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Cremation Burials in Jordan: A Regional Perspective

Summary

This is a regional review on the practice of cremation from the Neolithic to the Roman era in the light of latest excavations reports and research, more from a biological aspect. It showed that regionally, cremation was not a funerary practice, before the LBA. Hygienic factors possibly played a role in the regional widespread of practice during the IA. Cremation burials did not appear in Jordan before the Roman period. They were more frequent than previously perceived and reflected Roman/Hellenistic cultural influence and very likely practiced among the well to do section of the local population.

Introduction

This is a review and an update on the practice of cremation in Jordan from the early periods to the Roman era, with a regional perspective; reflecting the archaeological evidence in the light of human biology. One has to differentiate between accidental or intentional, sometimes destructive, burning of human bones and cremation as part of the funerary customs of a given community. Cremation is thus one method to handle the corpse of deceased individuals by their related persons shortly after death by incinerating the body (Primary Cremation) or what remained after the decay of the soft tissue (Secondary Cremation).

A number of studies were carried out to determine changes that occur to the bones in the process of cremation (*e.g.* Herrmann 1976; Whyte 2001; also Großkopf 2004: 8-26 for overview). These included changes to the colour, size, and shape influences by the organic and inorganic bone contents. Beside oxygen supply, temperature and time, the type of "fuel", and the body constitution of the deceased affect the incineration process (Holck 1987: 131-163). Despite slight differences, the studies showed that the yellow-white bones attain a brown/dark grey colour by 300 C°. Between 400-500 C° they become dark grey or black and slightly deformed. By 700-800 C° the bones become increasingly whitish with deformations including coiling, grid patterns, vertical, horizontal and elliptical fissures. At this point, fragmentation is slight and shrinkage reaches about 20%. Above 1000 C° the bones become chalky and brittle with pronounced deformation. Heat induced changes are not homogenous as different bones burn

differently (Comp. Hermann 1988: 577-580; Holck 1987: 144). The extent of fragmentation increases when the process is abruptly stopped. The burning of dry bones causes vertical cracks but no elliptical fissures nor coiled fragments (Hermann 1988; Großkopf 2004: 24). There is no information on the effect of lengthy exposure to heat or "slow" burning on bones.

Regional Occurrence from the Neolithic to Iron Age

The earliest cremation case was suggested to be tens of thousands years old (Browler *et al*. 2003). It was during the Neolithic period that cremation became practiced in different cultures in different continents (*e.g.* Reinhart *et al*. 2002; Scarre 2002; Meacham 2004). Until recently, claims of Neolithic cremations in the Near East and Egypt were made while citing (Childe 1945: 14), who in turn cited allegation (Dunand 1939).

Regionally, that is from the Syro-Palestinian coast to the Euphrates and excluding Jordan for the time being[1], the earliest cremations were reported from the Neolithic Tall al-Kerkh site in Northwest Syria (Tsuneki 2011: 84). Yet, the provided graphics revealed stronger burning of the secondary burials in the upper concentrations C6 than in the lower C5. Furthermore and aside from coloration, the burnt pits and their contents did not differ from those of non-burnt bone concentrations like C1 (comp. Tsuneki 2011: Fig 3; Tsuneki and Haydar 2011: 12-15). The presented information does not verify whether the burning was intentional or accidental. They might have been "tertiary cremations", at best.

Most authors suggested that cremations appeared in this region as early as the Early Bronze Age (EBA) (*e.g.* Biankowski 1982; Rosik 2001; Ilan 2002; Polcaro 2014). From the EBA to the Middle Bronze Age (MBA) cremations were reported in about 10 different sites, mostly cave burials. In Palestine, the earliest case was from Tall Jazzari's EBA-I cave tomb 2I, the so called "Crematorium" (Macalister 1911: 58-9, 74-6, 285-9, fig. 20). Accordingly, the cave was used as a burial place in two distinct periods. The later phase was represented by inhumations on the upper layer and in enclosures built in the artificially enlarged eastern part of the cave. The earlier phase is represented in a pile of ash and burnt semi-articulate human bones of some 20 adults and an unknown number of subadults on the cave's floor. The pile was about 30cm thickest at the western end diminishing eastwards in the other cave half and consisted of alternating white earth and black ash strata. These observations suggest that the bones were subjected to multiple, limited, and subsequent fires that probably did not exceed 300 C°. Aside from being fragmentary, no heat induced bone deformations were reported. This was reflected in the osteological analyses and conclusions made (Macalister 1911: 58-9). It appears that the fires were started by a later community in preparation to use the cave as a burial place, as indicated by the upper layer inhumations. The fires might have been intended as a hygienic measure (Bienkowski 1982: 87) to eradicate bad smell or intruding animals, *e.g.* rodents and reptiles. It is also very likely that the fires were used to query the cave tomb's eastern enlargement as indicated by the 2 feet of soft rock debris piled on the western part (Macalister 1911: 75). This fire-query technique was in use until recently in this region. A similar dated EBA-I cremation site was reported in cave tomb 94 in Jericho (Kenyon 1960: 16-26; Gallaway 1962: 117). Disarticulate and rearranged human skeletal remains of multiple individuals were found partly burnt below a layer of earth, rock chips and stones intermingled with pottery fragments. Above this, alternating layers of ash and small rocks were just below a reddish earthy fill. In the absence of osteological data, the stratigraphy indicates that the human bones below were affected or indirectly burnt by small fires

1. For cremations in Mesopotamia see, among others, reviews in Akkermanns 1989; Kreppner 2008:267; and Polcaro 2014:140-1.

above. It is very likely that those who started the fires above were unaware of the burials below. Though of a later period, Soltysiak (2008) reported on a double jar sub-adult burial form Tall Barra in NE Syria. The articulate skeleton was nearly burnt but the outer jar surface revealed no traces of fire. The upper layer was ashy. This lead to conclude accidental burning caused by multiple campfires above, as probably the case in Jericho's tomb 94. While the supposed cremation in Yāzūr (Ben Tor 1975) represents another similar case of unintentional burning, two other finds in the vicinity of Jaffa (Kaplan 1993: 521, 1473), as well as the EBA-II case at Tall Beit Yara (Maisler 1942) remain very questionable if not doubtful.

In Syria, the first case of cremation was reported from Tall Chuera in the North East. This EBA-III burial of 4-6 adults found enclosed in Kammer 5 of Steinbau 1 was suggested to be secondary partial cremations (Moortgat 1962: 35-43). The presented evidence indicates limited fire in a limited space where the burials were deposited. The disarticulation and burning might have been unintentional or random. Given the building's condition and other inhumations found earlier (Moortgat 1960), accidental burning should not be excluded so that the case of Tall Chuera cremation remains doubtful. In the island of Ebla on the Syrian coast the MBA cave tomb P.8680 revealed burnt secondary burials re-deposited "against the pit corner" (Mogliazza and Polcaro 2010). The burnt bones revealed longitudinal cracks only (Mogliazza 2017: Personal Communication) and light coiling can be observed (comp. Polcaro 2014: 148, fig. 2) indicating that the bones maintained some organic material when burnt. Furthermore, the temperature required to reach such bone deformations (at least 300-500 C°) would have left a substantial ash layer. This couldn't have been possible given the pit's limited space with limited oxygen flow to reach and maintain such high temperatures (s. a.). Hence, the possibility of a hygienic act (Polcaro 2014: 142) is doubtful. Though it is difficult to ascertain whether the burnings were secondary or tertiary cremations (Polcaro 2016: Personal Communication), suggested that the case of Tomb P.8680 was not a cremation and that the burning took place outside the tomb. As to early cremation cases from Lebanon, there is great uncertainty about the reports from the EBA-IV sites of Al-Houriye Cave (Beayno *et al*. 2002) and Magharet ash-Shatawi (Copeland and Wescombe 1966).

So far, the indications are that the above cases were random burnings of human bones, intentional or none, regardless of the above narrow difinition of cremation. There is no substantial evidence that cremation was part of the funerary customs of any regional community until the emergence of the LBA period. From the LBA through the Iron Age (IA), 14th /13th-6th century BC, cremation burials became increasingly widespread, though inhumation remained generally the rule. This was attested in tens of sites in Palestine, Lebanon, and Syria (TABLE 1). Similarities between the sites were observed, alongside local variations (Bienkowski 1982: 87; Tenu 2009: 85). Some had single, *e.g.* Yazur (Dothan 1961), while others revealed more than hundred cremations, *e.g.* Hama (Riis 1948) and Al Bass (Aubet 2010). Few were intra-mural, *e.g.* Tall Sheikh Hamad (Kreppner 2008: 265) but most were extra-mural in specified burial places, *e.g.* Tall Shuikh Fuqani (Tenu 2009). Variations in the practice included depositing the incinerated human remains in single (Tenu 2009) or double pottery urns (Aubet 2010) or even in a vertical pit, *e.g.* Er-Ruqqeish (Culican 1973).

The strong appearance in the LBA and expansion during the IA of cremation burials in this region lead to different attempts to explain such occurrences (*e.g.* Bienkowski 1982: 87; Aubet 2013: 79-80). Yet, the greater majority of scholars considered migration to be the primary factor (*e.g.* Gilmour 1995: 167-9; Ilian 2002). Cremation might have had an Anatolian origin (Gilmour 1995: 167; Lewartowski 1998: 138;

Table 1. A Random Listing of the Regional Cremation Burial Sites Dated from LBA through IA. Sites with a Degree of Uncertainty are Marked by (?).

Palestine	Syria	Lebanon
Tall Bayt Mersim ? (Albright,1938)	Tall Shiukh Fuqani (Tenu, 2009)	Al Bass (Tyre) (Aubet, 2010)
Jericho ? (Garstang, 1932)	Tall Sabi Abyad (Akkermans and Smits, 2008)	Khaldi (Saidah, 1966)
Yazur (Dothan, 1961)	Rasm at-Tanjara (Athanassiou, 1977)	Tambourit (Sidon) (Saidah, 1977)
Ras an-Naqura (Prausnitz, 1982)	Tall Khanzourah (Athanassiou, 1977)	Byblos (Salles, 1994)
‘Atlit (Johns, 1938)	Tall Mohammad Diyab (Sauvage, 2005)	Tall Rashidiyah (Doumet, 1982)
ar-Ruqqaysh (Culican, 1973)	Hama (Riis, 1948)	Tall ‘Arqa (Thalman, 1978)
Tall al-‘Ajjul (Petrie, 1932)	Tall Harriri (Mari) (Parrot, 1935)	Juya (Chapman, 1972)
Tall-Bira (Akko) (Alexandre and Stern, 2001)	Yunis (Woolley, 1939)	Khirbat Silm (Chapman, 1972)
Tall Dan (Hartal, 2006)	Tall Shaykh Hamad (Kreppner 2008)	Tambourit, Tyre (Seeden, 1991)
Tall Far’a (Fara) (Petrie, 1930)	Ras al-Bassit (Courbin, 1993)	Qasmiyah (Chapman, 1972)
	Ras Shamra ? (Schaeffer, 1962)	
	Sukas (Riis, 1979)	

Polcaro 2014: 144). Since ideas and techniques are significantly faster than genes (Harrison and Boyce 1975: 130), the supposition that the Aramaeans might have played a role in transmitting the idea in the region (Tenu 2009: 88) becomes considerable. Migration or not, one has to explain why local populations accepted and employed the new practice in their funerary rituals. Hygienic considerations were of the factors considered (*e. g.* Biankowski 1982: 87; Polcaro 2014: 143). There are a number of points that might emphasize the hygienic role, at least as a catalyst, in the regional spread of cremation burials during the IA. First, cremation and the separation of cemeteries from residential areas became more evident from the beginning of the IA (Comp. Reports in TABLE 1, *e.g.* Culican 1973; Tenu 2009: 89), even if some were intramural (*e.g.* Kreppner 2008: 265). Secondly, textual evidence, *e.g.* Assyrian correspondence from Tall Fekheriye in North Syria (Bartl and Bonatz 2013: 268), spoke of famine and human calamities (Disease) between 12th and 10th BC century.

Beside variations in burial methods between sites, latest studies indicated similarities in burials between the East and West Phoenicians, especially the absence of infant burials in their cemeteries (Gras *et al*. 1991: 127, 171)[2]. The West Phoenician infant cremations were often referred to as male child sacrifices. Studies were carried out (Schwarz *et al*. 2010, 2012) on the remains of 540 children from 348 urns. The analyses were based on a number of established osteological methods, such as the presence of Neonatal line, dental, and pelvic traits to deter-

2. There was no indication of infant cremation burials to be found in the osteological report (Conheeney and Pipe 1991) to support the suggested “tophet in Tyre” (Seeden 1991).

mine age and sex. The result revealed that 22% were of premature aborts and 16% of stillbirths, 38 of 70 examined iliac bones were probably of females (Schwarz *et al*. 2010: 8). Child mortality rates were similar to those of modern Tunisia. Child mortality is often related to infectious disease (bacterial and viral), which mostly leave no trace on the bones (Roberts and Manchester 1995: 9). The arguments brought by opponents to this study (*e.g.* Smith *et al*. 2011; Xella *et al*. 2013: 4-5) could not undermine the presented hard scientific evidence. Infant urns were buried in a specified place, far from Punic towns, as in Carthage and Motya (Gras *et al*. 1991). Adult cemeteries, with cremation and inhumation burials, were also separated from residential areas (Gras *et al*. 1991: 173). These observations tend to indicate greater role for hygienic considerations in the practice of cremations, an idea that the West Phoenicians might have carried with them from their native land in the East to their settlements in North Africa and Southern Europe. The fact that infant cremation cemeteries were not yet discovered anywhere along the Syro-Palestinian coast and inwards might argue for as well as against this suggestion.

Cremation Burials in Jordan from the Bronze Age to the Iron Age

From Jordan, there were few reported cases of human cremation burials that extended between the EBA and IA. The earliest was from two EBA-I. Burnt human bones were found in six dolmens in Dāmiya in the Jordan Valley (Gilead 1968). The burning was probably indirect as a result of secondary usage of the dolmens, as also argued (Polcaro 2008: 35). Bones found in tomb UCV-20 and UCV-84 in Jābāl Nebo (Saller 1966) appear to be accidental, burnt by camp fire(s) above sites (also Bloch-Smith 1992: 38).

In the case of EBA-II and III site of Bāb adh-Dhirā‘ in the Jordan Valley, burnt human bones were found in 3 charnel houses (Rast and Schaub 1989: 325-396). According to the excavators, all bones and objects in charnel house A8 were “Embedded in Burn Layer”. In house A41, 2 bone groups of an earlier phase were covered by an earthy wall-wash layer while 2 other bone groups of the later phase were found in an ash layer. A massive ash layer that contained burnt human bones covered two thirds of charnel house A51’s floor, below the collapse of a mud brick wall. It was suggested that the fires were started from outside, near the doorways and were restricted to tombs that were still in use until EBA-III. Older charnels that went out of use were not affected by any fire. These observations lead the excavators to conclude that the burning resulted from an act of aggression and not cremations (Rast and Schaub 1989: 396). Also, only single ash layers were found and the human bone parts were anatomically recognizable, though disarticulate and variably fragmentary. This indicates that singular and limited fires were involved. These observations lead to exclude cremation as part of the funerary rites in Bāb adh-Dhirā‘ EBA-II to III population.

The case of the 13th BC century structure at the old ‘Ammān (Marka) Airport “Temple” is more complicated. There, small fragments of partly burnt human bones were found in the 3 layers of occupation within as well as outside the structure (Herr 1983: 23). They were suggested to be sacrificial (Hennesy 1985: 99), Hittite ceremonial cremations (Herr 1983: 129), or even resulted from three phases of destructive conflagrations (Mumford 2015: 109). According to the archaeological and osteological reports of the 1976 excavation outside the structure (Herr 1983; Little 1983: 47-66), fragments of human bones were collected from the topsoil and nearly all layers. At least 76% of the bone material was not burnt. The burning itself was suggestively slow. Fragmentation and wide dispersion of the bone material was estimated to belong to three individuals (Little 1983: 47-50). It appears that the bones were anatomically recognizable and there was no mention of heat

induced deformations. The "Burials" were thus in a state of dry bones when first subjected to heat, the source of which might be indicated by ash pits found (Herr 1983: 11-12). Also, there is the possibility that the bone fragments were washed in or out of the structure in different times as indicated by their deposition in the 3 layers. The source of the human bones remains uncertain and it would not be possible to have conclusive evidence given the extent of distortion to the site[3]. Furthermore, a similar structure at Umm ad-Danānīr (Baqa'a), also of the 13th BC century, yielded no human bones of any kind (MacGovern 1989: 128-134). Therefore, the evidence of human cremations, of any kind and purpose, in 'Ammān (Mārkā) Airport "temple" remains inadequate or even not available.

Also in Umm ad-Danānīr, the excavators found completely charred bones, among other inhumations in Cave B3. The burning proved to be caused by campfire as indicated by fire blackened cooking pot found in the same context. Cremation was thus excluded (MacGovern 1982: 50). At Tall al-'Umayrī, burnt remains of two individuals found in room B3 might indicate similarity with the IA cremations from Tall Sheikh Hamad in NE Syria (Kreppner 2008: 265), but the archaeological context clearly showed that this burning resulted from a destructive fire (Herr 1998: 50), as in a similar case from Ebla (Ferro *et al.* 2010). Another IA case that can be excluded is from Saḥāb, where the human remains were found in partly ashy earthen jar (Ibrahim 1972: 32).

Roman Cremation Burials

By the end of the IA, cremation burials disappeared from this region, almost as sudden as they appeared. Their re-emergence in the Hellenistic period (from the fourth century BC) was there where cremations were never practiced before, in Egypt. There, it continued during the Roman period, until the second AD century. This was evident in a number of cemeteries, mostly in Alexandria like Shatbi, Shuqafa (Nock 1932: 328), Jabbari (Venit 2002) and in al-Alamain (Daszewski 2008: 441) but the practice was limited to the Ptolemaic section of the population. Egyptian burials were restrictively inhumation (Nock 1932: 328; Daszewski 2008: 441). Roman cremation burials, between second BC to second AD century were less frequent in the NE provinces than elsewhere in the Empire. The only *bustum* cremation case was in Palestine in a cemetery of Roman soldiers in Nabataean Kurnub (Negev 1972). All other regional reports were *ustrina* cremations, though no *ustrinum* was ever found. Pottery cremation urns were found in Jerusalem and Tall al-Mutasallim (Barkay 1984; Hershkovitz 1989). A leaden "box" of bones or urn was found in a site on the Jenin-Nablus road (Zayadine 1966: 581). The only findings from Syria were an urn (Nock 1932: 327) and three cremations from Dura-Europos (Toll 1946: 5-6, Pl. LXIV no. 2 and 3). Only a single case was reported from Lebanon (Nasser 2014).

Roman cremation burials discovered in Jordan were considered to be odd or foreign, but the accumulating evidence suggests now otherwise (TABLE 2). Single pottery cremation urns were found in Tall al-'Umayrī (Boling 1989) and Ḥisbān (Mitchel 1994). One leaden urn (FIG. 1a) was discovered in Queen Alia Airport (Ibrahim and Gordon 1987), one in a cave tomb in Yaṣilah-Irbid (Al Muheissen and Tarrier 1996), and two in each of Umm as-Summāq al-Janūbī and Hijra cave tombs in Amman (Abu-Shmeis and Nabulsi 2009). Cremated human bones were found in different burial niches within three different cave tombs in al-Masarāt az-Zarqā' (FIG. 2c-e). Because of massive distortion, it was not possible to determine the kind and number of depositions but each tomb must have contained at least one cremation burial (Nabulsi *et al*. in preparation). Another case of disturbed cremation burial was

3. See also the archaeological discussion on the stratigraphy of this site in Mumford (2015).

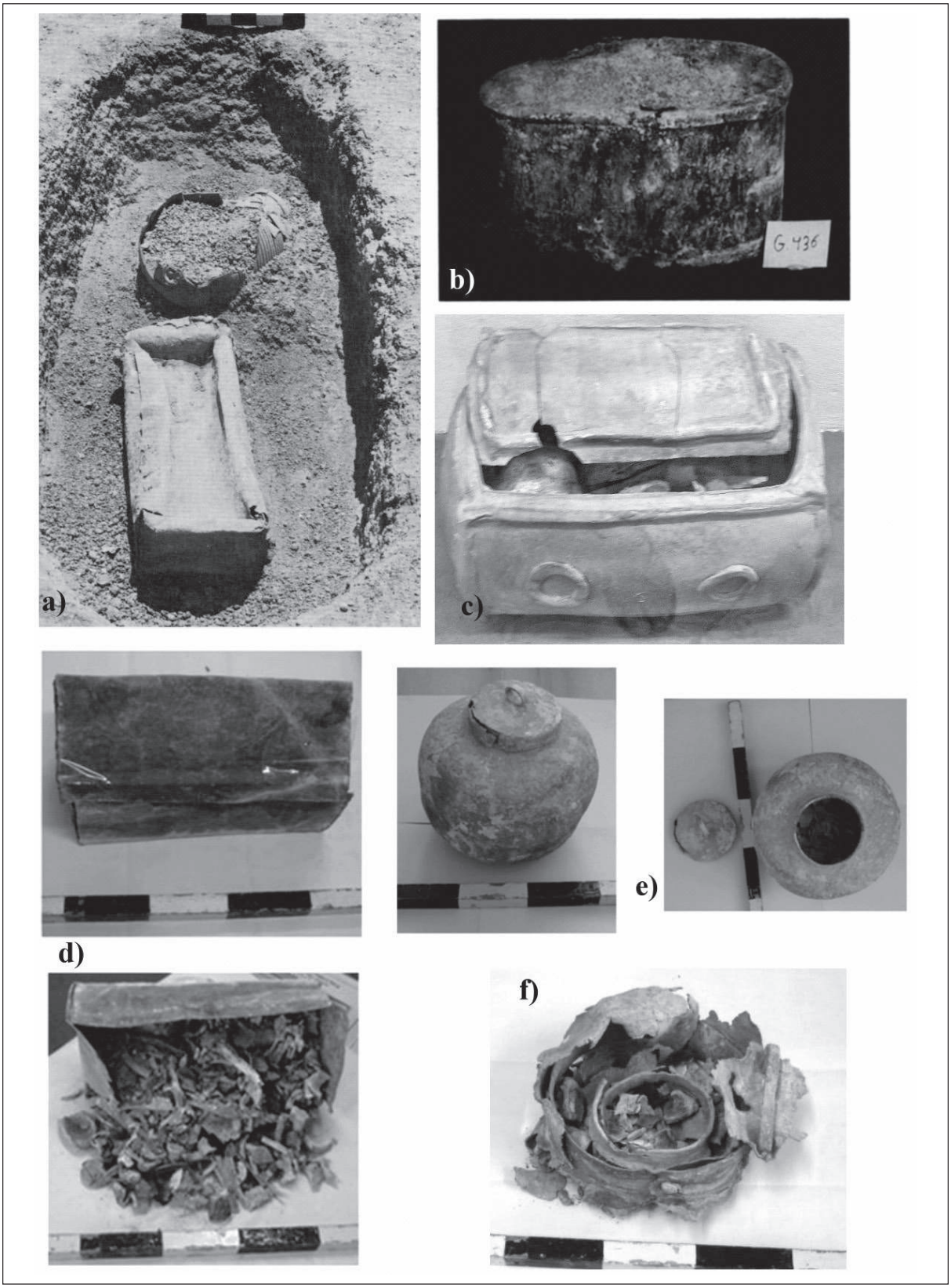
Table 2. The Roman cremation burial sites discovered in Jordan.

Site	Type	Source
Secure case		
Queen Alia Airport	1 Leaden urn	Ibrahim and Gordon, 1987*
Tall al-ʻUmayrī	1 Pottery urn	Boling, 1989
Ḥisbān	1 Pottery urn	Mitchel, 1994
Yaṣīlah - Irbid	1 Leaden urn	Al Muheissen and Tarrier, 1996
Umm as-Summāq al-Janūbī	2 Leaden urn	Abu Shmeis and Nabulsi, 2009
Ḥijra	2 Leaden urn	Abu Shmeis and Nabulsi, 2009
al-Masarrat (az-Zarqā')	At least 3, urn?	Nabulsi *et al.*, in preparation
ʻAbdūn, Cave tomb-2015	At least 1, urn?	Nabulsi and Shami, in preparation
Unrecognized case		
Jarash	1 Leaden urn	Naghawi,1989
	1 Pottery urn	Jarash Museum
Uncertain case		
al-Jawfah - Amman	Ash bone layer	Harding, 1950
Dhahr as-Sarū - Jarash	Sarcophagus	Harahsheh, 2013
Zamāl-Irbid	Columbarium	Milhem, 2004
al-Ḥabīs - Petra	Columbarium	
ʻAbdūn, Cave tomb-2013	Few burnt fragments?	Nabulsi and Shami, in preparation

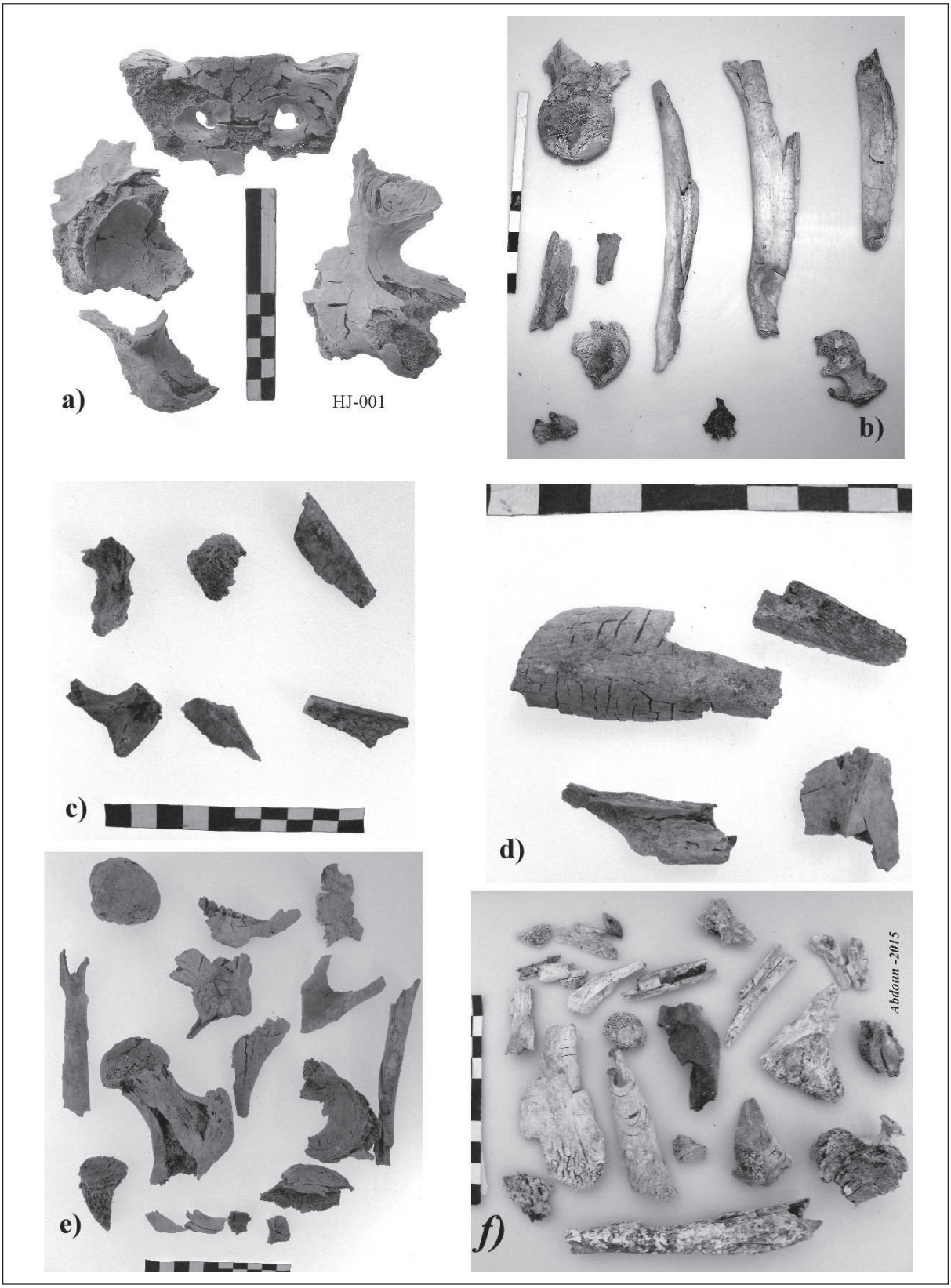
* It was confirmed that the pottery cooking pot found with the urn (FIG. 1a) was empty (Ibrahim, 2016: personal communication), but it might have been used to collect the cremated bones from the rogus.

found during the 2015 rescue excavation of a Roman cave tomb in ʻAbdūn ʻAmmān (Nabulsi and Shami, in preparation). Interestingly, two other cases from Jarash went unnoticed. A cylindrical leaden urn (FIG. 1b), similar to those found in Roman Britain (Comp, Toynbee 1971: 32, fig. 14) was found in a cave tomb (Naghawi 1989). The other case is a pottery urn on display in Jarash Museum (FIG. 1c). There were other reports of cremation burials, which closely observed are very uncertain. The reported ash and burnt bone layer in the al-Jufah cave tomb (Harding 1950: 81-3) was probably caused by a destructive fire, maybe started in preparation for the later burials found. This is also true for the burnt bones in two Dhahr as-Sarū Jarash sarcophagi (Harahsheh 2013: 9). The niches of the stone "Columbarium" found in Zmāl-Irbid (Milhem 2004: 9, figs. 11, 12) are too small to deposit urns of any sort (Compare the Scaled fig. 11). Another almost similar structure was found in Ṣaydūr-Irbid (Milhem 2012: 38, fig.18) but without any comment. These were most likely pigeons' columbaria as those found in Syria (*e.g.* Gatier and Vérilhac 1989: 343; Chehadeh and Griesheimer 1998: 179) and possibly the "Columbarim" tomb in al-Ḥabīs, Petra. Also uncertain were small burnt bone fragments found among human remains retrieved from a Abdoon cave tomb excavated in 2013 (Nabulsi and Shami, in preparation).

The available data show that 14 Roman cremation burials, 7 of which in leaden urns, were found in 10 different sites in Jordan. It became evident that Roman cremation burials were not rare in Jordan but more frequent than previously supposed with an estimated frequency of above 1% of all first and second AD century Roman burials found in the Eastern Heights area. The practice is known to have required huge material as well as financial resources (Toynbee 1971; Altjohan 2001). Most documented cases were agricultural sites. The two Greek inscriptions on one Hijra urn revealed the same linguistic



1. Roman cremation urns found in Jordan: a: Queen Alia Airport (Ibrahim and Gordon 1987), b: Jarash leaden urn (Naghawi 1989), c: Jarash museum urn, d and e: Hijra, f: Umm as-Summāq al-Janūbī (Abu Shmeis and Nabulsi 2009).



2. Roman cremation material from different sites in Jordan: a: Hijra, b: Umm as-Summāq al-Janūbī, c-e: al-Masarrāt az-Zarqā', f: 'Abdūn 2015 (Graphics by A. J. Nabulsi).

modifications evident in other local funerary inscriptions and suggest a strong Hellenization effect (Timm *et al.* 2011). Therefore, it appears that cremation burials were practiced by a small section of the local agricultural population with strong Roman/Hellenistic cultural influence and financially capable. Such burials, and others connected with, are not to be dated beyond the second AD century, a few decades after the practice disappeared from Rome (Nock 1932; Toynbee 1971).

Conclusion

This short and non-bibliographic review concentrated on the evidence associated with a nearly marginal subject of cremation in Jordan and its direct neighbours through time. It differentiated between cremation as a rite and burnt human bones. The combination of archaeological and biological evidence leads to conclude that cremations were not part of the regional funerary customs before the LBA period. Hygienic considerations might have played a role in the spread of the practice through the IA. There is no evidence of cremation burials in Jordan before the Roman period. Roman cremation burials were documented in 10 different sites in Jordan. The available data suggest that cremations were relatively frequent (*ca.* 1%) and not as rare as previously perceived. It was practiced by a minority of the local population with strong Roman/Hellenistic cultural influence, preferably using leaden urns. These burials are datable within the first two centuries AD.

Bibliography

Abu-Shmeis, A. and Nabulsi, A.J. 2009. Cremation Burials in Amman, Jordan. *SHAJ* 10: 513-525.

Akkermanns, P.M.M.G. 1989. Halaf Mortuary Practices: A survey. Pp.75-88 in O.M.C. Haex, H.H.Curvers and P.M.M.G. Akkermanns (eds.), *To the Euphrates and Beyond*. Balkema: Roterdam.

Akkermanns, P.M.M.G. and Smits, E. 2008. A Sealed Double Cremation at Middle Assyrian Tell Sabi Abyad, Syria. Pp.252-261 in D. Bonatz, R.M. Czichon and F.J. Kreppner (eds.), *Fundstellen Gesammelte Schriften zur Archäologie und Geschichte Altvorderasiens*. Harrassowitz Verlag, Wiesbaden: Germany.

Al Muheissen, Z. and Tarrier, D. 1996. Les Fouilles de Yasileh (Jordanie du Nord): Le Site et la Nécropole dans Une Perspective Régionale. *Syria* 73: 185-196.

Albright, W.F. 1938. The Excavations of Tell Beit Mirsim. *AASOR* 17: 61-79.

Alexandre, Y. and Stern, E.J. 2001. Phoenician Cremation Burials at Tel Bira. *'Atiqot* 42: 183-194.

Altjohann, M. 2001. Grab-und Bestattung. Pp. 195-200 in T. Fischer (ed.), *Die Römischen Provinzen*. Theiss Verlg. Stuttgart: Germany.

Athanassiou, H. 1977. *Rasm et-Tanjara: A Recently Discovered Syrian Tell in the Ghab*. PhD. Thesis, University of Missouri: USA.

Aubet, M.E. 2010. The Phoenician Cemetery of Tyre. *NEA* 73: 144-155.

—— 2013. Cremation and Social Memory in Iron Age Phoenicia. Pp. 77-87 in O. Lorenz, S. Ribichini, W.G.E. Watson and J.A. Zamora (eds.), *Ritual, Religion and Reason: Studies in the Ancient World. Alter Orient und Altes Testament*, vol. 104.

Barkay, G. 1984. Excavation on the Slope of the Hinnom valley, Jerusalem. *Qadmoniot* 4: 94-108 (Heb.)

Bartl, P.V. and Bonatz, D. 2013. Across Assyria's Northern Frontier: Tell Fekheriye at the End of the Late Bronze Age. Pp.263-292 in K.A. Yener (ed.), *Across the Border: Late Bronze-Iron Age Relations between Syria and Anatolia*. Ancient Near Eastern Studies, Supplement 42, Peetrs: Paris.

Beayno, F., Mattar, C. and Abdul-Nour, H. 2002. Mgharet al-Hourriye (Karm Sadde, Casa de Zgharta). Rapport Preliminaire de is Fouille de 2001. *BAAL* 6: 135-178.

Ben Tor, A. 1975. Two Burial Caves of the Proto-Urban Period at Azor 1971. *Qedem* 1: 1-54.

Bienkowski, P.A. 1982. Some Remarks on the Practice of Cremation in the Levant. *Levant* 14: 80-89.

Bloch-Smith, E. 1992. *Judahite Burial Practices and Beliefs about the Death*. JSOT/ ASOR Monograph Series 7, Sheffield Academic Press, Sheffield: GB.

Boling, R.G. 1989. Site Survey in el-'Umeiri Region. Pp. 98-188 in Geraty, L.T.(ed.), *Madaba Plains Project I. The 1984 Season at Tell el-Umeiri and Vicinity and Subsequent Studies*. Andrews University Press: Michigan.

Browler, J.M., Johnston, H., Olley J.M., Prescott, J.R., Roberts R.G., Shawcross, W. and Spooner, N.A. 2003. New Ages for Human Occupation and Climatic Change at Lake Mungo, Australia. *Nature* 421: 837-840.

Chapman, S.V. 1972. A Catalogue of Iron Age Pottery from Cemeteries of Khirbet Silm, Joya, Qraye and Qasmieh of Southern Lebanon. *Berytus* 21: 51-194.

Chehadeh, K. and Griesheimer, M. 1998. Les Reliefs Funéraires du Tombeau du Prêtre Rapsonès (Babulin, Syrie du Nord). *Syria* 75: 171-192.

Chesson, M.S. 1999. Libraries of the Dead: Early Bronze Age Charnel Houses and Social Identity at Urban

Bab edh-Dhra', Jordan. *JAA* 18: 137-164.
Childe, V.G. 1945. Directional Changes in Funerary Practices During 50,000 Years. *Man* 45: 13-19.
Conheeney, J. and Pipe, A. 1991. Note on Some Cremated Bone from Tyrian Cinerary Urns. *Berytus* 39: 83-89.
Copeland, L. and Wescombe, P.J. 1966. Inventory of Stone-Age Sites in Lebanon. *Mélanges de l'Universite Saint-Joseph* 41: 31-175.
Courbin, P. 1993. *Fouilles de Bassit*: *Tombes du Fer*. Editions Recherche sur les Civilisation: Paris.
Culican, W. 1973. The Graves of Tell el-Reqeish. *AJBA* 2: 66-105.
Daszewski, W.A. 2008. Graeco-Roman Town and Necropolis in Marina el-Alamein. *PAM* 20: 421-456.
Dothan, M. 1961. Excavations at Azor, 1960. *IEJ* 11: 171-175.
Doumet, C. 1982. Les Tombes IV et V de Rachidieh. *AnnHistA* 1: 89-135.
Dunand, M. 1939. Fouilles de Byblos, Vol. I, 1926-1932. Bibl. Arch. et Hist. du Service des Uités en Syrie et au Liban: Paris.
Ferro, D., Mogliazza, S. and Peyronel, L. 2010. The Ebla Final Siege: Archaeological and Anthropological Evidences from the Defensive Urban System. Pp. 355-364 in P. Matthiae, F. Pinnock, L. Nigro and N. Marchett (eds.), 8th *ICAANE*: Rome, 2009.
Gallaway, J.A. 1962. The Gezer Crematorium Re-Examined. *PEQ* 94: 104-117.
Garstang, J. 1932. Jericho, City and Necropolis. *LAAA* 19: 37.
Gatier, P.L. and Vérilhac, A.M. 1989. Les Colombes de Déméter à Philadelphie - Amman. *Syria* 66: 337-348.
Gilead, D. 1968. Burial Customs and the Dolmen Problem. *PEQ* 100: 16-22.
Gilmour, G. 1995. Aegean Influence in Late Bronze Age Funerary Practices in the Southern Levant. Pp. 155-170 in S. Campbell and A. Green (eds.), *The Archaeology of Death in the Ancient Near East*. Oxbow Monograph 51, Exeter: GB.
Gras, M., Rouillard, P. and Teixidor, J. 1991. The Phoenicians and Death. *Berytus* 39: 127-176.
Großkopf, B. 2004. *Leichenbrand: Biologisches und Kulturhistorisches Quellenmaterial zur Rekonstruktion vor und Frühgeschichtlicher Populationen und Ihrer Funeralpraktiken*. PhD thesis, Universität Leipzig: Germany.
Harahshah, R. 2013. Dhahr es-Saro Roman Tomb. *ADAJ* 57: 7-14 (Arb).
Harding, G.L. 1950. A Roman Family Vault on Jebel Joffeh, 'Amman. *QDAP* 14: 81-94.
Harrison, G.A. and Boyce, A.J. 1975. Migration, Exchange, and the Genetic Structure of Populations. Pp. 128-145 in G.A. Harrison and A.J. Boyce (eds.), *The Structure of Human Populations.* Clerendon Press: Oxford.
Hartal, M. 2006. Tel Dan (North). *Hadashot* 118.
Hennessy, J.B. 1985. Thirteenth Century BC Temple of Human Sacrifice at Amman. In: Phoenicia and its Neighbours. *Studia Phoenicia* III 1, Leiden.
Herr, L.G. 1983. The Amman Airport Excavations, 1976 (1981). *AASOR* 48: 1-31, 33-45.
—— 1998. Tall al-'Umayri and the Bible. *JATS* 9: 48-56.
Herrmann, B. 1976. Experimentelle und Theoretische Beiträge zur Leichenbrand Untersuchung. *Homo* 27: 114-118.
—— 1988. Behandlung von Leichenbrand. Pp. 576-585 in R. Knußmann (ed.), *Anthropologie*, vol. I/1.Gustav Fischer Verlag: Stuttgart.
Hershkovitz , I. 1989. Cremation, its Practice and Identification: A Case Study from the Roman Period. *Tel Aviv* 15-16: 98-100+2pl.
Holck, P. 1987. Cremated Bones. *Antropologiske Skrifter* 1, Anatomical Institute, University of Oslo, Oslo, Norway.
Ibrahim, M. 1972. Archaeological Excavations at Sahab, *ADAJ* 17: 23-26.
—— 2016. *Personal Communication*. May 2016.
Ibrahim, M. and Gordon, R.L. 1987. A Cemetery at Queen Alia International Airport. Harrassowitz Verlag, Wiesbaden: 15-18, plate 6.
Ilan, D. 2002. Mortuary Practices in Early Bronze Age Kanaan. *NEA* 65: 92-104.
Johns, C.N. 1938. Excavations at the Pilgrims' Castle, 'Atlit (1933): Cremated Burials of Phoenician Origin. *QDAP* 6: 121-152.
Kaplan, J. 1993. *The New Encyclopedia of Archaeological Excavations in the Holy Land*, vol. 2: 521, vol. 4: 1453 in E. Stern (ed.), Simon and Shuster: New York.
Kenyon, K.M. 1960. *Excavations at Jericho*, vol.1: The Tombs Excavated in 1952-1954: London.
Kreppner, F.J. 2008. Eine Aussergewöhnliche Brandbestattungssitte in Dūr-Katlimmu Während der Ersten Hälfte des Ersten Jt. Pp. 264-276 in V. Chr, D. Bonatz, R.M. Czichon and F.J. Kreppner (eds.), *Fundstellen Gesammelte Schriften zur Archäologie und Geschichte Altvorderasiens*. Harrassowitz Verlag, Wiesbaden: Germany.
Lewartowski, K. 1998. Cremation and the End of Mycenaean Culture. *Swiatowit* 41: 135-145.
Little, R.M. 1983. Human Bone Fragments Analysis. *AASOR* 48: 47-55.
Macalister, R.A.S. 1911. *The Excavation of Gezer*. Vol. 1, John Murry: London.
MacGovern, P.E. 1982. Exploring the Burial Caves of the Baq'ah Valley in Jordan. *Archaeology* 35: 46-52.
—— 1989. The Baq'ah valley Project 1987: Khirbet Umm ad-Dananir and al-Qesir. *ADAJ* 33: 123-136, plate 9-14.
Maisler, B. 1942. An EB Age Tomb Found at Kinneret. *BJPES* 10: 1-9.
Meacham, W. 2004. Hong Kong Prehistory. *Hong Kong*

Arch. Soc. Newsl 1: 1.
Milhem, I. 2004. Religious and Social Indications of Notable Elements of Churches and Burials in Liwā al-Kūra. *SHAJ* 8: 5-10, (Arb).
—— 2012. Irbid Survey Project 2011. *ADAJ* 56: 31-49 (Arb).
Mitchel, L.A. 1994. Caves, Storage Facilities, and Life at Hellenistic and Early Roman Hesban. Pp. 283-300 in D. Merling (ed.), *Hesban after 25 Years*. Andrews University Press: Michigan.
Mogliazza, S. 2017. *Personal Communication*. March 2017
Mogliazza, S. and Polcaro, A. 2010. Death and Cult of Dead in Middle Bronze Age II Ebla: An Archaeological and Anthropological Study on Shaft Tomb P. 8680, near Southern Palace (Area FF). Pp. 431-445 in P. Matthiae, F. Pinnock, L. Nigro and N. Marchetti (eds.), *ICAAN 6*. Harrassowitz Verlag ,Wiesbaden: Germany.
Moortgat, A. 1960. *Tell Chuera in Nordost-Syrien*. Vorläufiger Bericht über die Zweite Grabungskampagne1959. Otto Harrassowitz, Wiesbaden: Germany.
—— 1962. *Tell Chuera in Nordost-Syrien Vorlaufiger Bericht über die Dritte Grabungskampagne 1960*. Wissenschaftliche Abhandlungen der Arbeitsgemeinschaft für Forschung des Landes Nordrhein-Westfalen, vol. 24. Westdeutsche Verlag, Cologne: Germany.
Mumford, G. 2015. The Amman Airport Structure: A reassessment of its Date-Range, Function and Overall Role in the Levant. Pp. 89-198 in T.P. Harrison, E.B. Banning and S. Klassen (eds.), *Walls of the Prince: Egyptian Interaction with Southwest Asia in Antiquity*. Brill: Leiden.
Nabulsi, A.J. and Shami, A. In preparation. The Bones from Two Cave Tombs in Abdoon, Amman.
Nabulsi, A.J., Gharib, R. and Lash, A. In preparation al- Masarat Cave Tombs: Osteological Preliminary Report.
Naghawi A. 1989. A New Rock-Cut Tomb in Jerash. *Syria* 66: 201-218.
Nasser, J. 2014. A New Necropolis Uncovered in Beirut: Analysis of the Funeral Space Management inside a Classical Hypogeum (Preliminary Report). Pp. 575-590 in P. Bieliński, M. Gawlikowski, R. Koliński, D. Ławecka, A. Sołtysiak and Z. Wygnańska (eds.), 8th *ICAANE*, Warsaw, Harrassowitz Verlag: Wiesbaden.
Negev, A. 1971. The Nabatean Necropolis of Mampsis (Kurnub). *IEJ* 21: 110-129.
Nock, A.D. 1932. Cremation and Burial in the Roman Empire. *Har. Theol. Rev* 25: 321-359.
Parrot, A. 1935. Les Fouilles de Mari (Première Campagne). *Syria* 16: 1-28.
Petrie, W.M.F. 1930. *Beth Pelet* 1. London.
—— 1932. *Ancient Gaza II: Tell el-Ajjul*. London.
Polcaro, A. 2008. EB I Settlements and Environment in the Wadi az-Zarqa Dolmens and Ideology of Death. Pp. 31-48 in J.M. Córdoba, M. Molist, M.C. Pérez, I. Rubio and S. Martínez (eds.), *5th ICAANE*: Madrid.
—— 2014. Fire and Death: Incineration in the Levantine Early-Middle Bronze Age Cemeteries as a Mark of Cultural Identities, or as a Technical Instrument of Purification? Pp. 137-148 in P. Bieliński, M. Gawlikowski, R. Koliński, D. Ławecka, A. Sołtysiak and Z. Wygnańska (eds.) *8th ICAANE*, Warsaw, Harrassowitz Verlag: Wiesbaden.
—— 2016. *Personal Communication*, May 2016.
Prausnitz, M.W. 1982. Die Nekropolen von Akhziv und die Entwiklung der Keramik vom 10. bis zum 7. Jahrhundert v. Chr. in Akhziv, Samaria und Ashdod. Pp. 31-44 in H.G. Niemeyer (ed.), *Die Phönizier im Westen*, Verlag Philipp von Zabern, Mainz: Germany.
Rast, W.E. and Schaub, R.T. 1989. *Bab edh-Dhra': Excavations in the Cemetery Directed by Paul W. Lapp (1965-67)*, vol. I, Winona Lake. USA.
Reinhard, K., De Souza, S.M. and Lessa, A. 2002. Summary of Brazilian Human Remains Dating from 8,000 to 13,000 Years before Present. *AAPA* 2002: 129.
Riis, P.J. 1948. *Les Cimetières à Crémation, Hama. Fouilles et Recherches de la Fondation Carlsberg 1931-1938*, vol. II: Kopenhagen.
—— 1979. Sukas VI: The Greco-Phoenician Cemetery and Sanctuary at Southern Harbour. *Publication of the Carlsberg Expedition to Phoenicia* 10: 5-33.
Roberts, C. and Manchester, K. 1995. *The Archaeology of Disease*, 2nd (ed.), Alan Sutton Publ. Ltd: New York.
Rosik, M. 2001. Burial Customs in the Land of Bible from the Chalcolithic Period to the Herodian Period (4300 BC-70 AD). General View. *Przeglad Arch* 40: 1-19.
Saidah, R. 1966. Fouilles de Khalde. *BMB* 19: 51-91.
—— 1977. Un Tomb de l'Âge de Fer á Tambourit (Region de Sidon). *Berytus* 25: 135-146.
Saller, S. 1966. Iron Age Tombs at Nebo, Jordan. *LA* 16: 165-265.
Salles, J.F. 1994. La Mort à Byblos: Les Necropolis. Pp. 49-71 in E. Acquaro, F. Mazza, S. Ribichini, G. Scandone and P. Xella (eds.), Biblo. *Una Città e la Sua Cultura*: Rome.
Sauvage, M. 2005. Incinération et Inhumation à l'Époque Médio-Assyrienne (XIIIe-XIIes. av. J.C.): le cas de Tell Mohammad Diyab (Syrie de Nord-Est), *KTEMA* 30: 47-54.
Scarre, C. 2002. Contexts of Monumentalism: Regional Diversity at the Neolithic Transition in North-West France. *Oxf. J. Arch.* 21: 23-61.
Schaeffer, C.F.A. 1962. Sacrifice a M-L-K, Molech ou Melek. *Ugaritica* IV. Paris.
Schwartz, J.H., Houghton, F., Macchiarelli, R. and Bondioli, L. 2010. Skeletal Remains from Punic Carthage Do Not Support Systematic Sacrifice of In-

fants. *PLoS ONE*, 5: e9177. doi: 10.1371/journal.pone. 0009177: 1-12.

Schwartz, J.H., Houghton, F., Bondioli, L. and Macchiarelli, R. 2012. Bones, Teeth, and Estimating Age of Perinates: Carthaginian Infant Sacrifice Revisited. *Antiquity* 86: 738-745.

Seeden, H. 1991. A Tophet in Tyre? *Berytus* 39: 39-82.

Smith, P., Avishai, G., Greene, J.A., Stager, L.E. 2011. Aging Cremated Infants: the Problem of Sacrifice at the Tophet of Carthage. *Antiquity* 85: 859-875.

Sołtysiak, A. 2008. Tell Barri (Syria), Seasons 1980-2006. *Bioarcheol NE* 2: 67-71.

Tenu, A. 2009. Assyrians and Aramaeans in the Euphrates Valley Viewed from the Cemetery of Tell Shiukh Fawqani (Syria). *Syria* 86: 83-96.

Thalmann, J.P. 1978. Tell ‘Arqa (Liban nord): Campagnes I-III (1972-1974). Chantier I: Rapport Preliminaire. *Syria* 55: 1-151.

Timm, S., Abu-Shmeis, A. and Nabulsi, A. 2011. Zwei griechische Inschriften einer Bleiurne mit Leichenbrand aus Hirbet Hiğra in ‘Amman, Jordanien. *ZDPV* 127: 175-184+ plate 11.

Toll, N.P. 1946. Preliminary Report of the Ninth Season of Work 1935-1936: the Necropolis. In M.I. Rostovtzeff, A.R. Bellinger, F.E. Brown and C.B. Wells (eds.), *The Excavations at Dura-Europos.*Vol. 2, New Haven, Yale University Press: London.

Toynbee, J. 1971. *Death and Burial in the Roman World*. Cornell University Press. Ithaca.

Tsuneki, A. 2011. A Glimpse of Human Life from the Neolithic Cemetery at Tell el-Kerkh, Northwest Syria. *Documenta Praehistorica* 38: 83-95.

Tsuneki, A. and Hayder, J. (eds.). 2011. *Life and Death in the Kerkh Neolithic Cemetery*. University of Tsukuba: Japan.

Venit, M.S. 2002. *Monumental Tombs of Ancient Alexandria: The Theatre of the Dead*, Cambridge University Press: Cambridge.

Whyte, T. 2001. Distinguishing Remains of Human Cremations from Burned Animal Bones. *JFA* 28: 437-448.

Wooley, C.L. 1939. The Iron Age Graves of Carchemish, *LAAA* 26: 11-37.

Xella, P., Quinn, J., Melchiorri, V. and van Dommelen, P. 2013. Phoenician Bones of Contention. *Antiquity* 87: 1-9.

Zayadin, F. 1966. Chronique Archéologique, Samaria-Sébaste. *RB* 73: 576-581.