

Middle Bronze Age Oil Lamps from As-Salt (Jordan)

Ali Al-Manaser, Yazid Alyan, Ali al-Khyyat and Saad Al- Hadidi

Abstract: This article focuses on eight new oil lamps excavated by As-Salt archaeology office at Tell-Al-Gadur and As-Salalm, in As-Salt, Jordan. Based on their form and related stratigraphic evidence, these pottery oil lamps date to the EBIV-MBI Period. All of them found in tombs discovered during excavation, they appear to have never been used.

Keywords: As-Salt, oil lamps, The Intermediate Bronze Age, Early Bronze IV, Middle Bronze I.

Introduction

The city of As-Salt is 30 kilometres west of Amman and approximately 790–1100 metres above sea level (Hiyari 2012, 76) (Fig. 1). It is a rich city in terms of archaeology and culture, with over seven hundred historic houses, and was the first capital of the modern kingdom of Jordan. Topographically, as-Salt is built—and continues to develop—across three steep hills, with the Wadi al-Akrad and ad-Deir corridors cutting through the city along a north-south axis. The Old City (al-medina al-qadima), home to mosques, residential housing and small-scale amenities, is located across the three hills that rise up in out of the two valleys (Al-Zoabi 2004, 550-551). Historically, As-Salt has been known by many names including: Al-Gadur, Saltos, Saltus (Σάλτύς), Salt and As-Salt⁽¹⁾.

Al-Salalm and Tell Al-Gadur

The area of As-Salalm is in the eastern part of modern As-Salt. While the As-Salt Hospital was being built in As-Salalm, a tomb was discovered in the rock. Among the finds in this tomb were some pottery fragments, six pottery jars and three oil lamps, which are referred to

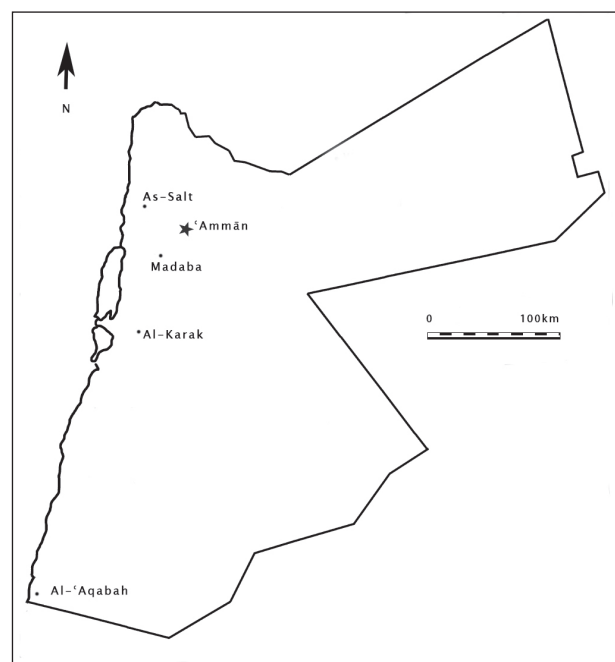


Fig. 1. Map of As-Salt within Jordan.

as nos. 1, 2 and 3 in this paper⁽²⁾. In Tell-Al-Gadur, Mr. Saad Al-Hadidi, the director of the Antiquities Office in As-Salt in 2004, found two pipes, one made of stone and the other ceramic⁽³⁾. The pipes are the only surviving part of a system that went from the south-west to the top of Tell Al-Gadur and behind As-Salt secondary school, eventually reaching water tanks nearby. This system was destroyed during

20th century construction work (Fig. 2).

The As-Salt secondary school on Tell Al-Gadur was built in 1921 and at that time was the largest building in the area. It was also built on a site of considerable archaeological importance. Discoveries in the area include a Roman bath and, under the school itself, the stone parts of an olive press. Both of these have since been destroyed due to modern construction. In addition, Mr. Hadidi found many mosaic fragments in the area now covered by the school's football pitch⁽⁴⁾. The large number of pottery shards and the tombs in the west part of the hill confirm that Tell Al-Gadur has been settled since the Middle Bronze Age. In the new graveyard at Tell Al-Gadur, pieces of mosaic and pottery can still be found in the soil.

Excavation of Tell Al-Gadur

The excavation at Tell Al-Gadur in 2004 and 2005⁽⁵⁾ included squares C3, D3, E5 (Fig. 3) and E6. It covered around 150 square metres and was about nine metres deep in some areas⁽⁶⁾. The excavation area is within the grounds of As-Salt secondary school. The campus itself used to be landscaped with cypress terraces, and olive trees bordering the paved road, which led to the school's front entrance and an upper tiled yard. The soil layers in square E6 that were excavated initially created a large amount of rubble and debris that has since been piled up on the hill, around the school and the rest of the site. The soil contains a large number of pottery shards dating back to the Roman and Byzantine periods, along with a few shards from the Middle Bronze and Iron Ages. At a depth of 150cm, excavation revealed tombs with human remains surrounded by irregular stones, their direction indicating that they were Islamic graves. The soil layers underneath the tomb level contained pottery shards that were primarily from the Middle Bronze Age,

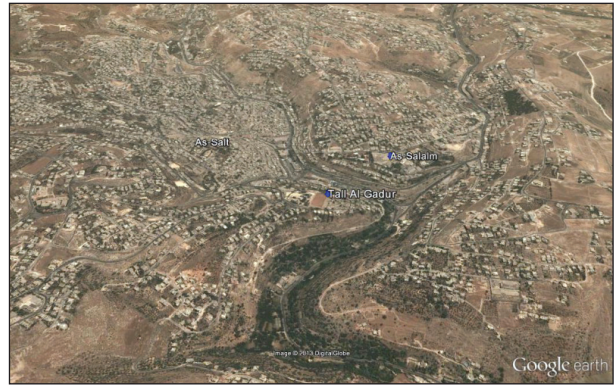


Fig. 2. Satellite image of Tell Al-Gadur and As-Saltam.

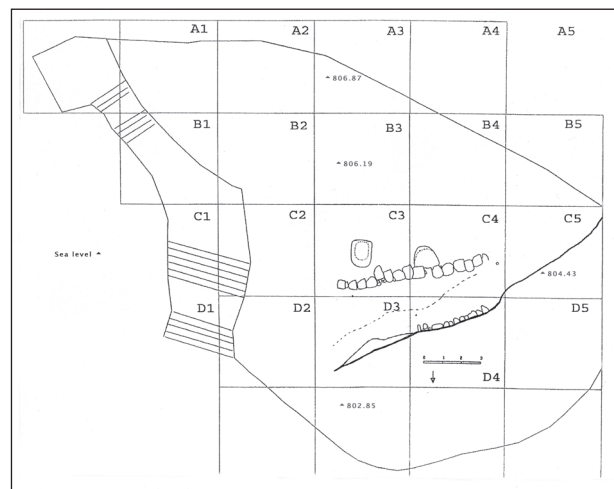


Fig. 3. Plan of the excavation area in Tell Al-Gadur.

with a small number from the late Roman era. Excavation reached the bedrock at a depth of about four metres in the south-west corner of the excavated area (Fig. 5, 6).

Squares (C3, D3, E3):

These squares are located in the northern half of the area. The excavation of these squares reached a depth of six metres and the pottery mostly dated to the Middle Bronze Age (Fig. 3).

Tomb No. 1

Tomb 1 is located in square C3. It is carved into the bedrock and consists of an entrance shaft and circular burial chamber. The entrance shaft is ovoid in shape, oriented from north to south and is 140cm long, 110cm wide at the

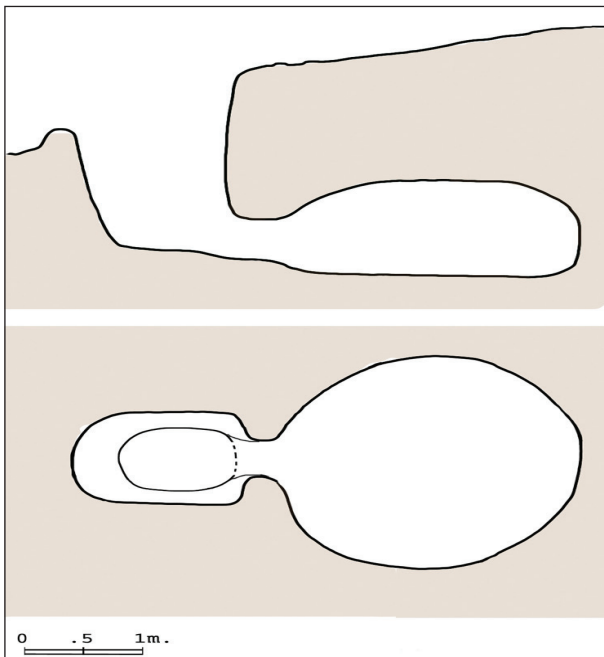


Fig. 4. Cross-section and plan of shaft tomb in Tell Al-Gadur.



Fig. 5. Excavation site in Tell Al-Gadur, Images supplied by the Office of Antiquities in As-Salt.



Fig. 6. Excavated wall with stratification in the background at Tell Al-Gadur.

southern edge, 215cm wide in the centre and at the northern edge 105cm. The burial chamber is almost circular in shape and has a diameter of about 250cm. The convex ceiling is 110cm high, with some parts visible above ground. Located to the north side of the room, the tomb entrance is semi-circular with an average diameter of about 55cm (Fig. 4, 10).

Tomb No. 2

The second tomb is located in square C4, and it is smaller than Tomb 1. Tomb 2 is also a single shaft tomb, and is “L” shaped. The entrance well is ovoid, oriented north to south, and is 120cm in depth and 145cm in width. It is on the northern side of the tomb. The tomb entrance has a circumference of 45cm and was found sealed with limestone rocks. The room is circular in shape with a radius of 100cm and an even floor and a 100cm high ceiling. Human bones were found in the tomb, possibly of a young person, with the skull facing south. Additionally, two jars were found on the east side of the room, as well as two small oil lamps, one of them broken (Fig. 8-9).

A Defensive wall?

A wall made of dressed limestone was also excavated during this project. Constructed of small to medium-sized rocks, which were then set with a limestone and soil mortar, the wall has not been fully uncovered. The wall is 16.2 metres long and runs through squares D3, D4, C4 and C5 on a north-east to south-west axis. The height varies around an average of 3.3 metres, while the width is unclear, but is 95cm in the excavated area. Ceramic shards from the same stratum, as well as the nearby tombs, point to the Middle Bronze I as its period (2300/2250-2000 B.C.). A smaller, parallel “inner” wall was found 2 metres away from the first wall. Built of large, coarse limestone blocks, this wall is only one stone in width, unlike the “defensive”



Fig. 7. Wall and excavated tombs at Tell Al-Gadur.



Fig. 10. Pottery and human bones in Tomb 1 at Tell Al-Gadur.



Fig. 8. Shaft tomb exterior entrances at Tell Al-Gadur.

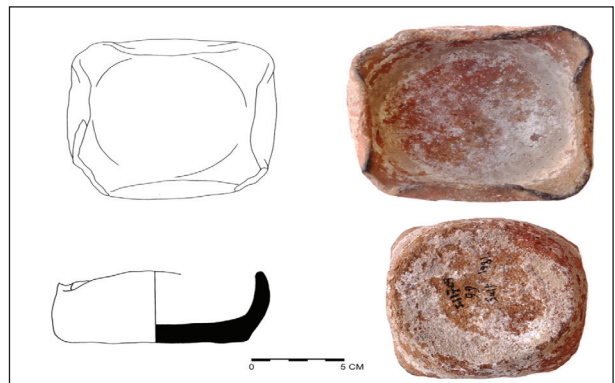


Fig. 11. Oil lamp No. 1, This and subsequent illustrations by Monjed Qasem; photographs by Ali Al-Manaser.



Fig. 9. Detail of interior entrance to shaft tomb at Tell Al-Gadur.

wall which has several layers. The “inner” wall is 80cm high and 45cm wide. Significantly, this wall runs over the tombs, which makes it possible to date it to a later era. Evidence about the area during Middle Bronze I could likewise lead to the conclusion that those walls were built to divide the settlement (Fig. 6-8).

The Intermediate Bronze Age (Early Bronze IV/ Middle Bronze I Period) (2300/2250-2000 B.C.).

The Early Bronze IV/Middle Bronze I (EB IV/ MB I) was, as the name suggests, a transitional time between two periods of established urban culture in the region of Canaan, as evidenced by a clear gap in the archaeological records. Different explanations have been offered in the scholarship for this discontinuity, among them natural causes such as drought, which may have led to a return to nomadism as people travelled ever greater distances to find and exploit diminishing water reserves; and political change arising from invasion by foreign forces (Albright 1962, 36-42; Amiran 1970, 78; Dever 1980, 38; Gophna 1992, 126 ff.; Kafafi 2006, 131-139).

Whatever the cause, apparently a shift away from the increasing urbanisation of Early Bronze III to a more rural, fragmented way of life had occurred. This trend continued until the period known as Middle Bronze II, from around 2000 BC, when people began to return to a more urban lifestyle. Similar changes were occurring in other areas at around the same time. For example, major urban centres of Egypt also witnessed a decline in population and decentralisation of power. The same can be said of Mesopotamia, although the period in which de-urbanisation was the norm was significantly shorter there, only around 100 years as opposed to the 250-300 year period in Canaan (Amiran 1960, 205; Cohen 2009, 2). The Middle Bronze Age is contemporaneous with those periods of Egyptian history categorised as the First Intermediate Period, Middle Kingdom and Second Intermediate Period. In particular, the decline in Early Bronze IV paralleled the First Intermediate Period in Egypt, which saw not only a decentralisation of power but also a decrease in contact with Asia (Bietak 1991, 76-82). The revival of urbanisation in the Levant was similarly concurrent with the rise of the Middle Kingdom in Egypt (Sowada 2009, 4).

One of the notable indicators of the social changes of the time is the evolution of burial habits. The settled societies of Early Bronze III tended to dispose of their dead in mass burials in caves close to their urban centres. However, once these societies began to fragment and drift apart, a different form of burial was required. This led to a revival of the use of shaft tombs, first seen during Early Bronze I but which had fallen out of favour in the intervening years (Dever 1987, 9-10).

These shaft tombs would most often be excavated from limestone or sandstone but, where necessary, would be dug into soil, with stones lining the shaft to prevent collapse

(Greenhut 1995, 3 ff.). The shaft would be dug vertically down into the rock or soil for between 1 and 1.5 metres. Then a similar distance would be excavated horizontally, and at the end of this horizontal shaft a room would be cut to create a burial space. The horizontal shaft would then often be blocked at its outer end with a large stone to prevent unwanted access. Most often, a vertical shaft would only have one tomb leading from it, but sometimes two or three tombs may be found in each shaft. The shape and layout of the tombs varied with time and place. Sometimes they were square or rectangular, sometimes circular, sometimes irregular (Greener 2006, 40).

Artefacts belonging to the deceased would be placed alongside the body in the tomb. These might include pottery such as oil lamps or vessels for cooking and storage, as well as other useful or valuable objects such as jewellery or weapons. The pottery artefacts in particular show significant variation over time as different cultural influences took hold, with designs and decorations of Syrian origin becoming prevalent. The most significant change was the introduction of the potter's wheel, which allowed for finer, more elaborate shapes of pot to be produced. (Kafafi 2006, 205).

The different types of tombs that were identified by different scholars⁽⁷⁾, included composite tombs, dagger tombs and pottery tombs. Most of the tombs contain a single skeleton in a secondary burial, interred with pottery lamps and vessels, beads, copper pins, daggers and javelins (Greener 2006, III). Composite tombs usually contain articulated crouched skeletons in the rear of the chamber, facing the entrance. Chambers are usually north of the shaft so that the body faced south with the head pointing towards the west (Kenyon 1965, 552). Dagger tombs are smaller and more consistent than other tomb types. Most tombs

have a single articulated skeleton and a single copper dagger either at the skeleton's waist or by the arms. Sometimes a pin or several beads are found. Pottery tombs are large, arranged compactly and roughly cut. Most skeletons are disarticulated, suggesting a temporary burial.

Oil Lamp Typology in the Middle Bronze Age⁽⁸⁾.

There were four kinds of oil lamps in the Middle Bronze Age:

- a. Oil lamps with four spouted nozzles, the most prevalent in this period.
- b. Oil lamps with one spouted nozzle⁽⁹⁾.
- c. Footed or goblet.
- d. Multi-spouted.

The square shape of the bowl was easily created by hand, before the potter's wheel was used extensively. The general form of this kind is a bowl of medium depth with four spouted nozzles. These were formed by pinching the four corners of the top of the lamp inward. Spouts were formed using several techniques, alone or in combination: pinching with thumbs, stretching the square walls, folding and pushing inward. However, most lamps were created using the folding/lapping technique, which became the regular method for fashioning lamps in later eras. We usually find that the four openings are on roughly the same level and they are most often covered with a thin layer of black soot, which indicates that the lamps had been used. The rounded sides and the outside edges were often very thin, ranging between 0.4cm and 1.4cm, while the lamps generally were 15.4cm to 17.2cm in diameter (Sussman 2007, 22-24; Abu Ragouh 1999, 34).

Bases:

The bases of these lamps were generally flat to aid stability, although some were constructed

with at least a partly rounded base (Abu Ragouh 1999, 35).

Ware / Fabric

During this period, ware composition varied greatly, resulting in many differently-hued vessels (i.e., grey, brown, pink). The ware of the As-Salt lamps is likewise varied, with hints of light and dark brown, brown-grey, and yellowish-brown on a mainly orange base colour. The ware is rough and has calcareous stones of different colours: white, black, grey and yellow. The ware is clearly very porous, and there are some gaps, cracks and fissures in the bodies of some of the lamps. This proves that the ware was not of good quality, as this damage occurred during production and use (Abu Ragouh 1999, 35; Douglas 2001, 48; Hendrix, Drey and Storfjell 1996, 135).

Firing

Generally, lamps of this era did not burn oil evenly. This is clear from the uneven charring visible on the rims of the lamps⁽¹⁰⁾. However, there are also examples of lamps that burned more evenly and efficiently (Abu Ragouh 1999, 36; Douglas 2001, 45- 47).

Surface Treatment

The surfaces of these lamps were covered with an underlay of different colours: red, brown, cream, grey, light orange and white. This underlay has been chipped from the inner and outer surfaces (Abu Ragouh 1999, 36).

Oil lamp No. 1:

Oil lamp found in a rock tomb in the As-Salalm area

Description:

Lamp in a form of a bowl with four spouted nozzles and flattened base

Current location: As-Salt Museum, Jordan

Museum number: 99

Diameter: 11.04cm

Height: 5cm

Thickness: 0.4 cm – 1.2 cm

Intact oil lamp with four spouted nozzles. The nozzles are slightly pinched and charred on the edges. The rim of the bowl curves in between the nozzles. The flat base makes the lamp stable and is coated in chalk. Overall the lamp is heavy for its size and is composed of clay mixed with a small amount of sand. The lamp is brownish-red in colour, hand-made and wheel finished. A similar example to this oil lamp was found inside one of the graves of Um Bighal, near Amman, dating back to the EBIV (Helms, 1989, Fig. 5: 1). A close parallel to the lamp is reported by Helms from Tiwal esh-Sharqi (1983, Fig. 22:7). Another example of round-based lamps came to us from “Sports City” (Zayadine 1978, Fig. 4:10, 8, 9), and Jebel Jofeh (Hadidi 1982, pl. 81:7, 6). Other examples from El Husn Tomb can be found in Amiran (1960, Fig. 3. 15). Oil lamps of a similar type were found at Jerusalem –Kefar Hashiloah (Sussman 2007, Lamp No. 139) and at Ein HaNatziv (Sussman 2007, Lamp No. 159).

Oil lamp No. 2:

Oil lamp found in a rock tomb in the As-Salalm area

Description:

Oil Lamp with four spouted nozzles and flattened base

Current location: As-Salt Museum, Jordan

Museum number: 883

Diameter: 12cm

Height: 5.05cm

Thickness: 0.04cm –1cm

One of the nozzles has been chipped and the interior of the bowl is cracked due to the poor quality of the clay. This lamp is comprised of a chalkier clay than the first lamp, has a shallower,

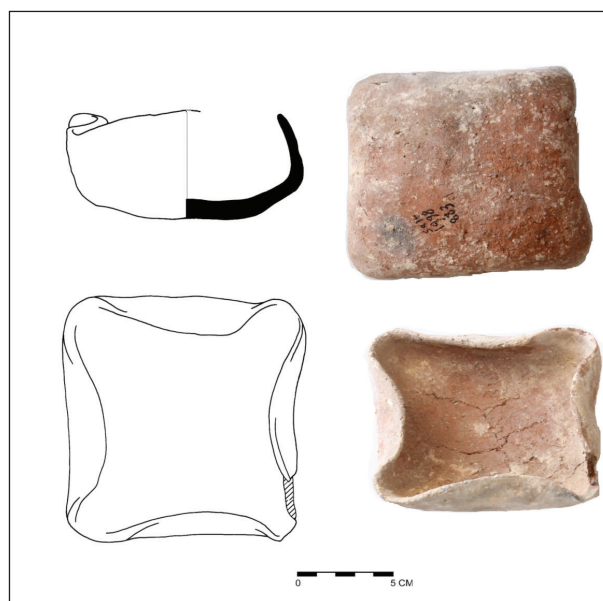


Fig. 12. Oil lamp No. 2 (drawn by Monjed Qasem)



Fig. 13. Oil lamp No. 3 (drawn by Monjed Qasem)

rounder base and thinner walls. The lamp is brownish in colour. It is similar to the oil lamp discovered inside a grave in Um Bighal near Amman, dated to EBIV (Helms 1989, Fig. 2: 8). Another close parallel to the lamp was found at Azor- Holon (Sussman 2007, Lamp No. 132).

Oil lamp No. 3:

Oil lamp found in a rock tomb in the As-

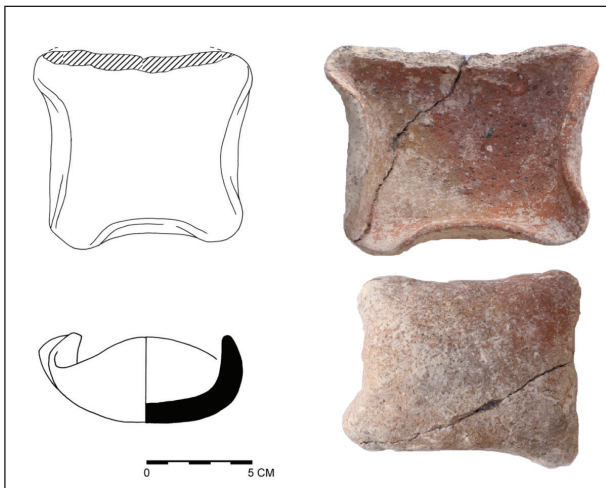


Fig. 14. Oil lamp No. 4 (drawn by Monjed Qasem)

Salalm area

Description:

Oil Lamp with four spouted nozzles and flattened base

Current location: As-Salt Museum, Jordan
 Museum number: 885
 Diameter: 10.04cm
 Height: 4.04cm
 Thickness: 0.05cm –0.08cm

Sculpted out of fine clay and pale brown in colour. Evidence of charring is visible both inside and on the base of the bowl. The nozzles are not as pinched as in the previous two figures, giving the lamp a more rounded shape overall. We found an parallel to this oil lamp from Um Bighal near Amman, dated to EBIV (Helms 1989, Fig. 2: 7), Another example of this lamp comes to us from Gibeon (Sussman 2007, Lamp No. 128).

Oil lamp No. 4:

Oil lamp found in a rock tomb in Tell Al-Gadur

Description:

Oil Lamp with four spouted nozzles and flattened base

Current location: As-Salt Museum, Jordan
 Museum number: n/a
 Diameter: 9.02cm
 Height: 4cm
 Thickness: 0.5cm –1cm

A shallow lamp that has been broken into two pieces on the diagonal between two nozzles with the break ending in the middle of a third nozzle. Another piece from the rim between the first two nozzles has also broken off and has since disappeared. The clay is of a similar brownish-red colour to lamp no. 1, but is of a coarser, sandy consistency with small stones. The base is rounded in such a way that the lamp is unstable. Further examples can be found at Um Bighal, near Amman, dated to the EBIV (Helms 1989, Fig. 2: 19), and at Tel Rehov (Sussman 2007, Lamp No. 153).

Oil lamp No. 5:

Oil lamp found in a rock tomb in Tell Al-Gadur

Description:

Oil lamp with four spouted nozzles and flattened base

Current location: As-Salt Museum, Jordan
 Museum number: n/a
 Diameter: 12cm

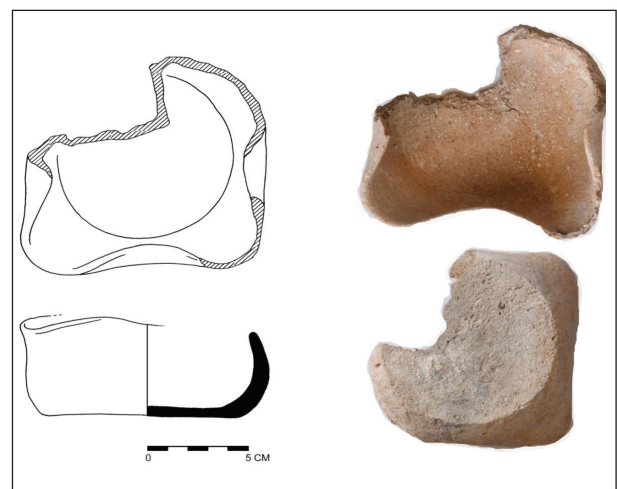


Fig. 15. Oil lamp No. 5 (drawn by Monjed Qasem)

Height: 4.07cm

Thickness: 0.03cm –0.08cm

This lamp has a notably flat base, similar to lamp no. 1, which makes it stable. Open in shape, the walls of the lamp are quite thin, which is no doubt why one of the nozzles has broken off completely. The rims of a further two nozzles have likewise chipped off. The clay has a high chalk component, giving the lamp a light brown colour. We have parallels to this lamp from Um Bighal, near Amman, dated to the EBIV (Helms, 1989: Fig. 5: 4); Lachish also provides a close parallel for this lamp (Amiran 1960, Fig. 2. 21) from a similar era.

Oil lamp No. 6:

Oil lamp found in a rock tomb in Tell Al-Gadur

Description:

Oil lamp with four spouted nozzles and flattened base

Current location: As-Salt Museum, Jordan

Museum number: n/a

Diameter: 10.03cm

Height: 5.08cm

Thickness: 0.05cm –1.03cm

A large lamp made of strong, homogeneous clay. Several of the nozzles are burnt from use and there is a recent break to the rim between two nozzles. Comparative lamps have been found in Um Bighal, near Amman, dating back to the EBIV (Helms 1989, Fig. 3: 4); and it has a fairly close parallel from Azor - Ḥolon (Sussman 2007, Lamp No. 168).

Oil lamp No. 7:

This Oil lamp was found in a rock grave (tomb) in As-Salalm area

Description:

Oil Lamp with four spouted nozzles and flatted base

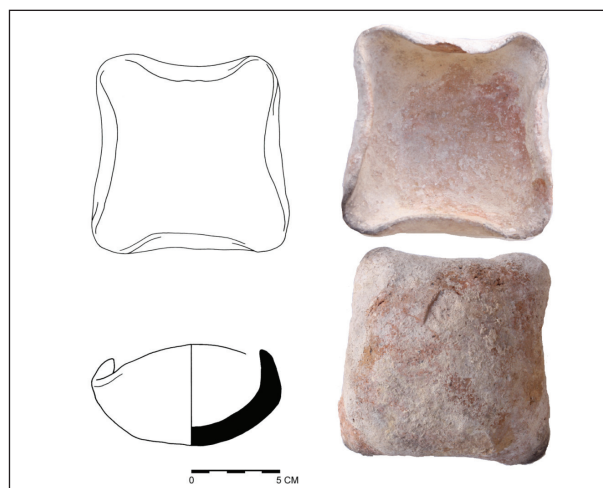


Fig. 16. Oil lamp No. 6 (drawn by Monjed Qasem)

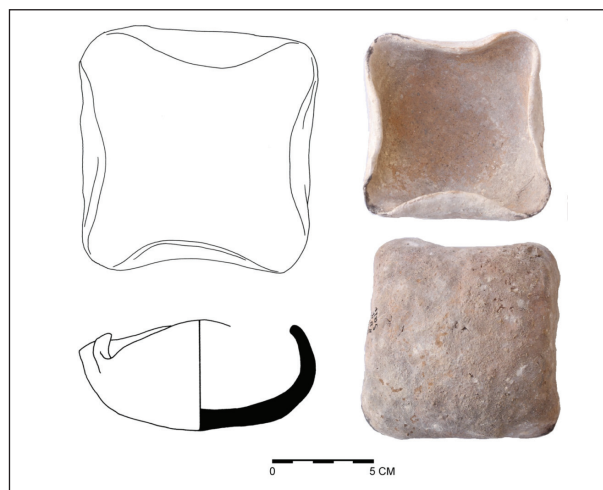


Fig. 17. Oil lamp No. 7 (drawn by Monjed Qasem)

Diameter: 11.04cm

Height: 5.02cm

Thickness: 0.7cm –1cm

A similar oil lamp was found inside one of the graves in Um Bighal, near Amman, dating back to the EBIV (Helms 1989, Fig. 4: 3), and another example of this lamp came to us from Azor - Ḥolon (Sussman 2007, Lamp No. 171).

Oil lamp No. 8:

This Oil lamp was found in a rock grave (tomb) in As-Salalm area

Description:

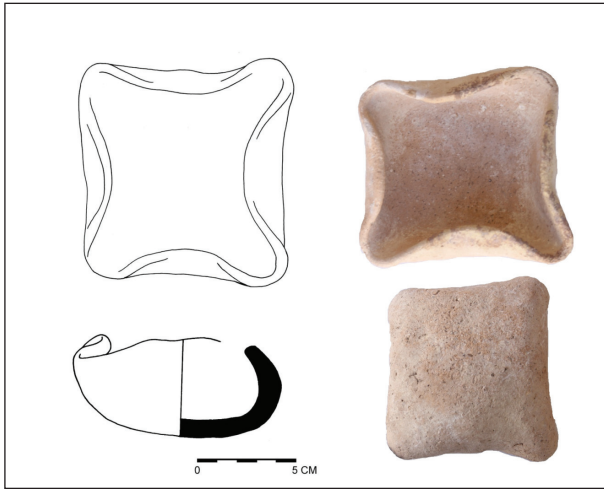


Fig. 18. Oil lamp No 8 (drawn by Monjed Qasem)

Oil Lamp with four spouted nozzles and flatted base

Diameter: 10.04cm

Height: 4.09cm

Thickness: 0.07cm –1.02cm

A similar sample of this Oil lamp was found inside one of the graves in Um Bighal, near Amman, dating to the EBIV (Helms, 1989: Fig. 5: 5); others were found at Megiddo (Amiran 1960, Fig. 4. 12) and at Azor - Holon (Sussman 2007, Lamp No. 169).

Conclusions

The few items (oil lamps, jugs, storage jars, and hole-mouth jars) that comprised the contents of the tombs excavated at Tell-Al-Gadur and As-Salalm area in As-Salt, Jordan, could suggest that this type of ceramic belongs to the Amman-Zarqa (AZ) pottery family. It also seems likely that some contact existed between this area and outside regions. As a result of our study of the Middle Bronze Age oil lamps from As-Salt, it may be proposed that the local population of the As-Salt city area engaged in such burial practices.

Dr. Ali Al-Manaser: Khalili Research Centre, University of Oxford, 3 St John Street, Oxford, OX1 2LG, ali.al-manaser@orinst.ox.ac.uk.

Mr. Yazid Alyan: Director of the Antiquities Office in As-Salt)

Mr. Ali al-Khyyat: Director of the Antiquities Office in Jerash)

Mr. Saad Al- Hadidi: Antiquities Office in As-Salt)

Mr. Ahmad Al-Twahiah: Antiquities Office in As-Salt)

ملخص: يتناول البحث ثمانية أسرجة فخارية جديدة، من مدينة السلط بالأردن، تعود إلى العصر البرونزي المتوسط، عشر عليها خلال أعمال التنقيب التي أجراها مكتب آثار السلط في منطقة السلالم وتل الجادور، وأرخت بناءً على مقارنة الشكل العام لها إلى العصر البرونزي المبكر الفترة الرابعة/ العصر البرونزي المتوسط.

Notes

- (1) Knauf, E. A. and Lenzen, C. J., 1987. 'Notes on Syrian Toponyms in Egyptian Sources II', *Göttinger Miszellen* – 98: 49-53 Goettingen. Mershen, B., and Knauf, E. A., 1988. 'From Gadar to Umm Qais', *Zeitschrift des Deutschen Palästina-Vereins* 104: 128-45. Mittmann, S., 1973. 'Das südliche Ostjordanland im Lichte eines neuassyrischen Keilschriftbriefes aus Nimrud', *Zeitschrift des Deutschen Palästina-Vereins* 89: 15-25. Saggs, H. W. F. 1955. 'The Nimrud Letters, 1952: Part II', *Iraq*, Vol. 17, No. 2 (Autumn, 1955), pp. 126-160 British Institute for the Study of Iraq. Schumacher, G., 1895. 'Es-Salt', *Zeitschrift des Deutschen Palästina-Vereins* 18: 65-72.
 - (2) The discovery was made during excavations by Mr. Ali Al-Khyyat, from the Antiquities Office in As-Salt. Unfortunately, it was not possible to find documentation of the excavation at the hospital site.
 - (3) This information comes via an as-yet-unpublished excavation report (madīnat as-salt muṣūarah fī al-‘aṣr al-burūnī, muṣrū‘ at-tanqībāt al-Aṭarīah fī madīnat as-salt, Sa‘ad al-Ḥadīdī, Yazīd ‘alīān, Aḥmad aṭ-Ṭūāhīah, 2005).
 - (4) This information comes via an as-yet-unpublished excavation report (see previous note).
 - (5) The discovery was made during excavations by Saad Al-Hadidi and Mr Yazid Alyan and Ahmad Al-Twahiah from the Antiquities Office in As-Salt.
 - (6) This information comes via an as-yet-unpublished excavation report (see note 4).
 - (7) Kenyon, K., 1960, *Excavations at Jericho (Vol. I): the Tombs Excavated in 1952-4*, Jerusalem. Kenyon, K., 1965, *Excavations at Jericho (Vol. II): the Tombs Excavated in 1955-8*, Jerusalem.
 - (8) See: D’Andrea, M., 2012. 'The Early Bronze IV Period in South-Central Transjordan: Reconsidering Chronology through Ceramic Technology'. *Levant* 44: 17 – 50.
 - (9) The single spouted lamps were the only type to be used in subsequent periods.
 - (10) See Figure 4 for an example.
- * Sincere thanks go to Dr. Aaron Schmitt from the Institut für Altertumswissenschaften Johannes Gutenberg- Universität, Mainz, and Prof. Dr. Adelheid Otto from Ludwig-Maximilians-Universität, München. Ali Al-Manaser is also extremely thankful and indebted to Mr. Yazid Alyan, Mr Ali Al-Khyyat; Mr. Saad Al-Hadidi and Ahmad Al-Twahiah for sharing their material and expertise, and for the sincere and valuable guidance and encouragement extended to him. We would like to extend our gratitude to Mr. Monjed Qasem for his great help and for drawing the oil lamps included in this article.

References

- Abu Ragouh, Ola., 1999. **Study of the Development of Pottery Oil Lamps from the Early Bronze Age until the End of the Hellenistic Age**, Master’s Thesis, Jordan University (in Arabic).
- Albright, W. F., 1962. “The Chronology of Middle Bronze I (Early Bronze-Middle Bronze)”, *Bulletin of the American Schools of Oriental Research* 168: 36-42.
- Amiran, R., 1960. “The Pottery of the Middle Bronze Age I in Palestine”, *Israel Exploration Journal* 10: 204-225.
- Amiran, R., 1970. **Ancient Pottery of the Holy Land: From Its Beginnings in the Neolithic Period to the End of the Iron Age**, Rutgers University Press.
- Bietak, M., 1991. “Egypt and Canaan during the Middle Bronze Age”, *Bulletin of the American Schools of Oriental Research* 281: 27-72.
- Cohen, S., 2009. “Continuities and Discontinuities: A Reexamination of the Intermediate Bronze Age—Middle Bronze Age Transition in Canaan”, *Bulletin of the American Schools of Oriental Research* 354: 1-13
- D’Andrea, M., 2012. “The Early Bronze IV Period in South-Central Transjordan: Reconsidering Chronology through Ceramic Technology”. *Levant* 44: 17 – 50.
- Dever, W., 1980. “New Vistas on the EB IV (MB I) Horizon in Syria-Palestine”, *Bulletin of the American Schools of Oriental Research* 237: 35-64.
- Dever, W., 1987. “Funerary Practices in EB IV (MB I) Palestine: A Study in Cultural Discontinuity”. In J.H. MARKS and R.M. GOOD. (eds.). **Love and Death in the Ancient Near East**. Essays in Honor of Marvin H. Pope. Guilford. 9-19.
- Douglas, D., 2001. **The Development and Demise of the Early Bronze Age IV, Near Eastern Oil-Lamp**, Ph.D Thesis, Commonwealth Open University.
- Greener, A., 2006. **Intermediate Bronze Age Burial and Society in the Land of Israel**, Master’s Thesis, Department of Land of Israel Studies and Archaeology, Bar-Ilan University.
- Gophna, R., 1992. “The Intermediate Bronze Age. In A. BEN-TOR. **The Archaeology of Ancient Israel. London and Tel Aviv**, Chapter 5: 126-158.
- Greenhut, Z., 1995. “EB IV Tombs and Burials in Palestine”, *Tel Aviv* 22, 1: 3-46.

- Hadidi, A., 1982. "An EB- MB Tomb at Jabal Jofeh in Amman", **Annual of the Department of Antiquities of Jordan** 26: 283-286/ pls.78-81.
- Helms S., 1983. "The EB IV (EB-MB) Cemetery at Tiwal Esh-Sharqi in the Jordan Valley 1983", **Annual of the Department of Antiquities Jordan** 27: 55-85.
- Helms, S., 1989. "An EB IV Pottery Repertoire at Amman, Jordan", **Bulletin of the American Schools of Oriental Research** 273: 17-36.
- Hendrix, R., Drey, P. and Storfjell, B., 1996. **Ancient Pottery of Transjordan: An Introduction utilizing published whole Forms, Late Neolithic through Late Islamic**, Andrews University.
- Hiyari, A., 2012. **An Integrated Participatory Approach in Managing Built Heritage, Case Study Al Salt, Jordan**, Ph.D Thesis, Technical University of Dortmund.
- Kafafi, Z., 2006. **The history of Jordan and its archaeology in the ancient age (Bronze and Iron Ages)**, Amman, Jordan (in Arabic).
- Kenyon, K., 1965. **Excavations at Jericho (Vol. II): the Tombs Excavated in 1955-8**.
- Knauf, E. A. and Lenzen, C. J., 1987. "Notes on Syrian Toponyms in Egyptian Sources II", **Göttinger Miszellen** – 98: 49-53 Goettingen.
- Mershen, B., and Knauf, E. A., 1988. "From Gadar to Umm Qais", **Zeitschrift des Deutschen Palästina-Vereins** 104: 128-45.
- Mittmann, S., 1973. "Das südliche Ostjordanland im Lichte eines neuassyrischen Keilschriftbriefes aus Nimrud", **Zeitschrift des Deutschen Palästina-Vereins** 89: 15-25.
- Saggs, H. W. F. 1955. "The Nimrud Letters, 1952: Part II", **Iraq**, Vol. 17, No. 2 (Autumn, 1955), pp. 126-160 British Institute for the Study of Iraq.
- Schumacher, G., 1895. „Es-Salt“, **Zeitschrift des Deutschen Palästina-Vereins** 18: 65-72.
- Sowada, K., 2009. "Egypt in the Eastern Mediterranean during the Old Kingdom: An Archaeological Perspective", **Orbis Biblicus et Orientalis - OBO** 237 Create a standing order for this series Academic Press Fribourg.
- Sussman, V., 2007. "Oil-Lamps in the Holy Land: Saucer Lamps. From the Beginning to the Hellenistic Period, Collections of the Israel Antiquities Authority", **BAR International Series** 1598.
- Zayadine, F., 1978. "An EB-MB Bilobate Tomb at Amman", P. R. S. Moorey - P. J. Parr (eds.), **Archaeology in the Levant: Essays in Honor of Kathleen M. Kenyon**, Warminster, pp. 59-66, figs, pls.8-10.
- Al-Zoabi, Ahmad Y., 2004. "The residents" "images of the past" in the architecture of Salt City, Jordan", **Habitat International** 28 (2004): 541-565.