**Archeological setting in northeastern Kuwait**

Humans were intermittently present on the beach ridges of northeastern Kuwait for a period of ~7000 years, until at least the 8thcentury AD (Blair et al., 2012). Human settlements from the Ubaid period (~6500–3800 BC; 8450–5750 cal yr BP) were discovered on beach ridges of Jazirat Dubaij in the Subiya area and at Bahra (Figs. 1A, 4) (Carter and Philips, 2010), where two settlements were excavated by British and Polish archeological teams (Carter et al., 1999; Carter and Crawford, 2001, 2002, 2003; Carter, 2002, 2003; Bieliński, 2015). Younger, pre-Islamic and Islamic settlements in Kuwait range in age mainly from around the 4th and 5th century AD to the 10th or 11th century AD (Kennet, 2013), with a majority in the late 7th to 8th century AD, contemporaneous with occupation of the nearby Al Qusur site on Failaka Island (Fig. 1A). A string of small early Islamic sites (late 7th to 8th century AD) was discovered at the southern margin of the Jazirat Dubaij promontory in Subiya (Carter 2010a) on beach ridges that formed during the Late Holocene (Reinink-Smith, 2015) (Figs. 1A, 4). At least three larger sites with clusters of hut remains and pottery scatters, mainly of the same age but also including a rare earlier component dateable to the Sasanian period, are located along the coast between Subiya and Mughaira (~20 km west of Subiya) (Blair et a. 2012).

While the historical record is poor (Kennet, 2007), several other sites of the 7th to 8th century have been discovered in the northern Gulf, always close to the margin of the sea or sabkha, for example on Miskan and Failaka islands (Kennet, 2013; Kennet, personal communication) (Fig. 1A); the northern tip of Failaka Island is ~28 km south of the new site introduced in this study (Fig.1A). Not much evidence remains from an earlier period, the Hellenistic/Parthian (~250 BC–AD 300); possibly it is represented by only a few eroded sherds along the coastal plains of Kuwait (Kennet, 2013), though these could equally belong to a different period.

**Archeological finds**

The most distinctive sherds can be identified as “torpedo jar” fragments (Figs. 15a, and possibly 15d); this is a kind of jar analogous to amphorae of the classical Mediterranean. These jars have a long chronological range from the Parthian (247 BC– AD 224) through the Sasanian Periods to at least the 9th century AD (Kennet, 2004, 2013; Simpson, 2007). They are made from an abrasive, sandy fabric (Carter, 2008) and were specialized for maritime or river transport (Blair et al., 2012), as indicated by their distinctive shape with a pointed base suitable for stacking in holds of ships (Carter, 2008). The opening of a torpedo jar usually has a collar rim, commonly above ribbed shoulders (Carter, 2008; Tofighian et al., 2011); both features are seen in Figure 15a.

Among the jar types identified from the sherds in Area 2 are Large Incised Storage Vessels (LISVs) (Figs. 15c, d, and probably 15f1–2). This class of pottery is associated with a range of different kinds of storage jars of the late Sasanian to Early Islamic periods and can be found in numerous sites in Iran and in the Gulf (Kennet, 1997; Priestman and Simpson, 2008). Typically, LISVs have a dense, hard-fired fabric, usually grayish or red-brown, as seen in Figure 15c-f2. Kennet (1997, 2004) described LISV with wavy lines similar to that in Figure 15c. Examples which are closely comparable to the Bubiyan Island sherds were described from Al-Khor Island, Qatar, by Carter (2010b).

Of particular interest is a greenish sherd reworked into a fishing net weight (Fig. 15g), which preserves a small area of thumb or finger-impressed decoration. This is likely to be Honeycomb Ware, an Iraqi ware used for storage jars that is firmly associated with the 8th century AD (Kennet 2004; Carter 2008).

A further distinctive type of jar found on the present beach berm of Bubiyan Island (Figs. 16b1–2 and perhaps 16a1–2) is known to archeologists as Turquoise Glaze (Kennet, 2004). This has a long date range, and similar wares with fine cream fabrics and bluish or green glaze have been produced until recently in the region; e.g., a variety of 19th century pottery exhibits a similar greenish-turquoise glaze on jars with similar handles to those found on Bubiyan Island (Grassigli and Di Miceli, 2015). Without the presence of certain distinctive bowl rim forms or a particular type of “barbotine” jar with appliqué decoration, it is not possible to date the Bubiyan examples more precisely. Examples with incised and punctuate decoration, as seen on an eroded sherd from Bubiyan Island (Fig. 16b1–2), however, are usually associated with the Late Sasanian or Early Islamic period.

Other sherds found on Bubiyan Island are less easily identified and may belong to the same period or later occupations. The comb-incised jar in Figure 17a1–2 from the present beach (likely shattered recently) is likely to be later Islamic, perhaps falling into the most recent three centuries AD, while an incised jar with a shoulder lug, in a coarse fabric, could belong to either the Early Islamic or later horizons (Fig. 17b), as could dark, gritty wares collected from BR H (Figs. 15b1–2 and 17c1–2).

Many of the sherds found on BRs G and H in Area 2 are lined with eroded bitumen typical of torpedo jar fragments, including the sherd in Figure 16d (a faint, but distinct scent of bitumen was noted when cleaned with water). Most sherds are coated with bitumen on the convex side (i.e., on the outside of vessels), less commonly on the inside (as is usually depicted; see Tofighian et al., 2011), or occasionally on both sides. Bitumen coating the convex side is occasionally seen on the top parts of torpedo jars when the bitumen used to line the inside has slopped over the outside of the vessel during application. Other sherds have no obvious bitumen coating at all, although Carter (2008) stated that the apparent absence of bitumen on torpedo jars is likely the result of post-depositional erosion.

**Identification of Sasanian and early Islamic pottery**

The torpedo jar sherds from Area 2 (Figs. 6, 8) can be identified as wine jars (Carter, 2008). Although stackable wine jars known as *dequre* have been described from the Sasanian period (Simpson 2003), the sherds from Bubiyan Island more likely are derived from a kind of wine jar known as *dann* (pl. *dinan*) in the early Islamic period; Abu Nuwas and other poets describe these jars as requiring a stand to support them (owing to their tapered base, or “stalks”) and having a bitumen lining (Rice 1958). Examples of torpedo jars, some painted with courtly scenes (a unique enhancement intended for courtly circles), are found at Samarra, with written labels referring to their contents (specific varieties of wine). Speculations that they contained other goods such as oil, salt, or salt-fish (Tofighian et al., 2011; Blair et al., 2012) have no historical support.

Other ceramics present in the Bubiyan Island scatters include storage jars in unglazed (LISV) and glazed wares (Turquoise Glaze), as well as smaller vessels and unidentifiable wares. Taken together, the chronological range of the torpedo jars, glazed and unglazed wares indicates a probable age between the 6th–8th centuries AD (i.e., Late Sasanian to Early Islamic periods), but it is impossible to know exactly where within that range. If the site was occupied concurrently with the more tightly dated sites and pottery scatters in northern Kuwait and on Failaka Island (Fig 1A), a narrower range of the late 7th to 8th century AD is likely.

The function of the site (on BRs G and H) cannot be established with certainty. The large jars, of all the wares, were most suitable for water storage after the original contents had been consumed. Kennet et al. (2011) and Blair et al. (2012) proposed that small sites with torpedo jars and other early Islamic pottery strung across the northern coast of Kuwait Bay represent small trading posts, “locations where nomadic groups from the interior came to the coast to exchange with maritime traders from the Shatt Al-Arab area” (Kennet et al. 2011).

Although this remains a possibility, it is more likely that those small sites on Bubiyan Island represent fishermen’s shelters and campsites. Thus, the ceramics on Bubiyan Island could be the remains of water jars (i.e., torpedo jars re-used for water storage after originally containing wine). Other crockery may have been left by people from Failaka Island (Fig. 1A) or southern Iraq who were camping on the shore closest to the fishing grounds, perhaps at certain times of the year. The presence of a pierced fish-net weight supports this interpretation, although at surface sites such as those on Bubiyan Island it is also possible that the net weight could have been deposited by later visitors. Another possibility is that people spent time on the spits and islands to trap migratory birds, which still annually pass through the Bubiyan Island and Subiya (Fig. 1C) areas.

Perhaps less likely, the pottery on Bubiyan Island may have been left by soldiers manning a military outpost, soon after or before the Muslim conquests. The outposts could have been established to guard the *khor* (watercourse) and maintain surveillance over the immediate Shatt Al-Arab area (especially the navigable tidal inlet at the mouth of the estuary) (Fig 1A), or simply to make a territorial claim. The Ottomans established such an outpost on Bubiyan Island in 1902 (Persian Gulf and Gulf of Oman. Resources and Coast Defences, 1903).

A final tentative explanation for human presence on the beach ridges is based on taking the original function of torpedo jars at face value. Perhaps people visited these small coastal sites merely to consume wine, in which case a string of small coastal taverns (probably in the form of perishable shelters) could have been staffed by Christians from Failaka Island (Fig. 1A) to service the needs of passing sailors or members of nearby southern Iraq or Iran who did not want to be seen drinking or purchasing alcohol in their home settlements. Taverns were common and people frequently drank wine during the Abbasid period (AD 750–1258) (Rice 1958).

Whatever the original function of the archeological site on the beach ridges of Bubiyan Island, its existence highlights a period of increased human activity in the region, which had perhaps intensified since the end of the Sasanian period and which peaked in the 8th century AD. No single convincing explanation has yet been put forward for this phenomenon.

**REFERENCES CITED**

Bieliński, P., Białowarczuk, M., Kiersnowski, H., Piątkowska-Małecka, J., Reiche, A. Smogorzewska, A., Szymczak, A., 2015. *Bahra 1. Excavations in 2013. Preliminary Report on the Fifth Season of Kuwaiti–Polish Archaeological Explorations, Kuwait*—Warsaw: NCCAL—PCMA, 2015, 175 pp.

Blair, A., Kennet, D., al-Duwish, S., 2012.Investigating an Early Islamic Landscape on Kuwait Bay: the archaeology of historical Kadhima. *Proceedings of the Seminar for Arabian Studies* 42: Seminar for Arabian Studies. British Museum, London, Archaeopress, British Museum, London, 13–26.

Carter, R., 2002. Ubaid-period boat remains from As-Sabiyah: excavations by the British Archaeological Expedition to Kuwait. *Proceedings of the Seminar for Arabian Studies* 32, 13–30.

Carter, R., 2003. The Neolithic origins of seafaring in the Arabian Gulf. *Archaeology International* 2002/2003, 44–47.

Carter, R., Crawford H.E.W., 2001. *The Kuwait-British Archaeological Expedition to As-Sabiyah*: Report on the Second Season’s Work. Iraq LXIII, 1–20.

Carter, R., Crawford H.E.W., 2002. *The Kuwait-British Archaeological Expedition to As-Sabiyah*: Report on the third season’s work. Iraq LXIV, 1–13.

Carter, R., Crawford H.E.W., 2003. *The Kuwait-British Archeological Expedition to as-Sabiyah*: Report on the fourth season’s work. Iraq LXV, 77–90.

Carter, R.A., 2010a. Appendix I. Other Fieldwork in As-Sabiyah and Beyond. In: Carter, R.A. and Crawford, H.E.W. (Eds.), *Maritime interactions in the Arabian Neolithic: the evidence from H3, As-Sabiyah, an Ubaid-related site in Kuwait.* Leiden: Brill, 213–260.

Carter, R. A. 2010b. Investigating coastal exploitation in bronze-age Qatar. The Pottery of al-Khor Island. In: Carter, R.A. and Killick, R. (Eds.). Ludlow: *Archaeology International*, 17–40.

Carter, R.A., 2008. Christianity in the Gulf during the first centuries of Islam. *Arab Archaeology and Epigraphy* 19, 71–108.

Carter, R., Crawford H., Mellalieu, S., Barrett, D., 1999. *The Kuwait-British archeological expedition to As-Sabiyah*: Report on the First Season’s Work. Iraq LXI, 43–58.

Carter, R., Philip, G., 2010. Deconstructing the Ubaid. In: Carter, A., and Philip, G. (Eds.), Beyond the Ubaid, transformation and integration in the late prehistoric societies of the Middle East. Papers from The Ubaid expansion? Cultural meaning, identity and the lead-up to urbanism*.* International workshop held at Grey College, University of Durham, April, 2006, *Studies in ancient oriental civilizations*, 63, 20–22.

Grassigli, G., Di Miceli, A., 2015. *Kuwaiti-Italian Mission to Failaka, 2010–2014*. National Council for Culture Arts and Letters, Kuwait, Universita degli Studi di Perugia.

Kennet, D., 1997. Kush: a Sasanian and Islamic-period archaeological tell in Ras al-Khaimah (U.A.E.). *Arabian Archaeology and Epigraphy* 8, 284–302.

Kennet, D., 2004. *Sasanian and Islamic pottery from Ras al-Khaimah. Classification, chronology, and analysis of trade in the western Indian Ocean*. Oxford, BAR International Series 1248.

Kennet, D., 2007. The decline of eastern Arabia in the Sasanian period. *Arabian Archaeology and Epigraphy* 18, 86–122.

Kennet, D., 2013. Current fieldwork on the early Islamic archaeology of Kuwait: Kadhima, the coast and the Tariq al-Basra. *Hadeeth ad-Dar* 39, 19–24.

Kennet, D., Blair, A., Ulrich. B., Al-Duwish, S.M., 2011. *The Kadhima Project: investigating an Early Islamic settlement and landscape on Kuwait Bay*, Proceedings of the Seminar for Arabian Studies 41: Seminar for Arabian Studies. British Museum, London, Archaeopress, British Museum, London, 161–172.

Persian Gulf and Gulf of Oman. *Resources and Coast Defences, 1903*. British Library: India Office Records and Private Papers, IOR/L/PS/20/64, in Qatar Digital Library <https://www.qdl.qa/archive/81055/vdc_100036632886.0x000002> Accessed January 18, 2018.

Priestman, S., Simpson, St. J., 2008. *Parthian, Sasanian and Early Islamic Pottery*: dating, definition and distribution. A specialist workshop at The British Museum, Organised by Seth Priestman & St John Simpson. Department of the Ancient Near East, The British Museum.

Reinink-Smith, L.M., 2015. AMS-dated mollusks in beach ridges and berms document Holocene sea-level and coastal changes in northeastern Kuwait Bay. *Quaternary Research* 84, 200–213.

Rice, D.S., 1958. Deacon or Drink: Some paintings from Samarra re-examined. *Arabica* 5, 15–33.

Simpson, S.J., 2003. From Mesopotamia to Merv: reconstructing patterns of consumption in Sasanian households. In: Potts, T., Roaf, M., Stein, D. (Eds.), *Culture through objects: Ancient Near Eastern studies in honour of P.R.S. Moorey* (Oxford, Griffith Institute), pp. 347–375.

Simpson, S.J., 2007. Bushire and on: some early archaeological discoveries in Iran. In: Errington, E. (Ed.), *From Persepolis to the Punjab. Exploring ancient Iran, Afghanistan and Pakistan.* British Museum Press, London, pp. 153–165.

Tofighian, H., Nadooshan, F.K., Mousavi, S.M., 2011. Sasanian in the Persian Gulf according to archaeological data. Sasanika *Archaeology* 4, 1–5.

**FIGURE CAPTIONS**

Figure 15: Late Sasanian and early Islamic pottery from BR H (see Fig. 8). **a:** torpedo jar rim (see also Fig. 7b for initial discovery); **b1–2:** unidentified and undated ware; **c-d** and possibly **e-f**: LISV; **g:** bearing a piercing indicating use as a net weight, probably from Honeycomb Ware (8th century AD).

Figure 16: Late Sasanian-Early Islamic pottery from the present beach berm and intertidal flat (see Fig. 8). **a-b:** Turquoise Glaze, **a 1–2** (sherd showing outside and inside of jar)is an uncertain identification due to the occurrence of greenish-glazed jars with similar handles in the 19th century AD, while **b 1–2** is a firmer identification and bears incised and punctuate decoration beneath eroded turquoise glaze (black arrows point to mm-size remnants of glaze); **c:** unidentified, perhaps SMAG fabric (Small Gray Vessels, late Sasanian and early Islamic) (Kennet 2004); **d:** eroded sherd with bitumen, possibly torpedo jar.

Figure 17. Unidentified wares from the present beach berm (see Fig. 8). **a:** probable Late Islamic (18th-20th century AD); **b:** possible Late Sasanian-Early Islamic (LISV), found as three separate sherds behind the berm in the washover area and evidently washed up a long time ago; **c1–2:** unidentified.