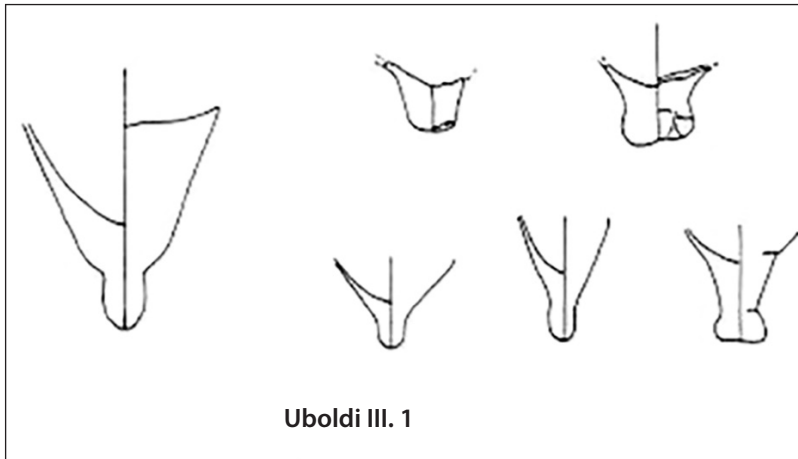
<sup>66</sup> M. UBOLDI, 1995, 116–119.

<sup>70</sup> M. UBOLDI, 1995, 119–120.

<sup>71</sup> I. MARIJANOVIĆ, 1990, 126.

<sup>72</sup> T. MILAVEC, 2012, 99.

<sup>73</sup> T. MILAVEC, 2012, 98–99.



SLIKA 8. Svjetiljke sa završetkom u obliku gumba, Uboldi tip III.1 (preuzeto iz M. UBOLDI, 1995, 118).

FIGURE 8 Lamps with base knob, Uboldi type III.1 (after M. UBOLDI, 1995, 118).

koničnih on naknadno dodan.<sup>67</sup> Cjeloviti primjerak pronađen je u Obrenovcu<sup>68</sup> u Srbiji koji neki autori pripisuju drugoj varijanti, s kapljičastim završetkom (Sl. 9).<sup>69</sup> Međutim, na temelju uvida u građu, smatram kako je vjerojatnije riječ o tipu sa završetkom u obliku gumba jer je kod ovog primjerka ispupčenje masivnije, nego što je to slučaj kod oblika s kapljičastim završetkom.

Drugi tip svjetiljke ima cilindrični recipijent sa kapljičastim završetkom (Uboldi III.2), a Uboldi ga datira od početka 5. stoljeća do kraja 6. stoljeća (Sl. 10).<sup>70</sup> Prvi cjeloviti primjerak ovog tipa uljanica pronađen je u starokršćanskoj bazilici na lokalitetu Turbe Varošluk u Bosni.<sup>71</sup> Najveći problem jest činjenica da se na većini nalazišta pronađe samo kapljičasto dno što dovodi do problema interpretacije. Naime, gotovo identičan kapljičasti završetak javlja se i na balzamarijima tipa Isings 9. Balzamariji su amforastog oblika sa kapljičastim završetkom i uskim otvorom, a javljaju se u varijantama s ručkama i bez njih. Datiraju se u rani rimski period, međutim, očito se javljaju i poslije. U Italiji su pronađeni među staklenim

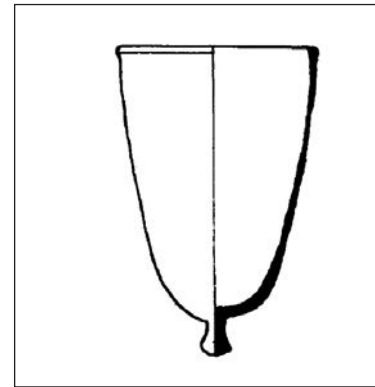
<sup>67</sup> M. UBOLDI, 1995, 116–117.

<sup>68</sup> Usp. M. RUŽIĆ, 1994.

<sup>69</sup> T. MILAVEC, 2012, 99.

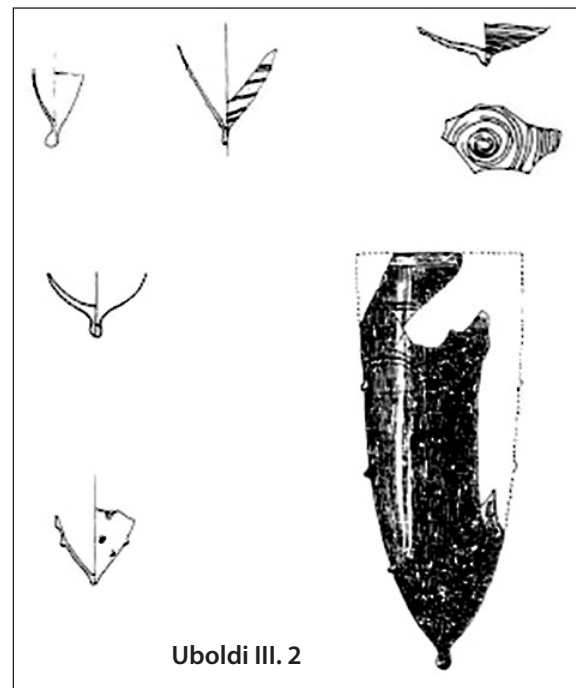
<sup>70</sup> M. UBOLDI, 1995, 119–120.

<sup>71</sup> I. MARIJANOVIĆ, 1990, 126.



SLIKA 9. Svjetiljka sa završetkom u obliku gumba iz Obrenovca, Srbija (preuzeto iz T. MILAVEC, 2012, 99).

FIGURE 9 Lamp with base knob from Obrenovac, Serbia (after T. MILAVEC, 2012, 99).



SLIKA 10. Svjetiljke s kapljičastim završetkom, Uboldi tip III.2 (preuzeto iz M. UBOLDI, 1995, 118).

FIGURE 10 Lamps with a drop-shaped ending, Uboldi type III.2 (after M. UBOLDI, 1995, 118).

ly found in the western Mediterranean (Italy, France, Croatia, and Bosnia and Herzegovina) while only few examples were found in the east (Egypt, Ephesus and Sardis) which made D. Foy conclude that was a western type of lamp that was evidently, in her opinion, influenced



nalazima u tabernama blizu hrama Magne Mater u Rimu gdje su datirani u 5. stoljeće ili sam početak 5. stoljeća s obzirom na to da su sačuvane cijele posude s bazama, obodima i tipičnim ručkama.<sup>72</sup> Uobičajeno su balzamariji manji s izduženim tijelom i ponekad teško vidljivim kapljičastim dnom. Ulomci koji su u literaturi interpretirani kao kasnoantički su uglavnom malo veći i masivniji. Međutim kada smo ograničeni samo na kapljičasta dna, teško je točno odrediti funkciju posude. Upravo je zato možda najbolje rješenje osloniti se na kontekst nalaza kada je poznat.<sup>73</sup>

Svjetiljke s kapljičastom bazom pronađene su uglavnom na zapadnom Mediteranu (u Italiji, Francuskoj, Hrvatskoj te Bosni i Hercegovini), dok je samo nekoliko primjeraka pronađeno na istoku (Egipat, Efez i Sardis) zbog čega D. Foy smatra da je to zapadni tip svjetiljke koji je, kako tvrdi, očigledno pod utjecajem merovinške produkcije stakla.<sup>74</sup> To se može vidjeti u oblicima i po dekoraciji s bijelim staklenim nitima na materijalu iz južne Francuske datiranom od sredine 5. do sredine 6. stoljeća.<sup>75</sup>

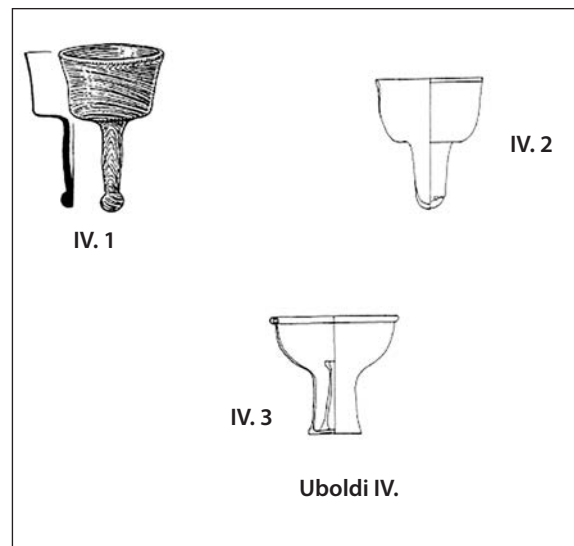
#### UBOLDI TIP IV/SVJETILJKE U OBLIKU LIJEVKA

Svjetiljke u obliku lijevka su svjetiljke s posudom širokog recipijenta, zadebljanog oboda i uskog cilindričnog završetka koji je uglavnom šupalj, a ponekad i s punim završetkom. Kod svjetiljki u obliku lijevka nalazimo i primjerke koji su na sebi imali aplicirane ručke pa su se u tom slučaju vjerojatno upotrebljavali i lančići pomoću kojih su se vješale. Prema tome, ovaj tip svjetiljki mogao se rabiti unutar polikandila, monokandila ili su se mogle držati u ruci. Dijele se u tri podtipa prema načinu oblikovanja cilindričnog završetka koji može biti šupalj (Uboldi IV.1), ispunjen (Uboldi IV.2) ili

by the Merovingian glass production.<sup>74</sup> This is reflected in forms and decoration with white glass threads on the material from southern France dated from the mid-5th to mid-6th century.<sup>75</sup>

#### UBOLDI TYPE IV / FUNNEL-SHAPED LAMPS

Funnel-shaped lamps have wide body, thickened rim and narrow cylindrical ending that is usually hollow, but it can also be solid. In this group there are examples with applied handles probably implying use of suspension chains. Apparently this type could have been used inside polycandelon, monocandelon or held in hand. They are divided in three subtypes on the basis of modelling of the cylindrical ending forming a stable base (Uboldi IV.3) (Fig. 11).<sup>76</sup> Probably their origin should be sought in Palestine. They are dated from the 5th century onwards.<sup>77</sup> They were used, with certain form modifications, until the 17th century, as confirmed by the examples recovered in Bu-



SLIKA 11. Svjetiljke u obliku lijevka, Uboldi tip IV (preuzeto iz M. UBOLDI, 1995, 122).

FIGURE 11 Funnel-shaped lamps, Uboldi type IV (after M. UBOLDI, 1995, 122).

<sup>72</sup> T. MILAVEC, 2012, 99.

<sup>73</sup> T. MILAVEC, 2012, 98–99.

<sup>74</sup> D. FOY, 1995, 217.

<sup>75</sup> T. MILAVEC, 2012, 100.

<sup>74</sup> D. FOY, 1995, 217.

<sup>75</sup> T. MILAVEC, 2012, 100.

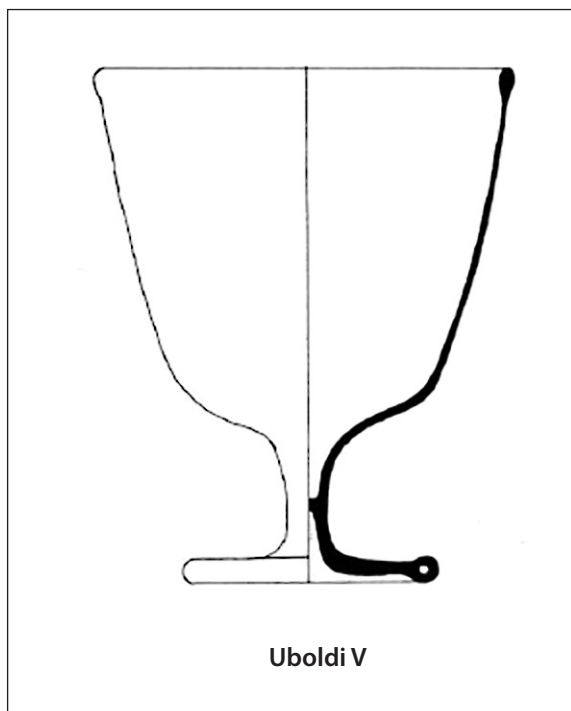
<sup>76</sup> M. UBOLDI, 1995, 120-124.

<sup>77</sup> A. C. ANTONARAS, 2005, 26.

sa šupljim završetkom koji tvori stabilno dno (Uboldi IV.3) (Sl. 11).<sup>76</sup> Pretpostavlja se da im podrijetlo treba tražiti u Palestini, a datiraju se od 5. stoljeća nadalje.<sup>77</sup> Susrećemo ih, uz određene modifikacije oblika, sve do 17. stoljeća što potvrđuju primjerci otkriveni u Budimu u Mađarskoj.<sup>78</sup>

#### UBOLDI TIP V / SVJETILJKE U OBLIKU KALEŽA

Uboldi tip V se sastoji od recipijenta u obliku slova „V“ ili „U“ ili u obliku tulipana koji se nalazi na cilindričnoj stabljici koja završava kružnom stopicom (Sl. 12). Obod je najčešće prstenastog oblika, zadebljan i šupalj. U literaturi se spominju kao sredozemni tip kasnoantičkog staklenog posuđa koji je s različitim modifikacijama preživio tijekom srednjeg vijeka.<sup>79</sup>



SLIKA 12. Svjetiljka u obliku kaleža, Uboldi tip V (preuzeto iz I. FADIĆ, 1994, 214).

FIGURE 12 Chalice-shaped lamps, Uboldi type V (after I. FADIĆ, 1994, 214).

<sup>76</sup> M. UBOLDI, 1995, 120–124.

<sup>77</sup> A.C. ANTONARAS, 2008, 26.

<sup>78</sup> I. FADIĆ, 2005, 227–229.

<sup>79</sup> I. FADIĆ, 1994, 228–229.

dim in Hungary.<sup>78</sup>

#### UBOLDI TYPE V / CHALICE-SHAPED LAMPS (STEMMED GOBLETS)

Uboldi type V consists of a body in shape of the letter V or U or it has a form of tulip on a cylindrical stem ending in a circular ring base (Fig. 12). The rim is usually annular, thickened and hollow. In the literature it is mentioned as a Mediterranean type of late antique glassware that survived into the Middle Ages with various modifications.<sup>79</sup>

Except for being used as lighting devices or chalices for drinking, it is widely believed that these chalice-shaped vessels might have been used for liturgical purposes. According to I. Fadić, examples of eucharistic chalices were represented by more elaborate examples, decorated, among other, with gilt spiral ornament.<sup>80</sup> Use of glass chalices was prohibited in the synodal sermon *Admonitio synodalis* from the mid-9th century.<sup>81</sup> To the best of my knowledge, it is impossible to determine if there were some decrees about the material of the eucharistic chalice even earlier. However S. J. Braun states that there was a misinterpretation of sources that were taken as evidence of the use of glass chalices in the Eucharist. According to him, *Liber Pontificalis* mentions use of glass patens in liturgy which was often associated with the use of glass chalices. These are two different vessels used for different functions, and the glass chalices had a disadvantage of being more prone to breaking and spilling holy contents.<sup>82</sup> Therefore I would consider the possibility that the glass chalices were not used in liturgy.

Chalice-shaped lamps (Isings type 111) are not divided into subtypes by Uboldi, although some authors (G. M. Crowfoot, D. B. Harden, A. C. Antonaras) propose such division, on

<sup>78</sup> I. FADIĆ, 2005, 227–229.

<sup>79</sup> I. FADIĆ, 1994, 228–229.

<sup>80</sup> I. FADIĆ, 2005, 228.

<sup>81</sup> J. BRAUN, 1932, 39–40.

<sup>82</sup> J. BRAUN, 1932, 33.

Osim što su služile kao rasvjetna tijela i kao pehari za piće, uvriježeno je mišljenje kako su se ove posude u obliku kaleža mogle upotrebljavati i u liturgijske svrhe. Prema I. Fadiću primjerke euharistijskih kaleža predstavljali su raskošnije izvedeni primjerci, ukrašeni, između ostalog, spiralnim pozlaćenim ukrasom.<sup>80</sup> Sinodalnom odredbom *Admonitio synodalis* iz sredine 9. stoljeća uporaba staklenih kaleža u obredu euharistije je zabranjena.<sup>81</sup> Koliko je poznato, ne može se utvrditi jesu li postojale odredbe o materijalu euharistijskog kaleža i prije. Međutim, J. Braun navodi kako je došlo do pogrešnog tumačenja izvora koji su uzimani kao dokazi za uporabu staklenih kaleža u euharistiji. Kako navodi, u *Liber Pontificalis* se spominje uporaba staklenih plitica u bogoslužju što se često povezivalo s uporabom staklenih kaleža. Riječ je o dvama različitim recipijentima koji su se rabili u različite svrhe, a i opasnost od razbijanja i izlivanja svetog sadržaja veća je kod staklenih kaleža nego plitica.<sup>82</sup> Zbog svega navedenog, ostavila bih otvorenom mogućnost da se stakleni kaleži možda ipak nisu upotrebljavali u bogoslužju.

Uboldi svjetiljke tipa kalež (tip Isings 111) ne dijeli u podtipove, iako ih neki autori (G. M. Crowfoot, D. B. Harden, A. C. Antonaras) na temelju toga je li noga koherentna ili aplicirana na tijelo, cilindrična ili kružna, razvrstavaju u podtipove. A. C. Antonaras smatra kako su u svojoj osnovi razvijene kao stolno posude, ali se ipak zbog učestalosti neobrađenog oboda i velikog broja primjeraka pronađenih tijekom iskopavanja starokršćanskih bazilika čini gotovo sigurnim da su također bili široko korišteni kao slobodnostojeće svjetiljke.<sup>83</sup> Ovaj je tip bio široko rasprostranjen po cijelom Mediteranu. Jedan je od najčešćih tipova staklenih posuda između 5. i 8. stoljeća na istočnom i središnjem Mediteranu. Javljaju se i u varijanti s trima malim vertikalnim ruč-

the basis of foot characteristics: if it is coherent or applied on the body, cylindrical or circular. C. Antonaras believes that they were basically developed as tableware, but still it seems almost certain they were used as freestanding lamps due to frequency of unworked rim and their big number recovered in the excavations of the early Christian basilicas.<sup>83</sup> This type was widely distributed across the entire Mediterranean being one of the most common types of glassware between the 5th and 8th century in the eastern and central Mediterranean. There are also variants with three small vertical handles positioned high on the body and around the rim. Accordingly they could have been used as freestanding lamps or inserted in a monocandelon.<sup>84</sup>

In addition to the context of the early Christian churches, these finds also originate from the catacombs (in Syracuse, 4th/5th century),<sup>85</sup> and several fragments were found in the mithraeum under the church of St. Prisca in Rome dated to the 4th century by Isings.<sup>86</sup>

## ELEMENTS OF LIGHTING DEVICE

The term lighting device refers to all elements enabling proper functioning of glass lamps. Thus, in addition to glass parts, elements of lighting device also comprised wick holders and metal elements (monocandela and polycandela) that enabled suspension of lamps.

Wick holders are poorly represented in publications which might be related to not recognizing their function when collecting archaeological material. Relatively recently, D. Foy dealt with wick holders and presented typologically forms recognized among finds from

<sup>80</sup> I. FADIĆ, 2005, 228.

<sup>81</sup> J. BRAUN, 1932, 39–40.

<sup>82</sup> J. BRAUN, 1932, 33.

<sup>83</sup> A. C. ANTONARAS, 2008, 24.

<sup>83</sup> A. C. ANTONARAS, 2006, 24.

<sup>84</sup> A. C. ANTONARAS, 2006, 24.

<sup>85</sup> C. ISINGS, 1957, 139.

<sup>86</sup> C. ISINGS, 1957, 139.

kama pozicioniranim visoko na tijelu i uokolo oboda. Prema tome, mogle su služiti ili kao slobodnostojeće svjetiljke ili umetnute unutar monokandila.<sup>84</sup>

Osim što su uglavnom pronalazeni u kontekstu starokršćanskih crkava, nalaze ovakvih oblika možemo pratiti i u katakombama (u Sirakuzi, 4./5. st.),<sup>85</sup> a nekoliko je fragmenata pronađeno u mitreju ispod crkve sv. Priske u Rimu koje Isings datira u 4. stoljeće.<sup>86</sup>

## ELEMENTI RASVJETNOG UREĐAJA

Pod terminom rasvjetni uređaj podrazumijevaju se elementi koji su omogućavali rad staklenih svjetiljki. Dakle, osim staklenih dijelova, elementi rasvjetnog uređaja bili su i držači fitilja te metalni elementi (monokandila i polikandila) koji su omogućavali vješanje svjetiljki.

Držači fitilja su slabo zastupljeni u publikacijama što može biti posljedica neprepoznavanja njihove funkcije tijekom prikupljanja arheološkog materijala. Relativno nedavno, D. Foy se pozabavila držačima fitilja i tipološki predstavila oblike koji se javljaju među materijalom s arheoloških istraživanja.<sup>87</sup> Foy donosi raznovrsne primjerke držača fitilja načinjene od keramike, metala i stakla.

Keramički držači fitilja predmeti su koničnog ili polukružnog presjeka (široki od 2,5 do 4 cm, visine rijetko iznad 2 cm) sa središnjim otvorom na vrhu. Uglavnom se dovode u vezu sa svjetiljkama u obliku lijevka jer su im oblikom najpogodnije što naravno ne isključuje mogućnost da su se rabili i za druge vrste svjetiljki jer se na lokalitetima nalaze i uz druge svjetiljke. Ovu vrstu držača fitilja Foy datira u 5. i 6. stoljeće (Sl. 13).<sup>88</sup>

Metalni držači fitilja mogli su biti brončani,

the archaeological excavations.<sup>87</sup> Foy presents various examples of wick holders made of ceramic, metal and glass.

Ceramic wick holders have conical or semi-circular cross-section (2.5 to 4cm wide, rarely over 2cm high) with central opening at the top. They are usually associated with funnel-shaped lamps because they suit them best with their form, but that does not exclude the possibility of use in some other lamp types as they are found at sites with other lamps. This wick holder is dated to the 5th and 6th centuries by Foy (Fig. 13).<sup>88</sup>

Metal wick holders might have been made of bronze, copper, lead or iron. In this group Foy differentiates between three different forms. The first type includes holders made of coiled metal band 15cm long. The band was wound into a cylinder up to  $\frac{3}{4}$  of its length, branching in continuation in one or two extensions. They were very popular at the sites in the Near East from the 6th to 8th century. The wick was in the cylindrical part of the holder, and branches (one or two) were used to attach the holder on the lamp rim (Fig. 14).<sup>89</sup> Tripod-shaped holders are one of variations of metal holders that were analyzed separately by Foy (Fig. 15). Their modelling is similar to the previous group, consisting of three or four bands everted at the bottom. These objects are perforated along the cylinder, and this was probably done to soak wick properly in oil.<sup>90</sup> The third Foy's form refers to wick holders about 15cm long, made of band tapering from the center to the ends and curving in order to stay attached to the lamp (Fig. 16). This type was usually made of lead. In the middle they had an oval or round perforation into which a wick was inserted. Foy believes that these metal holders were more suitable for glass lamps as they placed wick deep in the oil. The research has shown that these artifacts in the 6th

<sup>84</sup> A. C. ANTONARAS, 2008, 24.

<sup>85</sup> C. ISINGS, 1957, 139.

<sup>86</sup> C. ISINGS, 1957, 139.

<sup>87</sup> Usp. D. FOY, 2011.

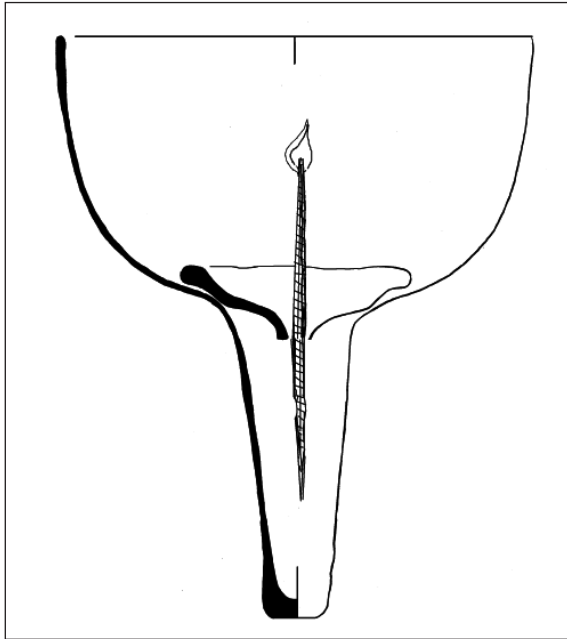
<sup>88</sup> D. FOY, 2011, 212-215.

<sup>87</sup> Cf. D. FOY, 2011.

<sup>88</sup> D. FOY, 2011, 212-215.

<sup>89</sup> D. FOY, 2011, 215-217.

<sup>90</sup> D. FOY, 2011, 217-219.



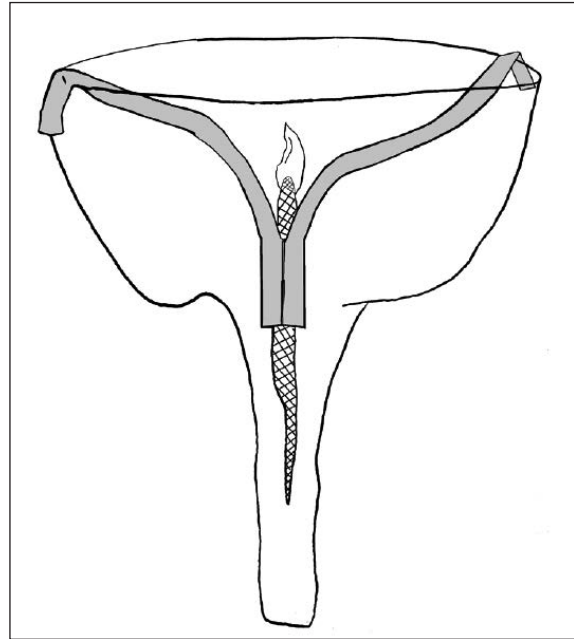
SLIKA 13. Rekonstrukcija izgleda keramičkog držača unutar svjetiljke u obliku lijevka (preuzeto iz D. FOY, 2011, 211).

FIGURE 13 Reconstruction of the shape of a ceramic wick holder within a funnel-shaped lamp (after D. FOY, 2011, 211).

bakreni, olovni ili željezni. Među njima Foy izdvaja tri različita oblika. Prvi su oblikovani od namotane metalne vrpce duge 15 cm. Vrpca je namotana u cilindar do  $\frac{3}{4}$  svoje dužine, a potom se rastvarala u jednu ili dvije grane. Na lokalitetima na Bliskom istoku bili su iznimno popularni od 6. do 8. stoljeća. Fitolj je bio smješten u cilindrični dio nosača, a grane (jedna ili dvije) služile su da bi se nosač pričvrstio za rub svjetiljke (Sl. 14).<sup>89</sup> Držači u obliku tronošca jedna su od varijacija metalnih držača koje Foy posebno izdvaja (Sl. 15). Slične su izrade kao prethodni, sastoje se od triju ili četiriju kratkih traka koje su pri dnu izvijene prema van. Ovi su predmeti perforirani duž cilindra, a smatra se da je to učinjeno kako bi fitilj bio natopljeniji uljem.<sup>90</sup> Kao treći oblik Foy spominje držače fitilja duljine 15-ak cm, izrađene od trake koja se od središta prema krajevima stanjuje i zakrivljuje kako bi se mogli držati za lampu (Sl. 16). Ova vrsta je uglavnom na-

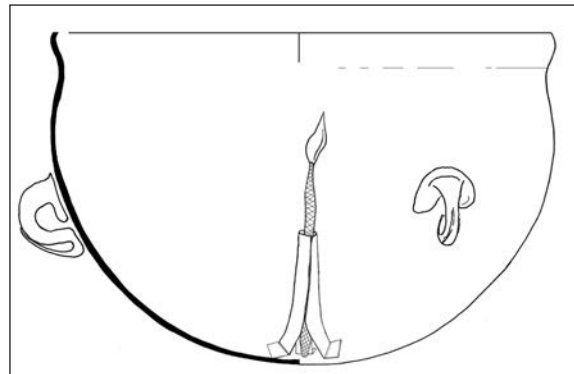
<sup>89</sup> D. FOY, 2011, 215–217.

<sup>90</sup> D. FOY, 2011, 217–219.



SLIKA 14. Rekonstrukcija izgleda brončanog držača fitilja unutar svjetiljke u obliku lijevka (preuzeto iz D. FOY, 2011, 220).

FIGURE 14 Reconstruction of the shape of a bronze wick holder within a funnel-shaped lamp (after D. FOY, 2011, 220).



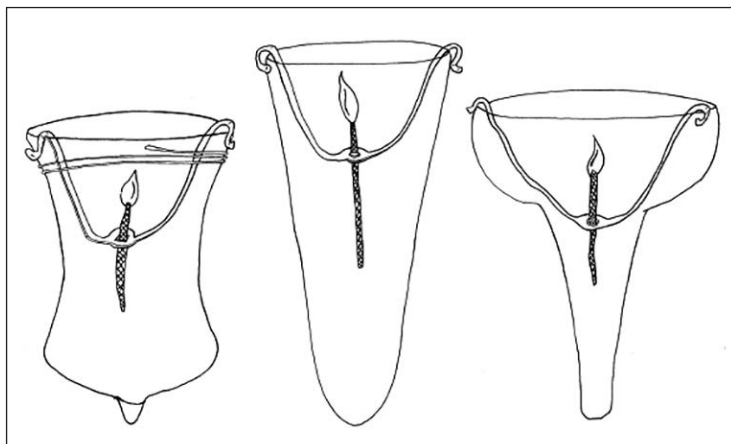
SLIKA 15. Rekonstrukcija izgleda metalnog držača fitilja u obliku tronošca (preuzeto iz D. FOY, 2011, 237).

FIGURE 15 Reconstruction of the shape of a metal tripod-shaped wick holder (after D. FOY, 2011, 237).

century belonged to lighting devices in most sacral and funerary buildings in the western Mediterranean (some 20 places in Africa, Catalonia, Provence and Italy, mostly in Sardinia and Sicily).<sup>91</sup>

The last type, representing a more developed form of wick holder are glass holders. This

<sup>91</sup> D. FOY, 2011, 221.



**SLIKA 16.** *Rekonstrukcija izgleda olovnih držača fitilja unutar staklenih svjetiljki (preuzeto iz D. FOY, 2011, 237).*

**FIGURE 16** *Reconstruction of the shape of lead wick holders within glass lamps (after D. FOY, 2011, 237).*

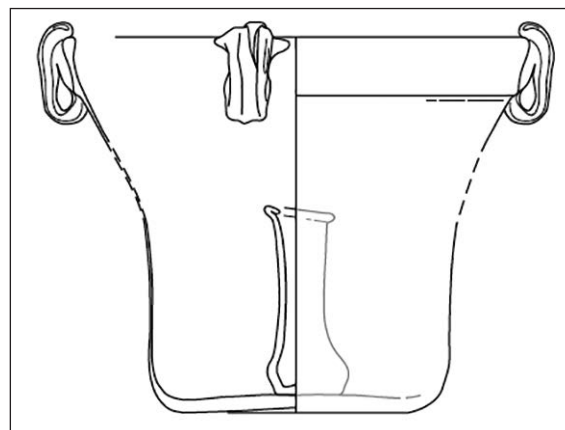
pravljena od olova. Na sredini su perforirani ovalno ili kružno i u tu se perforaciju umeće fitilj. Foy vjeruje kako su ovi metalni držači bili bolji za korištenje kod staklenih lampi jer su mogli fitilj dovoljno duboko uroniti u ulje. Istraživanja su pokazala kako su ovi predmeti u 6. stoljeću činili dio rasvjete većine sakralnih i pogrebnih građevina na zapadnom Mediteranu (20-ak mjesta u Africi, Kataloniji, Provansi i Italiji, uglavnom na Sardiniji i Siciliji).<sup>91</sup>

Zadnja vrsta, koja predstavlja razvijeniji oblik držača fitilja jesu stakleni držači. Ova vrsta držača bila je sastavni dio posude, a riječ je o vertikalnoj cijevi pričvršćenoj u središnjem dijelu dna svjetiljke (Sl. 17). Ove vertikalne cijevi u svojoj osnovi su cilindričnog oblika, ali su mogle biti različitih profila. U vertikalnu cijev stavljao bi se loj, vosak ili gaza natopljena uljem. Uglavnom ih pronalazimo unutar svjetiljki tipa zdjelice/šalice koje su imale tri ručke koje povezuju obod i trbuh svjetiljke. Materijalni ostatci svjetiljki s ovakvim držačima, prema informacijama koje donosi D. Foy, za sada su potvrđeni samo na lokalitetima Bliskog istoka.<sup>92</sup>

Osvjetljavanje staklenim svjetiljkama kao što je već napomenuto, moglo se ostvariti svjetiljkama koje su imale stabilno dno i time se mogle upotrebljavati kao samostalna rasvjetna tijela.<sup>93</sup> U slučaju da oblik dna nije omogućava-

kind of holder was a part of the vessel. It consisted of a vertical tube attached in the central part of the lamp base (Fig. 17). These vertical tubes are basically cylindrical, but their profiles could be different. Mostly we find them in lamps in shape of cups/small bowls that had three handles connecting rim and belly of the lamp. Material remains of lamps with these holders have been attested only at Near Eastern sites, according to information presented by D. Foy.<sup>92</sup>

Lamps with stable base may have been used for lighting, as already mentioned, functioning in that way as independent lighting devices.<sup>93</sup> If base form did not allow freestanding use, they were used as parts of hanging metal lighting devices polycandela and monocande-



**SLIKA 17.** *Stakleni držač fitilja, Hawarte, Sirija (preuzeto iz K. GAWLIKOWSKA, 2012, 502).*

**FIGURE 17** *Glass wick holders, Hawarte, Syria (after K. GAWLIKOWSKA, 2012, 502).*

<sup>91</sup> D. FOY, 2011, 221.

<sup>92</sup> D. FOY, 2011, 210–212.

<sup>93</sup> P. CHEVALIER, 1999, 180–181.

<sup>92</sup> D. FOY, 2011, 210-212.

<sup>93</sup> P. CHEVALIER, 1999, 180-181.

vao samostalnu uporabu, rabile su se kao dio visećih metalnih rasvjetnih tijela polikandila i monokandila. Polikandila, koja su bila veća i bogatija po načinu izrade, sadržavala su veći broj uljanica i koristila su se uglavnom za osvjetljavanje palača, crkava i vila (Sl. 18).<sup>94</sup> Monokandila su bila znatno jednostavnija i služila su vješanju samo jedne svjetiljke.

Većina sačuvanih dijelova polikandila napravljena je od bronce, a izrađivali su se i od kositra i plemenitih metala. Pronađeno je tek nekoliko srebrnih primjeraka jer su se predmeti od plemenitih metala vjerojatno reciklirali i prodavali zbog svoje vrijednosti.<sup>95</sup> Polikandila se sastoje od krune i metalnog diska s perforacijama, obično su s trima lancima pričvršćena na dugi snažni lanac koji je obješen na strop ili svod. Krune, *coronae fatalus*, opremljene su konzolnim nosačima, obično u obliku delfina ili grana koje završavaju u obliku prstena ili šalice u koje su se umetale staklene svjetiljke, a poslije i voštane svijeće. Jednostavniji oblici polikandila sastojali su se od diskova, *fara canthard*, na kojima su kružni otvori za svjetiljke, a broj perforacija namijenjenih umećanju svjetiljki bio je izrazito varijabilan (Sl. 18). Polikandila ovog tipa obično su se rabila za osvjetljavanje velikih urbanih i crkvenih zgrada. Postoje neki lusteri razrađenijih oblika poput onih oblika pravokutne posude, križa, kugle, bazilike ili vrlo veliki primjerci umećanja nekoliko kruna lampi. Neki od tih lusteri još uvijek se upotrebljavaju u pravoslavnim crkvama i džamijama.<sup>96</sup>

Elementi polikandila često uključuju križeve ili medaljone koji su prepoznatljivi po rupama na dnu, na vrhu ili bočno. Mali ukrasni križevi ponekad se nalaze na spoju lanaca. Donji lanci, često izrađeni od poveznica koji čine dvije međusobno okomite petlje nalaze se na krajevima i imaju kuke za pričvršćivanje na luster. Rjeđe, elementi za vješanje ovih vrlo teških



SLIKA 18. Polikandil u obliku okrugle ploče s perforacijama za staklene svjetiljke (preuzeto iz K. WEITZMANN, 1979, 622).

FIGURE 18 Polycandelon in the form of a metal disc with perforations for glass lamps (after K. WEITZMANN, 1979, 622).

la. Polycandela were bigger and more elaborate regarding craftsmanship, containing a number of oil lamps. They were used mostly for illumination of palaces, churches and villas (Fig. 18).<sup>94</sup> Monocandela were much simpler being used for hanging only one lamp.

Majority of preserved parts of polycandelon were made of bronze, but they were also made of tin and precious metals. Only few silver specimens were found since artifacts made of precious metals were probably recycled and sold owing to their value.<sup>95</sup> Polycandela consist of a crown and a metal disc with perforations. Usually they were attached with three chains on another heavy chain hanging from the ceil-

<sup>94</sup> B. PAPADOPOULOU, 2003, 260.

<sup>95</sup> P. CHEVALIER, 1999, 167.

<sup>96</sup> P. CHEVALIER, 1999, 166-169.

<sup>94</sup> B. PAPADOPOULOU, 2003, 260.

<sup>95</sup> P. CHEVALIER, 1999, 167.



SLIKA 19. Monokandil (preuzeto iz A. C. ANTONARAS, 2010, 388).

FIGURE 19 Monocandelon (after A. C. ANTONARAS, 2010, 388).

lusteri mogu biti napravljeni od žice ili ravne brončane vrpce te se u tom slučaju kombinira nekoliko elemenata dugih 10 – 15 cm. Uređaji s užadi i koloturima omogućavali su manipulaciju polikandila pri mijenjanju ulja i ostalih

ing or vault. The crowns, *coronae fatalus*, had cantilever carriers, usually in shape of a dolphin or branches ending in form of a ring or a cup in which glass lamps were inserted, and later wax candles. Simpler forms of polycandela consisted of discs, *fara canthard*, which had circular openings for lamps. The number of perforations for inserting lamps was highly variable (Fig. 18). Polycandela of this type were usually used for lighting big urban buildings and churches. There are some chandeliers in more elaborate forms such as the ones in shape of a rectangular vessel, cross, sphere, basilica, or examples of inserting several crowns of lamps. Some of these chandeliers are still used in Orthodox churches and mosques.<sup>96</sup>

Elements of polycandela often include crosses and medallions recognizable by holes in the bottom, at the top or laterally. Little decorative crosses can sometimes be found on the chain connections. Lower chains, often made of links consisting of two mutually perpendicular loops are at the ends having hooks for suspension on the chandelier. Only rarely can hanging elements of these very heavy chandeliers be made of wire or straight bronze band when several elements about 10-15cm are combined. Devices with ropes and pulleys enabled manipulation of polycandela when oil was changed and in case of other maintenance procedures.<sup>97</sup>

Three small handles for hanging were applied on the shoulder when lamps were used as a single hanging lighting device, referred to as monocandela in the literature (Fig. 19).<sup>98</sup> Sets of forged bronze wire were used for that purpose, found across the eastern Mediterranean. Lamps used in monocandela might have been carried in hand or used as independent hanging lighting device.<sup>99</sup> Corresponding system that has identical structure as polycandelon, only

<sup>96</sup> P. CHEVALIER, 1999, 166-169.

<sup>97</sup> P. CHEVALIER, 1999, 168-171.

<sup>98</sup> In foreign publications they are referred to as *polyangistron* (Cf. A. C. ANTONARAS, 2005, 25.).

<sup>99</sup> M. TOPIĆ, 1999, 96.



tehničkih stvari povezanih s pravilnim radom svjetiljki.<sup>97</sup>

U slučaju kada su svjetiljke služile kao samostalna viseća rasvjetna tijela, u literaturi zvana *monokandila*,<sup>98</sup> na ramenu posude bile su aplicirane tri male ručke za vješanje (Sl. 19). U tu svrhu korišteni su kompleti od kovane brončane žice kakvi su pronađeni diljem istočnog Sredozemlja. Svjetiljke korištene unutar monokandila mogle su se nositi u ruci ili su pak korištene kao samostalna viseća rasvjetna tijela.<sup>99</sup> Odgovarajući sustav koji ima strukturu kao i polikandila, ali manjih dimenzija, najčešće se sastoji od brončane žice, ponekad upletene, ponekad u lancima, a rjeđe u ravnim trakama metala. Najjednostavniji model sastoji se od triju segmenata sitnije brončane žice prekinute petljom na dva kraja ili lanca s poveznica. Neki primjerci su čak imali središnji križ poput polikandila koji je u ovom slučaju bio manje masivan.<sup>100</sup> Podrijetlo im se veže uz područje Palestine, gdje su datirane od 5. do 8. stoljeća. Brojni povijesni izvori i ikonografski prikazi daju podatke o uporabi ovog tipa rasvjete kakav se uz određene modifikacije upotrebljava do kraja 19. stoljeća.<sup>101</sup>

## ZAKLJUČNA RAZMATRANJA

Staklene svjetiljke kao važan dio materijalne kulture kasne antike ponajviše se pronalaze pri istraživanju starokršćanskih lokaliteta, a u domaćoj su literaturi poznate i po nazivu *lumini*. Ovaj su naziv dobile zbog tehnike koja se upotrebljavala za osvjetljenje: punjene su vodom kojoj bi se dodao sloj ulja (ulje tako pluta na vodi). Ta je tehnika ekonomična i omogućuje jače svijetlo, a u našem priobalju rabi se još i

smaller, most commonly consists of bronze wire, sometimes intertwined, or in chains, or rarely in flat metal bands. The simplest model consists of three segments of bronze wire with smaller links cut off with a loop on two ends or chain with loops. Some examples even had central cross just like polycandela, that was less massive in this case.<sup>100</sup> Their origin is related to the Palestine region, where they are dated from the 5th to 8th century. A number of historical sources and iconographic depictions provide information on use of this lighting type that was retained, with certain modifications, until the 19th century.<sup>101</sup>

## CONCLUDING CONSIDERATIONS

Glass lamps as an important part of late antique material culture are usually found in the excavations of the early Christian sites. In the domestic publications they are also known as *lumini*. They were given this name because of the technique used for lighting: they were filled with water to which oil was added (so that oil floated on water). This technique is economical and gives brighter light. In our littoral it is still used, in particular on the day of the dead (families remember their loved ones in that way). The term *lumin* refers to votive lamps used in the cult of the dead that are mostly mentioned in the domestic publications as lamps in shape of a cup/small bowl and chalice-shaped lamps.<sup>102</sup>

Precise answers to a number of questions are still lacking, including the production centers of glass lamps. However there are indications that they were probably made in some of glass-making workshops in Late Antiquity and Early Middle Ages.<sup>103</sup>

In the region of Italy, Ubaldi mentions the

<sup>97</sup> P. CHEVALIER, 1999, 168–171.

<sup>98</sup> U stranoj literaturi javljaju se i pod nazivom *polyangistrion* (Usp. A. C. ANTONARAS, 2008, 25).

<sup>99</sup> M. TOPIĆ, 1999, 96.

<sup>100</sup> P. CHEVALIER, 1999, 174–177.

<sup>101</sup> M. TOPIĆ, 1999, 96.

<sup>100</sup> P. CHEVALIER, 1999, 174–177.

<sup>101</sup> M. TOPIĆ, 1999, 96.

<sup>102</sup> I. FADIĆ, 2005, 221–229.

<sup>103</sup> T. MILAVEC, 2017, 211.

danas, pogotovo na Dušni dan (obitelji se na taj način prisjećaju svojih najmilijih). Termin *lumin* odnosi se na zavjetne svjetiljke koje su se upotrebljavale u kultu pokojnika i koje se uglavnom spominju u domaćoj literaturi kao svjetiljke u obliku šalice/zdjelice te svjetiljke u obliku kaleža.<sup>102</sup>

Na dosta pitanja još uvijek nije moguće dati preciznije odgovore, tako da niti produkcijski centri staklenih svjetiljki još uvijek nisu poznati, međutim postoje indikacije da su se vjerojatno izrađivale u nekima od staklarskih radionica kasne antike i ranog srednjeg vijeka.<sup>103</sup>

Na području Italije, kao moguće centre proizvodnje staklenih uljanica Uboldi spominje lokalitete Piazza della Signoria u Firenzi i Lungotevere Testaccio u Rimu gdje su unutar peći pronađeni fragmenti svjetiljki zajedno s drugim staklenim materijalom.<sup>104</sup> Samostanski kompleks S. Vincenza al Volturna od ranog srednjeg vijeka proizvodi staklene predmete, moguće čak i prozorsko staklo za samostan. Prema tome vjerojatno je da su i staklene svjetiljke pronađene na lokalitetu proizvedene u lokalnoj radionici. U prilog tomu išla bi i činjenica da se jedan od podtipova svjetiljki tipa šalice/zdjelice (Uboldi I.4) smatra oblikom tipičnim za ovaj lokalitet.<sup>105</sup> Za staklene uljanice pronađene na prostoru jugoistočnih Alpa T. Milavec također smatra kako su rađene regionalno, a moguće čak i lokalno.<sup>106</sup>

Što se tiče hrvatskih nalaza, vjerojatno je velika količina uljanica importirana, međutim ne bih odbacila pretpostavku da su neki od primjerka izrađeni u nekoj od većih lokalnih staklarskih radionica što će možda potvrditi buduća arheološka istraživanja.

sites of Piazza della Signoria in Florence and Lungotevere Testaccio in Rome as possible centers of production of glass oil lamps as lamp fragments were found in a furnace together with other glass material.<sup>104</sup> Monastery complex S. Vincenza al Volturna has produced glass objects from the Early Middle Ages, possibly also windowpanes for the monastery. Therefore it is likely that glass lamps found at this site were manufactured in the local workshop. This is supported by the fact that one of subtypes of lamps in shape of cups/small bowls (Uboldi I.4) is considered typical of this site.<sup>105</sup>

T. Milavec believes that oil lamps recovered in the area of southeastern Alps were also regional, and possibly even local products.<sup>106</sup>

As for the Croatian finds, probably a large amount of glass lamps was imported, but I would not eliminate the possibility that some of objects were made in one of bigger local glass workshops which will possibly be attested in future archaeological excavations.

*Translation: Marija Kostić*

<sup>102</sup> I. FADIĆ, 2005, 221–229.

<sup>103</sup> T. MILAVEC, 2017, 211.

<sup>104</sup> J. STEVENSON, 1988, 205–208.

<sup>105</sup> M. UBOLDI, 1995, 98–100.

<sup>106</sup> T. MILAVEC, 2017, 211.

<sup>104</sup> J. STEVENSON, 1988, 205–208.

<sup>105</sup> M. UBOLDI, 1995, 98–100.

<sup>106</sup> T. MILAVEC, 2017, 211.

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