

Krystyna Gawlikowska

Glass Finds from the Mithraeum in Hawarte

Polish Archaeology in the Mediterranean 21, 496-509

2012

Artykuł został opracowany do udostępnienia w internecie przez Muzeum Historii Polski w ramach prac podejmowanych na rzecz zapewnienia otwartego, powszechnego i trwałego dostępu do polskiego dorobku naukowego i kulturalnego. Artykuł jest umieszczony w kolekcji cyfrowej bazhum.muzhp.pl, gromadzącej zawartość polskich czasopism humanistycznych i społecznych.

Tekst jest udostępniony do wykorzystania w ramach dozwolonego użytku.

GLASS FINDS FROM THE MITHRAEUM IN HAWARTE

Krystyna Gawlikowska

PCMA Associate, Warsaw

Abstract: Polish–Syrian excavations in Hawarte provided a large number of glass fragments coming from the mithraeum under the main basilica. The vessels represented include first and foremost tableware, but there is also a sizable group of unguentaria and oil lamps. The vessels were used alongside their ceramic counterparts in Mithraic banquets. They are dated from the 1st to the early 5th century AD, but some later lamps from the church were also found.

Keywords: Hawarte, Mithraeum, glass tableware, unguentaria, oil lamps

Only a few glass fragments were found during the earlier seasons of the Polish–Syrian excavations in Hawarte, this including a nearly complete beaker from a 1st century *bothros* and fragmentary glass

lamps from the last years of the mithraeum. The research in the 2008 and 2009 seasons brought many more fragments, mainly of set services composed of carafs and drinking vessels.

TABLEWARE

Consumption of wine and meat during banquets is directly confirmed by accounts scratched on the wall of the Dura mithraeum, where the two items are top of the expense list (Rostovtzeff 1939: 124–126). Moreover, the serving of meat is clearly indicated by animal bone remains found in large quantities in Hawarte, but also in some other mithraea in other parts of the Roman world.

Drinking vessels are especially well represented among the glass tableware. Two types of beakers were found: the bell-shaped carchesium-type with flaring rim and carination just above the applied

foot and the cylindrical type with two swellings, one near the concave open-fold base, the other beneath the flaring rim. Both types are dated in the 1st and early 2nd century. The color is a natural light green, as frequent in this period.

Documenting these extremely thin and fragile fragments and spotting correctly the engraved lines on weathered surfaces was not an easy task. Thanks to the documentalists' meticulous recording of the different combinations of lines on decorated rim and body fragments, they could be sorted easily and counted. Every beaker had a unique pattern made in one

go with an abrasion wheel: in most cases there are four or five bands counting up to ten lines in each, the first and last lines in each band being usually deeper than others. The collected fragments could be counted as belonging to more than fifty beakers.

The distinctive carchesium beakers (Isings 1957: Form 36b) have thin-walled bodies with delicate horizontal bands of wheel-abraded lines. There was one specimen of nearly complete shape [Figs 1, 2, top left]. They are especially numerous in the northwestern part of the cave (context 17/08), which was filled and access to it cut off at an early date, and in the southwestern part of the cave (context 17/09), which remained open until the end [Fig. 2, center and bottom rows]. One fragmentary beaker of this type was found in 2003 in a *bothros* in the main room of the mithraeum [Fig. 2, top right]. The accompanying assemblage contained glass unguentaria and pottery which can be ascribed to the second half of the 1st century or the early years of the 2nd century at the latest.

Carchesia come from different parts of the Roman world. The name itself is ancient (καρχήσιον), but its modern use arbitrary and conventional (Hilgers 1969: 48, 140–141). Many examples, with cut-out or applied bases, come from the Vesuvius cities (Isings 1957: 50–52), a specimen well-dated before AD 72 was found in Machaerus (Loffreda 1980: No. 71, Pl. 97) and more in early Roman tombs in Pella in Jordan (McNicoll *et alii* 1982: Pls 132:2 and 133:8; 1992: Pls 87:16 and 91a) and in Samothrace (Dusenbery 1998: No. S218C-4). The abraded decoration is especially common in southern Spain in the same period, but appears in other provinces as well (Price

1987: 33, Fig. 1). Many such beakers can be seen in museum collections, e.g. five nearly identical goblets from Syria, dated AD 50–150, in the Ashmolean Museum in Oxford (AN 1956 1018–1022, gift of Sir Leonard Woolley, on display), in the Oppenländer Collection, Hamburg (Saldern *et alii* 1974: 204, No. 573a), Wheaton College in Norton, Mass. (Dusenbery 1971: 21, Fig. 30), Cohn Collection in Los Angeles (Saldern 1980: No. 117), Corning Museum of Glass (Whitehouse 1997: No. 387), Yale University (Matheson 1980: Nos 112, 113), Hermitage, St. Petersburg (Kunina 1997: No. 298), National Museums, Scotland (Lightfoot 2007: No. 162), and Museum of Fine Arts in Montreal (Caron, Zoïtopoulou 2008: No. 84). The early date is mostly accepted, although some beakers are attributed to the 3rd–4th century, all of them on a high foot (Dusenbery 1971: 22, Fig. 32; Auth 1976: No. 497, Oliver 1980: No. 172, Whitehouse 1997: No. 98; Arts 2000: 116, No. 69). However, another



Fig. 1. *Carchesium*-type beaker on an applied foot (Photo K. Gawlikowska)

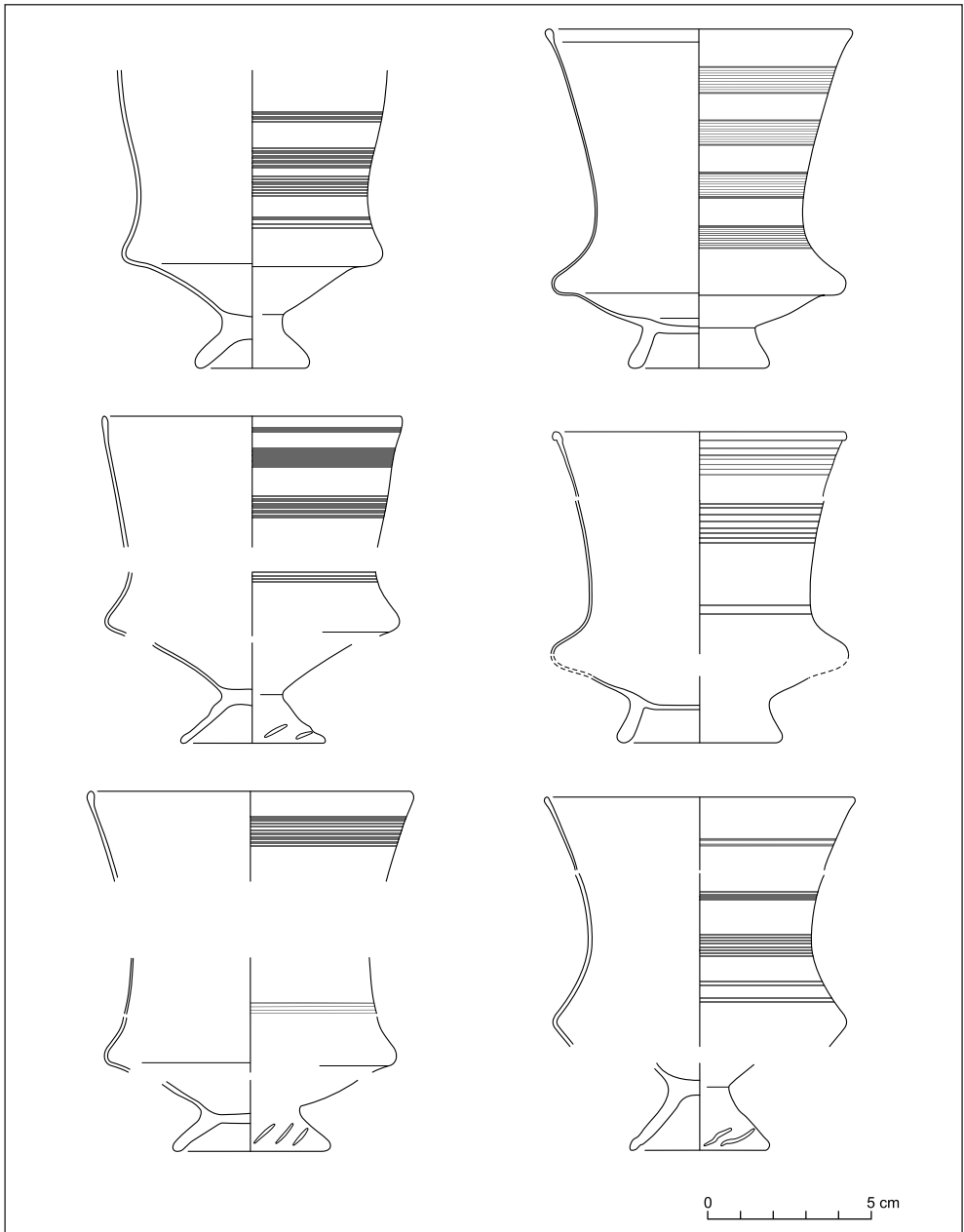


Fig. 2. Carchesia: top left, beaker on applied foot, same as in Fig. 1; top right, beaker from a bothros in the main cave; center and bottom rows, four beakers restored from fragments (All drawings in this article M. Momot, A. Potudnikiewicz, M. Puzkarski, A. Zajac)

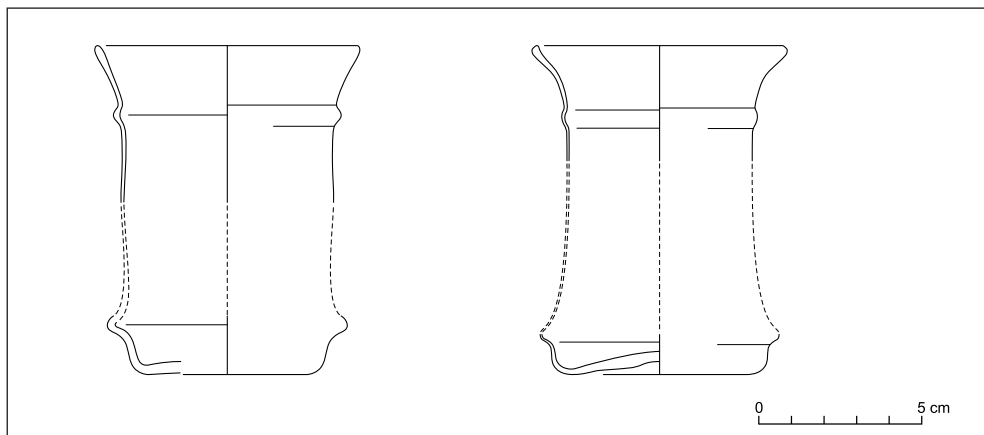


Fig. 3. Cylindrical beakers, restored

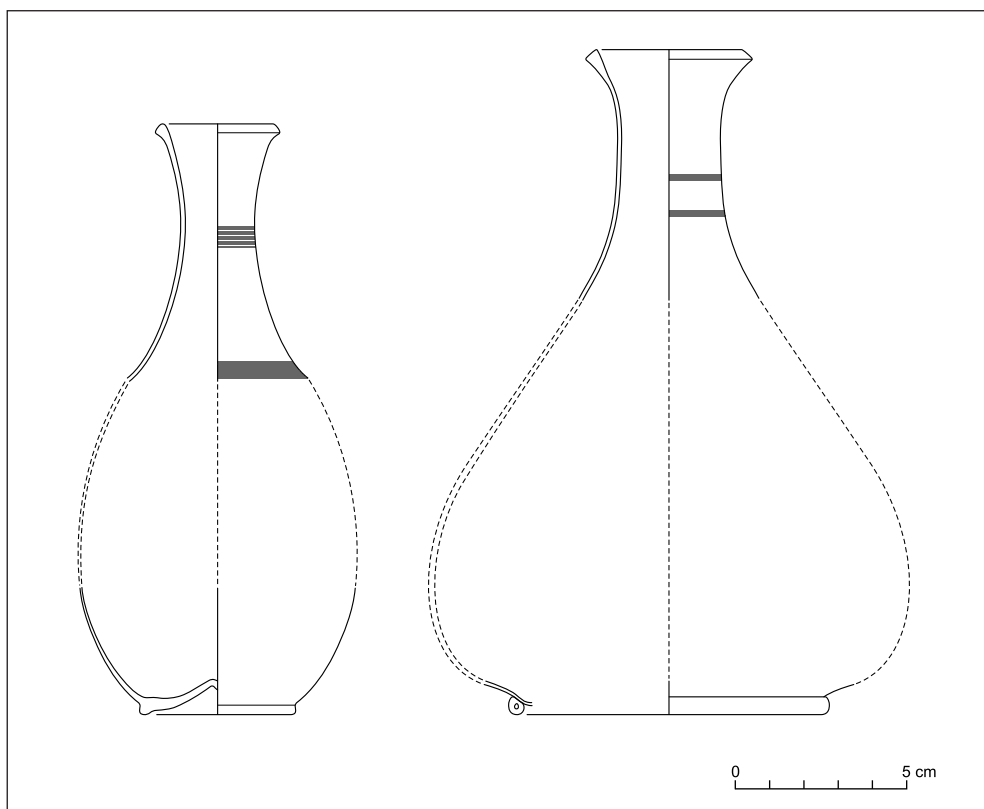


Fig. 4. Reconstructed decanters

high-foot beaker comes from Pompeii (Beretta, Di Pasquale [eds] 2004: Fig. 2.47, page 241) and all examples from Hawarte were found in dated early contexts.

Cylindrical beakers with two swellings are known mainly from museum collections: Zürich (Billeter [ed.] 1969: 33 right), Toronto (Hayes 1975: No. 139), Cohn Collection (Saldern 1980: No. 116), Corning (Whitehouse 1997: Nos 164–

165). Examples with one swelling at the bottom, intermediary to the carchesium form, are known from Toulouse (Nenna 2003: No. 254), Beiteddine Palace (Atallah, Gawlikowska 2007: Nos 102–104) and Montreal (Caron, Zoïtopoulou 2008: No. 85). Our excavated specimens from Hawarte, which have two swellings, must be dated in the same period as the carchesia. They have a rim diameter from

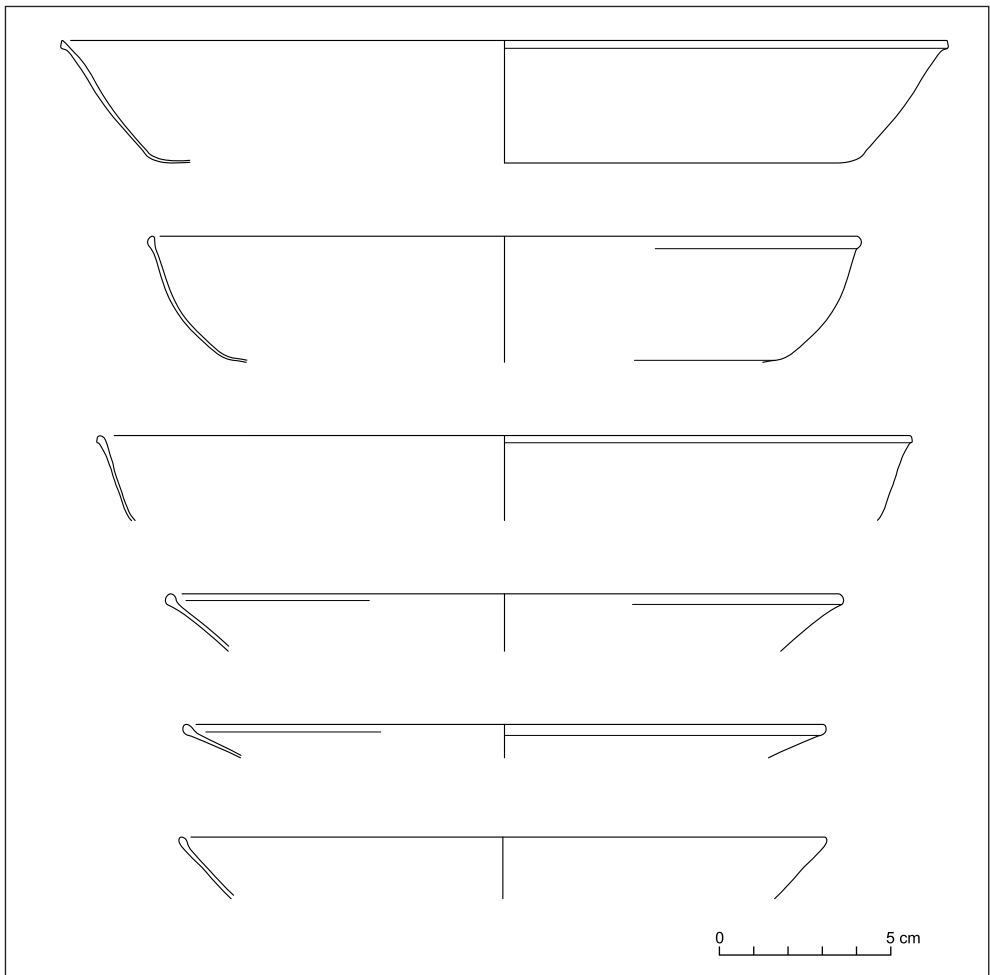


Fig. 5. Bowls and dishes

7.5 to 8.5 cm, but none is complete [Fig. 3]. The height of the museum pieces is usually around 10 cm.

Fragments of at least eleven glass decanters were found, all with flaring necks, beveled rims, globular or pear-shaped bodies on coiled, plain or hollow bases [Fig. 4]. They were used with the beakers as set services and probably ordered together. The decoration, as on beakers, consists of fine wheel-abraded bands, usually on the neck and shoulder. The use of tableware sets is confirmed by finds from houses in Herculaneum and in some 1st century tombs (Stern 1999: 471 and note 175), as well as in a shop in Cosa of the same date, destroyed by a quake (Grose 1974: 50), and another, later, in Petra (Keller

2006: 183). Few body fragments have been preserved, but the horizontal bands can be conjectured as continuing downwards, as on complete flasks from Cyprus in the National Museums Scotland, which are considered “ideal as carafes for wine” and dated in the 2nd to 3rd centuries (Lightfoot 2007: Nos 187–189), and on 1st century flasks from Spain (Price 1987: Fig. 7).

In the same context many fragments of plain, shallow light green bowls and dishes were found. They measure from 19 cm to 26 cm in diameter [Fig. 5]. Some are very thin bowls, not deeper than 4 cm, with simple rounded rims. Some dishes have thickened incurved rims and outplayed sides.

MITHRAEUM LAMPS

Artificial lighting was needed in mithraea, which did not have any daylight. Many fragments of glass lamps with handles were found in the mithraeum under the church of Santa Prisca in Rome (Isings 1965: Nos 1–71, dated to the end of 4th century). A purchase of wicks for lamps appears in the already quoted Dura mithraeum accounts (Rostovtzeff 1939: 125: ἐλλύ χυτῶν). In the last years of the Hawarte cave, i.e., in the late 4th or early 5th century, glass lights appeared beside the usual pottery lamps. Only one form of glass lamp has been attested and two subtypes have been distinguished. Though both are provided with handles, they were apparently used free-standing.

Type 1 is shaped as a wide and deep bowl of average height (8.5 cm), on a flat or concave base, with or without a wick tube inside [Fig. 6, top right]. The bowl is

cylindrical, then flaring from mid-height. Three equidistant handles are attached on the circumference of the rim. The rim, more than 10 cm in diameter, is thickened and incurved, underlined by a horizontal rib or ridge on the exterior wall about 1.5 cm below the rim. Such ribs occur on late 4th century shallow bowls from Jalame (Weinberg, Goldstein 1988: Figs 4–6, Nos 49–65, for the production technique, page 45) and from central Jordan (Jones 2006: No. 27).

Sixteen specimens of this type were found, one nearly complete [Fig. 6, bottom] and seven reconstructed theoretically. Eight more fragments represented only the upper part with handles and a horizontal rib. Light green was the dominant color; some lamps were olive-green with a brown coating and one was dark-green, slightly iridescent.

A similar olive-green lamp from Syria is on display in the Ashmolean Museum in Oxford (AN 1952.384), provided with the same kind of handles hanging from the rim, but without the inside tube. Such rim and handles can be seen also among the finds from Gortyn (Sternini 1997: Pl. XLVII 12–13). Another close parallel with a wick

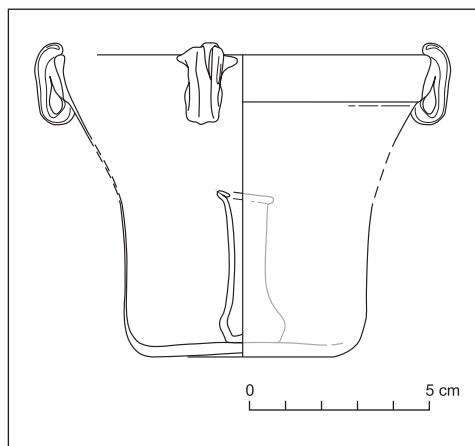


Fig. 6. Lamp on flat base with a glass wick holder: top, reconstruction; bottom, nearly complete lamp with pushed-in base (Reconstruction drawing M. Wagner, photo M. Gawlikowski)

holder but different rim (early 5th century) can be quoted from the Athenian Agora (Weinberg, Stern 2009: Il. 1, page 15) and also from Corinth (Williams, Zervos 1982: Pl. 40, Nos 33–35) and from Petra (Lindblom 2005: Pl. 97, Fig. 2a; Keller 2006: Pl. 19b, Type VII.49, early 5th century; Keller, Lindblom 2008: 337–338). A similar hanging lamp with wick holder, but different rim, dated from the 5th to 7th century, can be seen in the Corning Museum of Glass (Whitehouse 1997: No. 339, with comments and other later parallels).

Type 2 is shaped as a goblet on an applied foot with a wick tube inside [Fig. 7]. The flaring rim is hollow and outfolded, with three handles. The base ring is applied with some jack marks. No close parallel for this kind of lamp has been found, but there are some examples of footed goblets with handles.

Handled goblets on foot but without the inside tube appear in Jerash (Baur

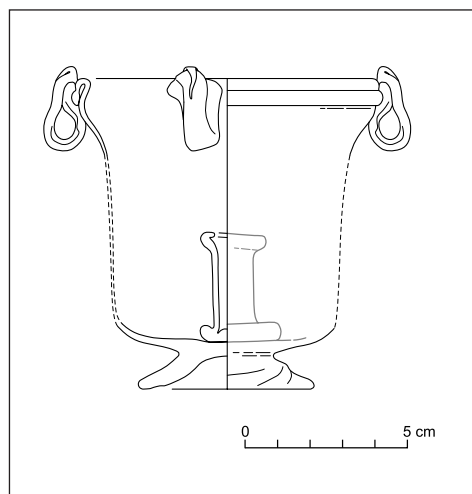


Fig. 7. Lamp on foot, reconstruction (Drawing M. Wagner)

1938: Type F, No. 17, Fig. 20), dated to the 4th–5th century or later, according to G.M. Crowfoot and D.B. Harden (1931: Group 4, Pl. XXX,50). Among other parallels a footed lamp with three handles can be cited from the Ancient Glass collection in Lochem (Arts 2000: No. 70), ascribed to the late 4th century, also lamps from Colchis near Thessaloniki, dated in the 5th century (Antonaras 2008: Pls 3,2 ii, 4,2 ii), and a restored 6th-century handled goblet from Novae (Olczak 1995: Fig. 4). From the Beirut excavations come many, mostly 7th century fragments, which allowed two complete forms to be reconstructed (Foy 2000: Figs 9:1, 10:1). Only one example of a footed goblet with three handles has a wick tube; it comes from Cologne and is dated to the 4th–5th century (La Baume 1973: D105, Pl. 41,4), while a specimen preserving only a wick holder and foot from the Athenian Agora is assigned to the 6th century (Weinberg, Stern 2009: Fig. 21, Nos 380, 381).

Lamps of the second type are less numerous. Fragments of eight examples have been recorded, including two restored complete forms. There are six outfolded rims with handles and parts of walls, and one foot base. The color is mostly light green, but two are olive-green and one is dark green. The height is above 9 cm and the rim diameter about 10 cm.

Both types are characterized by the same form of handles. They were first attached to the rim, hanging down, then brought back up to the rim, leaving a folded trail on top.

The tubular wick holder, whenever present, is attached in the middle of the bottom inside. The body is sometimes conical near the base, but always cylindrical at the neck and the folded rim. The height is between 3 and 4.2 cm.

Metal holders were used for lamps without glass wick holders. Several copper specimens of the two-arm variety, nearly identical with later Byzantine examples, were found in the Hawarte mithraeum [Fig. 8].



Fig. 8. Metal wick holders from the mithraeum (Photo K. Gawlikowska)

LAMPS FROM THE CHURCH

Contexts associated with either of the two churches built on top of the mithraeum included a filling cone in the western part of the grotto (context 24/09). It contained also some Byzantine fragments of the 5th–

6th century, which had slipped from the church above.

Two glass lamp categories were encountered in these layers: single suspension lamps and lamps intended

for polycandela. The single suspension lamps had a bowl-shaped body with three handles applied to the wall and rim. Many fragments of rims with handles were found; in some cases, the handles were attached at mid-height of the walls. Two handles feature a plain tail adhering to the globular body (see Bagatti, Milik 1958: Fig. 35:12; McClellan 2003: No. 302; Jennings *et alii* 2006: Fig. 6.24.1). There is also a handle with a small loop and a long flat strip tail, which could go all the way to the base (like in Hayes 1992: Fig. 150, No. 27, Fig. 151, No. 39; Antonaras 2008: Pl. 3,3 ii) and fragments of cracked-off rims well-known all over the Near East.

The bowl-shaped hanging lamps with handles may have hollow stems (Uboldi 1995: Fig. 5, No. 30) and still be suspended individually as in a reconstructed drawing (Olczak 1995: Fig. Cc) on a horizontal iron hook.

Lamps of the second type have long stems intended to be inserted into the round openings of polycandela. Only

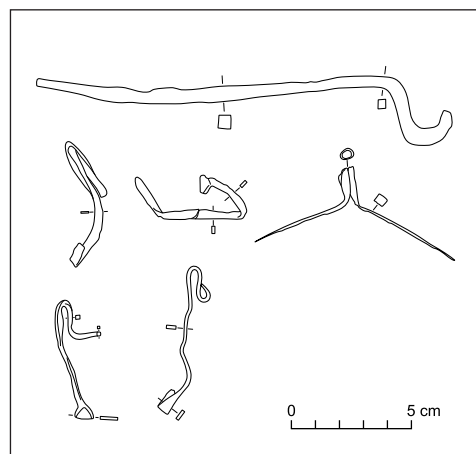


Fig. 9. Iron hook and copper or lead wick holders from Byzantine-date fill

hollow stems were found, to be associated with thickened rounded rim fragments of bowls. Many folded goblet feet, ubiquitous in Byzantine levels throughout the Near East, were also recovered. These are usually interpreted as fragments of goblet-shaped lamps.

Bronze hangers with three wire rods of round section, called polyangistra, were used for single lamps (Antonaras 2008: 24). Many examples of such hangers are known (e.g. Waldbaum 1983: No. 601; Gill 1986: Type A, Nos 169–189; Whitehouse 1997: No. 478A, with references). Another bronze hanger was found by Nadim al Khoury in Bishop Alexander's baptistery [Fig. 10, left]. Hanging from a long suspension hook were three rhomboid flat elements with attachment holes (one of them has been

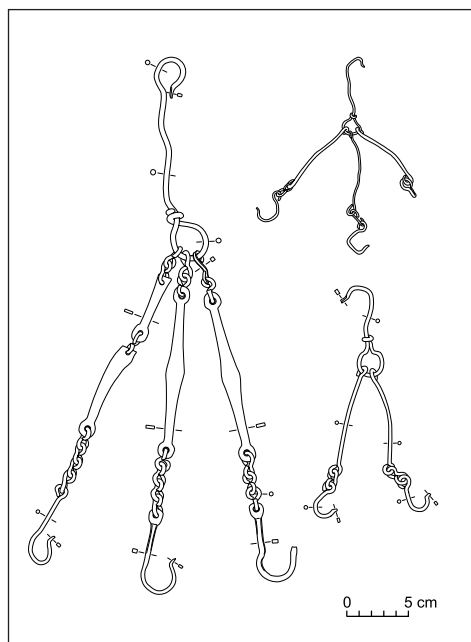


Fig. 10. Three different bronze hangers

broken and repaired) and figure-of-eight twisted links ending with three flat hooks. This kind of hangers could have been used, depending on size, for a simple lamp (like Stern 2001: No. 183; Waldbaum 1983: Nos. 591–592, Pl. 38, and McNicoll 1992: Fig. 32 left) or as here, for a polycandelon, such as the one on display in the Benaki Museum in Athens [Fig. 11]

More common among the metal items related to glass lamps are copper or lead wick holders used to keep wicks in place in lamps without glass tubular holders. Such wick holders consist of a single thin strip of metal, one end bent to hang over the rim and the other end twisted to hold the wick. Examples are known from Jerash (Baur 1938: 517), Nessana (Colt 1962: Pl. 22, No. 27) and Mount Nebo (Saller 1941: Fig. 18:3, Pl. 135,1:8–9). A second type has two strips joining at a short tube through which the wick was passed. They are known from South Turkey (Stern 1984: Fig. 11), namely from Alahan (Gough 1985: Fig. 12,10), Antioch (Kondoleon 2000: Fig. 5 bottom), Anemurium (Russell 1982: 137 and note 14, page 149). Many examples come also from a Byzantine house in Salamis (Chavane 1975: No. 114, Pl. 13). Both types were found in Hawarte [Fig. 9].



Fig. 11. Polycandelon in the gift shop of the Benaki Museum in Athens (modern copy) (Photo M. Gawlikowski)

Krystyna Gawlikowska
 c/o Polish Centre of Mediterranean Archaeology, University of Warsaw
 00-497 Warsaw, Poland
 ul. Nowy Świat 4
 k.gawlikowska@uw.edu.pl

REFERENCES

- Antonaras, A.C.
 2008 Glass lamps of the Roman and Early Christian periods. Evidence from Thessaloniki area [in:] C.-A. Roman, N. Gudea (eds), *Lychnological Acts 2. Trade and Local Production of Lamps from the Prehistory until the Middle Age (Acts of 2nd International Congress on Ancient and Middle Age Lighting Devices, Zalău / Cluj-Napoca, 13th–18th of May 2006)* [= *Patrimonium archaeologicum Transylvanicum* 2], Cluj-Napoca: Editura Mega, 23–30
- Arts, P.L.W.
 2000 *A Collection of Ancient Glass, 500 BC–500 AD*, Lochem: Uitgeversmaatschappij Antiek
- Atallah, M., Gawlikowska, K.
 2007 The glass in the Beiteddine Museum (Walid Joumblatt Collection), *BAAL* 11, 167–277
- Auth, S.H.
 1976 *Ancient Glass at the Newark Museum from the Eugene Schaefer Collection of Antiquities*, Newark, NJ: The Newark Museum
- Bagatti, B., Milik, J.T.
 1958 *Gli scavi del “Dominus flevit”, Monte Oliveto, Gerusalemme I. La necropoli del periodo romano*, Jerusalem: Tipografia dei pp. francescani
- Baur, P.V.C.
 1938 Glassware. Other glass vessels [in:] C.H. Kraeling (ed.), *Gerasa. City of the Decapolis*, New Haven, CT: American School of Oriental Research, 513–546
- Beretta, M., Di Pasquale, G. (eds)
 2004 *Vitrum. Il vetro fra arte e scienza nel mondo romano*, Florence: Giunti; Firenze Musei
- Billeter, E. (ed.)
 1969 *Glas aus der Sammlung des Kunstgewerbemuseums Zürich*, Zürich: Kunstgewerbemuseum
- Caron, B., Zoitopoulou, E.P.
 2008 *Montreal Museum of Fine Arts. Collection of Mediterranean Antiquities I. The Ancient Glass* [= *Monumenta graeca et romana* 13], Leiden: Brill
- Chavane, M.-J.
 1975 *Salamine de Chypre VI. Les petits objets*, Paris: de Boccard
- Colt, H.D.
 1962 *Excavations at Nessana I*, Princeton, NJ: Princeton University Press
- Crowfoot, G.M., Harden, D.B.
 1931 Early Byzantine and later glass lamps, *JEA* 17/3–4, 196–208
- Dusenbery, E.B.
 1971 Ancient glass in the collections of Wheaton College, *JGS* 13, 9–33
 1998 *Samothrace XI. The Nekropoleis II. Catalogues of Objects by Categories* [= *Bollingen Series* 50], Princeton, NJ: Princeton University Press
- Foy, D.
 2000 Un atelier de verrier à Beyrouth au début de la conquête islamique, *Syria* 77, 239–290

- Gill, M.V.
1986 The small finds [in:] R.M. Harrison, *Excavations at Saraçhane in Istanbul I. The Excavations, Structures, Architectural Decoration, Small Finds, Coins, Bones, and Molluscs*, Princeton, NJ: Princeton University Press, 226–277
- Gough, M.
1985 *Alahan. An Early Christian Monastery in Southern Turkey* [=Pontifical Institute of Mediaeval Studies. *Studies and Texts* 73], Toronto: Pontifical Institute of Mediaeval Studies
- Grose, D.F.
1974 Roman glass of the first century AD. A dated deposit of glassware from Cosa, Italy [in:] *Annales du 6^e Congrès international d'étude historique du verre, Cologne, 1–7 juillet 1973*, Liège: Edition du secrétariat général, 31–52
- Hayes, J.W.
1975 *Roman and Pre-Roman Glass in the Royal Ontario Museum. A Catalogue*, Toronto: Royal Ontario Museum
1992 *Excavations in Saraçhane in Istanbul II. The Pottery*, Princeton, NJ: Princeton University Press
- Hilgers, W.
1969 *Lateinische Gefäßnamen, Bezeichnungen, Funktion und Form römischer Gefäße nach den antiken Schriftquellen*, Düsseldorf: Rheinland-Verlag
- Isings, C.
1957 *Roman Glass From Dated Finds* [=Archaeologica Traiectina 2], Gröningen–Djakarta: J.B. Wolters
1965 The glass [in:] M.J. Vermaseren, C.C. van Essen, *The Excavations in the Mithraeum of the Church of Santa Prisca in Rome*, Leiden: E.J. Brill, 508–529
- Jennings, S.
2006 *Vessel Glass from Beirut. Bey 006, 007 and 045* [=Berytus 48–49; *Archaeology of the Beirut Souks* 2], Beirut: American University of Beirut
- Jones, J.D.
2006 The glass [in:] S.T. Parker, *The Roman Frontier in Central Jordan. Final Report on the Limes Arabicus Project, 1980–1989 II*, Washington, D.C.: Dumbarton Oaks Research Library and Collection, 395–412
- Keller, D.
2006 Die Gläser aus Petra [in:] D. Keller, M. Grawehr, *Petra, ez Zantur III* [=Terra Archaeologica 5], Mainz am Rhein: Philipp von Zabern, 1–256
- Keller, D., Lindblom, J.
2008 Glass finds from the church and the chapel [in:] Z.T. Fiema, J. Frösén, *Petra — The Mountain of Aaron. The Finnish Archaeological Project in Jordan I. The Church and the Chapel*, Helsinki: Societas Scientiarum Fennica, 331–375
- Kondoleon, C.
2000 *Antioch. The Lost Ancient City*, Princeton, NJ: Princeton University Press; Worcester Art Museum

- Kunina, N.
1997 *Ancient Glass in the Hermitage Collection*, St. Petersburg: State Hermitage and ARS Publishers
- La Baume, P.
1973 *Glas der antiken Welt* [=Wissenschaftliche Kataloge des Römisch-Germanischen Museums Köln 1], Cologne: Römisch-Germanisches Museum
- Lightfoot, C.S.
2007 *Ancient Glass in National Museums Scotland*, Edinburgh: National Museums Scotland
- Lindblom, J.
2005 Different types of glass lamps in use at the Byzantine monastic complex on Jabal Harûn near Petra, Jordan [in:] L. Chrzanowski (ed.), *Lychnological Acts 1. Actes du 1^{er} Congrès international d'études sur le luminaire antique, Nyon, Genève, 29.IX–4.X.2003* [=Monographies Instrumentum 31], Montagnac: M. Mergoïl, 207–210
- Loffreda, S.
1980 Alcuni vasi ben datati della fortezza di Macheronte, *Liber Annuus* 30, 377–402
- Matheson, S.B.
1980 *Ancient Glass in the Yale University Art Gallery*, New Haven, CT: Yale University Art Gallery
- McClellan, M.C.
2003 Glass [in:] M. Rautman, *A Cypriot Village of Late Antiquity. Kalavastos-Kopetra in the Vasilikos Valley* [=JRA Supplementary Series 52], Portsmouth, RI: Journal of Roman Archaeology, 217–234
- McNicoll, A., Smith, R.H., Hennessy, B. [=McNicoll et alii 1982]
1982 *Pella in Jordan 1. An Interim Report on the Joint University of Sydney and the College of Wooster Excavations at Pella 1979–1981*, Canberra: Australian National Gallery
- McNicoll, A. et alii
1992 *Pella in Jordan 2. The Second Interim Report of the Joint University of Sydney and the College of Wooster Excavations at Pella, 1982–1985*, Sydney: Meditarch
- Nenna, M.-D.
2003 Verreries. La production et la circulation du verre au Proche-Orient [in:] *Périples méditerranéens. Antiquités d'Afrique du Nord et du Moyen-Orient au Musée Saint-Raymond, musée des Antiques de Toulouse* [exhibition catalogue], Toulouse: Musée des Antiques de Toulouse, 146–166
- Olczak, J.
1995 Szkło rzymskie z terenu komendantury w Novae, *Novensia* 8, 15–85
- Oliver, A.
1980 *Ancient Glass in the Carnegie Museum of Natural History*, Pittsburgh, Pittsburgh: Carnegie Institute
- Price, J.
1987 Glass vessel production in Southern Iberia in the first and second centuries AD: A survey of the archaeological evidence, *JGS* 29, 30–39

- Rostovtzeff, M.I., Brown, F.E., Welles, C.B. (eds)
 1939 *The Excavations at Dura-Europos, Conducted by Yale University and the French Academy of Inscriptions and Letters. Preliminary Report of the Seventh and Eighth Seasons of Work 1933–1934 and 1934–1935*, New Haven, CT: Yale University Press
- Russell, J.
 1982 Byzantine *instrumenta domestica* from Anemurium. The significance of context [in:] R.L. Hohlfelder (ed.), *City, Town and Countryside in the Early Byzantine Era* [=East European Monographs 120], Boulder: East European Monographs, 133–164
- (von) Saldern, A.
 1980 *Glas von der Antike bis zum Jugendstil. Sammlung Hans Cohn, Los Angeles/Cal.*, Mainz am Rhein: Philipp von Zabern
- (von) Saldern, A., Nolte, B., La Baume, P., Haeverick, T.E. [=Saldern *et alii* 1974]
 1974 *Gläser der Antike: Sammlung Erwin Oppenländer [exhibition catalogue]*, Hamburg: Museum für Kunst und Gewerbe
- Saller, S.J.
 1941 *The Memorial of Moses on Mount Nebo I*, Jerusalem: Franciscan Press
- Stern, E.M.
 1984 Antikes Glas in der Südtürkei, *Glastechnische Berichte* 57/5, 132–139
 1999 Roman glassblowing in a cultural context, *AJA* 103/3, 441–484
 2001 *Roman, Byzantine, and Early Medieval Glass, 10 BCE–700 CE. Ernesto Wolf Collection*, Ostfildern-Ruit: Hatje Cantz
- Sternini, M.
 1997 Vetri [in:] A. Di Vita, A. Martin (eds), *Gortina II. Pretorio il materiale degli scavi Colini 1970–1977* [=Monografie della Scuola archeologica di Atene e delle missioni italiane in Oriente 7], Padua: Bottega D'Erasmus, 231–263
- Uboldi, M.
 1995 Diffusione delle lampade vitree in età tardoantica e altomedievale e spunti per una tipologia, *Archeologia medievale* 22, 93–143
- Waldbaum, J.C.
 1983 *Metalwork from Sardis. The Finds Through 1974* [=Archeological Exploration of Sardis Monographs 8], Cambridge, MA: Harvard University Press
- Weinberg, G.D., Goldstein, S.M.
 1988 The glass vessels [in:] G.D. Weinberg (ed.), *Excavations at Jalame — Site of a Glass Factory in Late Roman Palestine. Excavations Conducted by a Joint Expedition of the University of Missouri and the Corning Museum of Glass*, Columbia, MO: University of Missouri Press, 38–102
- Weinberg, G.D., Stern, E.M.
 2009 *Vessel Glass* [=The Athenian Agora 34], Princeton, NJ: American School of Classical Studies at Athens
- Whitehouse, D.
 1997 *Roman Glass in the Corning Museum of Glass I*, Corning, NY: The Corning Museum of Glass
- Williams, C.K., Zervos, O.H.
 1982 Corinth, 1981: East of the Theater, *Hesperia* 51/2, 115–163