GLOBALISING INTERACTIONS IN THE ARABIAN NEOLITHIC AND THE 'UBAID

Robert Carter

INTRODUCTION

The world's earliest well-documented maritime trading network has been identified in the Persian Gulf, dating to the sixth and fifth millennia BC. This connected pastoral nomadic fishing groups of the Arabian littoral and its hinterland (broadly classified as "Arabian Neolithic") with small-scale agrarian communities of southern Iraq (so-called "'Ubaid," the term used to refer to a pottery style, a chronological period and a perceived cultural horizon or interaction sphere held together by some kind of symbolic identity) (Oates 1960; Oates 1987; Carter 2006; Carter 2010c; Stein 2010a).

In this chapter, I will argue that the Gulf's maritime network was an integrated part of a wider 'Ubaid period network of exchange and communication that extended as far as the Mediterranean, Anatolia, the Caucasus and the Straits of Hormuz. This wider 'Ubaid horizon is usually (but arguably) considered to have originated with an expansion of southern Iraqi ('Ubaid) material culture and ideology to northern Mesopotamia and beyond at around the start of the 'Ubaid 3 period, during the second half of the sixth millennium BC (Carter and Philip 2010; Stein 2010a; Stein 2014).

Some analysts see not an expansion from the south but simultaneous regional convergence of material culture (Karsgaard 2010), driven by shared social needs and intensified communication. Nissen, for example, considers that the similarity of northern and southern 'Ubaid 3–4 ceramic styles was

the result of technological innovation, namely the adoption of the slow wheel which allowed faster production but simpler motifs, which in turn was a solution to shared social requirements relating to specialisation and the organisation of labour. Likewise Nissen sees the widespread adoption of tripartite domestic architecture as resulting from a social need to manage "extended family structure within the context of an evolving chiefly society" (Nissen 2001: 170). In all scenarios, regional and supra-regional cultural integration must have been facilitated by advances in communication, both physical (water transport) and symbolic (archaeologically visible through objects, decorative styles and architecture), as discussed in detail below.

I further argue that many of the paradigms discussed in studies of modern and historical globalisation apply to this formative phase of prehistory: while not comprehensively global in the geographical sense, the 'Ubaid network lays the foundations for the globalised networks of later millennia, in terms of both technologies of and attitudes to distance, procurement, communication and trade. With regard to the aims of this volume, the network illustrates the participation of small-scale societies in large-scale interactions, as part of a long-term and dynamic process of intensified communication and cultural integration.

PREHISTORIC GLOBALISATION: DEFINITION, WORLD-SYSTEMS AND INTERCONNECTIVITY

While the Arabian–'Ubaid interaction proves that nomadic groups and small-scale village communities could engage in structured trading relations across huge distances, in a pattern that persisted for several centuries, perhaps over a millennium (Carter 2010c: 191), consideration is needed over whether this can be termed globalisation. The term has many meanings, ranging from the specific to the general, and varying widely in scope according to the perspective of the scholar. One survey, by no means comprehensive, gave 114 definitions (Al-Rodhan and Stoudmann 2006: 6); the authors' resulting comprehensive definition is so broad as to be applicable in almost any context: "globalization is a process that encompasses the causes, course, and consequences of transnational and transcultural integration of human and non-human activities." For our (prehistoric) world this definition may be boiled down to two words: "*transcultural integration*," but such a reductive strategy robs the concept of most of its meaning and utility. Lack of precision in the meaning of the term has not concerned many of the authors in the numerous monographs and edited volumes on pre-modern globalisation, many of whom use the concepts of globalisation, world-system(s), long-distance trade and even human dispersals interchangeably (Abu-Lughod 1991; Frank and Gills 1993b; Hopkins 2002c; Gills and Thompson 2006; Wilkinson 2006; Chase-Dunn et al.

2006; Potts 2009). Some authors attempt to define different kinds or phases of globalisation, but lump all earlier historical and prehistoric interactions into a single pre-modern, "archaic" category, and additionally deny economic rationality to individuals and groups within pre-modern configurations of human society (Hopkins 2002b: 3; Hopkins 2002a: 27; Bell 2003: 808–809).

Several previous studies have delved more deeply into early historic and prehistoric globalisation processes using Wallerstein's world-systems framework, most notably studies by Kohl with regard to the Bronze Age in the Middle East, and Algaze with regard to the Uruk period (Kohl 1989; Kohl 1979; Algaze 1993). Wallerstein posits the existence of a developed and dominant core area which extracts raw materials and labour from peripheries, whose development is suppressed, and which become politically, economically and culturally dependent (Wallerstein 1974: 64; Wallerstein 2000). Leaving aside Wallerstein's insistence that his model applies only to capitalist relations within the last 500 years, arguments against applying his model to prehistoric contexts focus on failure to acknowledge the role of local agency and indigenous developments of complexity in so-called peripheral areas, and the improbability that a very distant core could impose unequal economic or political relations in the context of the scale of prehistoric society and communications (Frangipane 1997; Stein 1999; Stein 2002). More specific to the ʻUbaid period, there are difficulties in defining any core and periphery: the notion of a spread of ʻUbaid material culture or ideology from a southern heartland has been strongly challenged (Campbell and Fletcher 2010; Karsgaard 2010) and there is simply no data available to indicate economic dominance of any one area over another. Neither, on the current evidence, is it appropriate to characterise southern ʻUbaid society as intrinsically more complex, powerful or productive than the contemporary societies of northern Mesopotamia; indeed, in terms of administrative complexity, particularly the use of seals, late Neolithic societies in the north appear to be significantly more advanced than early ʻUbaid communities in the south, which lack any evidence for use of sealing technology. For these reasons the framework of globalisation is preferred in this discussion of the wider ʻUbaid phenomenon, with a focus on aspects of interconnectivity rather than assumptions of intrinsic inequality between the societies of the various regions.

Regarding interconnectivity, several scholars of the later historical stages of globalisation have identified faster and more efficient transport as a critical catalyst in accelerating processes of integration and productive output, with transformative effects on participant societies. Kearney points to "time–space compression," compelled by the need to shorten turnover time, as a driver of recent globalisation processes; Jennings cites the same for ancient exchange systems, while O'Rourke and Williamson assign prime importance to the lowering of freight costs during the nineteenth century AD, their

own preferred arena of globalisation (O'Rourke and Williamson 2002: 15–16; Kearney 1995: 551; Jennings 2011: 123). This "time–space compression," predicated on faster or more intensive transportation, is equally significant to the prehistoric interactions that are the subject of this study, and are further discussed below.

GLOBALISATION AS A DYNAMIC PROCESS

A survey of the literature reveals that quantitatively testable models which might reveal the onset of or degrees of globalisation, precisely defined, have been most successfully formulated by historians and economists specialising in the last three centuries (e.g. O'Rourke and Williamson 2002; O'Brien 2006). Scholars of pre-modern periods lack detailed economic data but nonetheless attempt to locate the "beginning" of globalisation, with unconvincing precision, according to qualitative and subjective data: we are variously told that globalisation began exactly in 1571 AD (O'Flynn and Giraldez 2006), at 1250 AD (Abu-Lughod 1991; Abu-Lughod 1993: 278), at 1500 BC (Chase-Dunn et al. 2006: 115; Gills and Frank 1993), at 3000 BC (Frank and Gills 1993a: 3–4; Ekholm and Friedman 1993: 60, 63) and at 3700 BC (Cioffi-Revilla 2006: 83). It seems that scholars can pinpoint globalisation according to their favoured period of study as much as their choice of definition (if any).

To avoid shoehorning the origins of globalisation into my own period of interest, the sixth–fifth millennium BC, I emphasise that I consider globalisation to be an ongoing and long-term process which is very deeply rooted in the human experience: the further one digs into prehistory, the earlier one will find behaviours that contributed to the processes culminating in the globalised world we see today. I consider that the 'Ubaid world and the Arabian–'Ubaid interaction are themselves the outcome of older processes that can be described as "globalising." The existence of "supralocal exchange systems" long before the appearance of historical civilisations is widely recognised (Ekholm and Friedman 1993: 60), and systemic relations between distant peoples have existed since at least the early Epipalaeolithic in the Middle East (as early as ca. 19,000 cal BC), demonstrated in Jordan by the presence of imported materials (both Mediterranean and Red Sea marine shell, and ochre) at the seasonal meeting-places of multiple population groups (Chase-Dunn et al. 2006: 104; Richter et al. 2013; Richter et al. 2011). Such interactions are not global in the geographical sense, but globalisation never was and never is: no demographic or exchange network has ever encompassed the whole globe, and even today not all humans on the planet are meaningfully connected into globalised networks (Jennings 2011: 2). A large proportion continue to rely on ancient subsistence and production practices within a traditional social milieu, interacting almost entirely on a local scale. From this it follows that globalisation is not an

absolute state but a matter of degree, and also that it is a dynamic process (Al-Rodhan and Stoudmann 2006: 5).

The dynamism of the process underlines the expectation that globalisation must be transformative, an idea which will be explored further below, and also that it is reversible: cultural and exchange networks can shrink and break as well as thicken and expand. To reflect this dynamism the title of my chapter refers to "globalising interactions" rather than globalisation, in which we seek the distant roots of the global networks that we see today, in terms of technologies of movement and transport, trade, cultural exchange and social attitudes to power, distance and exchange.

ARABIAN–'UBAID INTERACTIONS: BOAT REMAINS AND CERAMIC EVIDENCE

Interactions between the peoples of eastern Arabia and southern Iraq are chiefly but not exclusively demonstrated by the presence of southern Mesopotamian 'Ubaid-style pottery at Neolithic sites in the Persian Gulf region during the late sixth and fifth millennia BC. These have been exhaustively debated since the early 1970s (Burkholder 1972; Masry 1974; Oates et al. 1977; Piesinger 1983; De Cardi 1986; Frifelt 1989; Uerpmann and Uerpmann 1996; Carter 2006; Carter 2010c). New Gulf sites with 'Ubaid pottery are still being identified, and major excavations have taken place since the last significant synthesis (Carter 2010c) in Kuwait at Bahra 1, and in Saudi Arabia at Dosariyah (Rutkowski 2011; Drechsler 2011). An updated map of sites with 'Ubaid material, invariably pottery, but sometimes accompanied by other Mesopotamian material, can be seen in Fig. 2.1. Note that this shows the advanced shoreline considered to have existed in 5300 BC, according to Pournelle, at around the time that the Arabian–'Ubaid interaction began to reach its peak (Pournelle 2003: fig. 44). Pournelle's analysis demonstrates that the southern Mesopotamian sites were located directly on or very close to the Gulf littoral, probably on slightly elevated areas ("turtlebacks") within a mosaic of marshy and estuarine environments grading to open sea. Those which appear a little further inland (e.g. Uruk, Hajji Mohammed) would have been linked to the sea by marshes and branching waterways, no more than a few hours travel by boat from open water.

The most evident pattern on the Arabian side is the predominantly coastal distribution of 'Ubaid sites. This was noted early on by several observers who proposed that the 'Ubaid material had been transported by sea (Oates et al. 1977: 233; Piesinger 1983: 753). Supporting evidence has since been provided by the discovery of boat-related remains at the site of H3, As-Sabiyah, a coastal settlement in Kuwait (Carter 2006). These consist of a ceramic boat model, apparently of reed-bundle construction; a painted ceramic disc which appears to show a boat with a two-footed mast; and numerous fragments
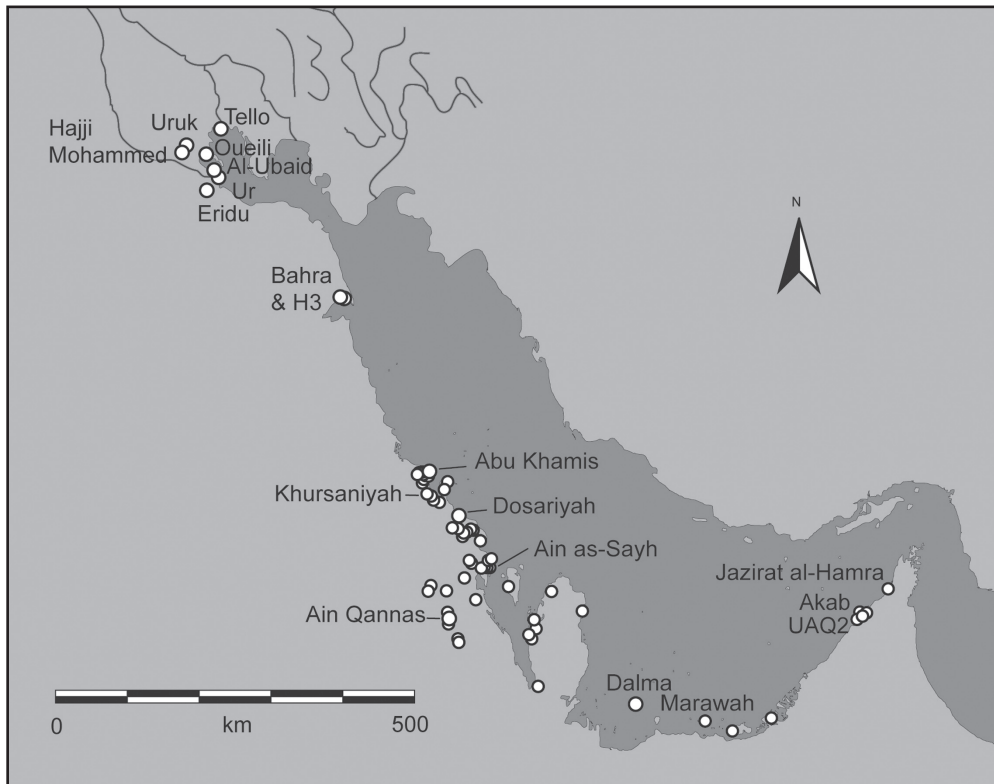
2.1 Sites with 'Ubaid material in the Persian Gulf, with 'Ubaid sites in southern Iraq. Map by Robert Carter.

of reed-impressed, barnacle-encrusted bitumen, which are interpreted as fragments of the water-proof coating of at least one reed-bundle boat (Connan et al. 2005; Carter 2010b) (Fig. 2.2).

Further supporting evidence for seafaring in the Gulf is provided by the location of Neolithic sites with 'Ubaid pottery on islands some distance from the mainland, particularly Dalma (40 km from the nearest mainland, 28 km from the nearest other island) and Marawah (14 km from the nearest mainland) (Beech et al. 2000; Beech et al. 2005). Shoreline reconstructions do not suggest that these islands were closer to the coast at the time of occupation.

In the central Gulf region the distribution pattern indicates that 'Ubaid pottery was also circulating at inland sites. This indicates that 'Ubaid pottery was valued and used by Neolithic peoples in eastern Arabia, entering into Neolithic circulation patterns rather than being brought as "luggage" and then discarded by Mesopotamian sailors. The existence of imitation 'Ubaid ceramics made of painted plaster at Dalma and Marawah supports this interpretation (Carter 2010c: 195). There is now additional evidence for the imitation of 'Ubaid pottery at Dosariyah, where 'Ubaid-style ledge-rim jars were imitated in the local coarse red ware (Kainert and Drechsler 2014: 220–221, fig. 7: d–e).
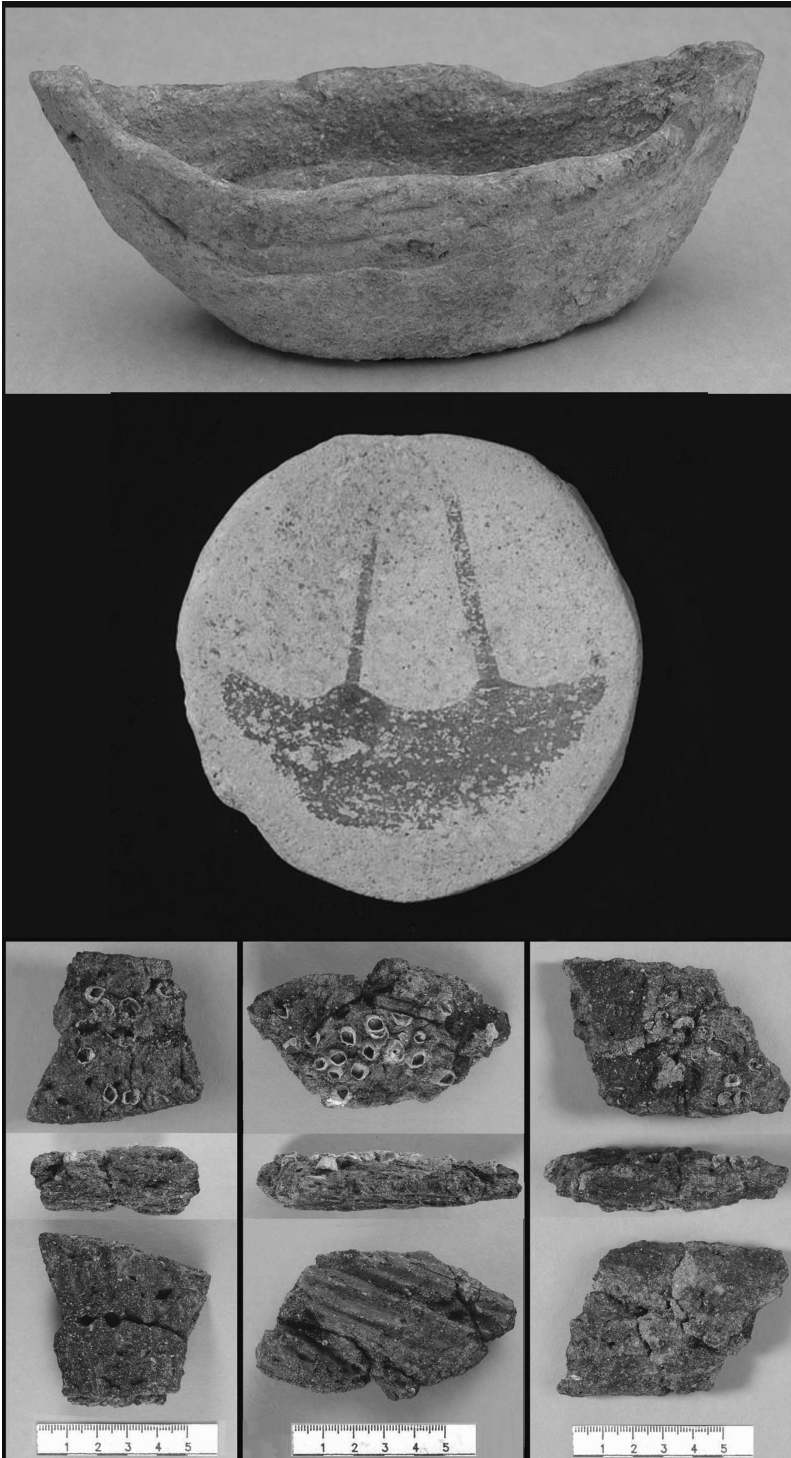
2.2 Boat-related finds from H3, As-Sabiyah, Kuwait. Illustration by Robert Carter, photos courtesy of British Archaeological Expedition to Kuwait.
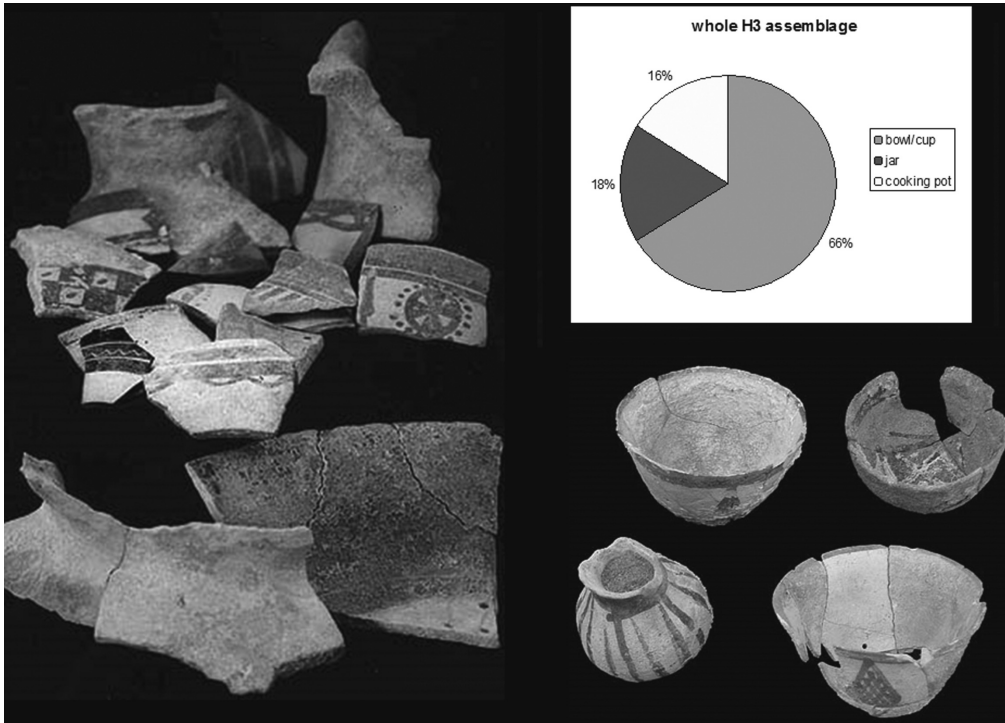
2.3 Examples of 'Ubaid pottery from H3, with chart of functional profile. Illustration by Robert Carter, photos courtesy of British Archaeological Expedition to Kuwait.

The items exchanged for the pottery are unknown, but variously surmised to be pearls and shell jewellery, livestock and animal products, minerals and semi-precious stones, and, as noted below, dates and date palm products (Carter 2010c: 199; Kallweit 2003: 61; Oates et al. 1977: 233; Uerpmann and Uerpmann 1996: 135; Masry 1997: 133).

The functional profile of the pottery also offers evidence that it was brought in to fulfil a specific need within Neolithic society: it is heavily skewed towards open forms suitable for serving and display (Fig. 2.3). This, coupled with its almost invariable association with cooking pots in the local coarse red ware, implies that 'Ubaid pottery was associated with feasting events when found in the Arabian Neolithic context (Carter 2010c: 195–197).

The upshot of Neolithic demand for pottery was a long-lasting network of connections that stretched from the southern Mesopotamian sites to the mouth of the Gulf, a distance of over 1,000 km as the crow flies, or at least 1,500 km if a coast-hugging route is followed. Our perception of this network is heavily biased by the archaeological visibility of 'Ubaid pottery, and in reality the scale of the complex is effectively boundless: to the north the 'Ubaid interaction zone spread as far as the Caucasus, Anatolia and the Mediterranean, while further (aceramic) exchanges are likely to have connected inland Arabia, potentially as far as Yemen (see below).

Exchanges between the people of 'Ubaid Mesopotamia and Neolithic Arabia need not have been predicated upon inequality of relations, or any kind of core–periphery relationship. While the inhabitants of Iraq undoubtedly had a higher standard of pyrotechnic ability, a more elaborated material culture and a higher degree of sedentism than the people of eastern Arabia at this time, there is no evidence that exchanges took place on an unequal footing, or that individuals from the purportedly more advanced southern Mesopotamian population were the sole or dominant agents in spreading the exchange networks of the era. Models of unidirectional relations, which deny agency to the exchange partners considered less advanced by contemporary or later observers, have long been recognised as biased, incomplete and inadequate (Stein 2002). Indeed, it is difficult to determine whether the boats that carried pottery to eastern Arabia were built and crewed by individuals from eastern Arabia or southern Iraq: the people of both areas were comfortable with the technology and operation of watercraft, as noted below.

THE ARABIAN NEOLITHIC: CONTEXT AND CONNECTIONS

The Neolithic context in which these finds were made should be more strictly defined as the Eastern Middle Arabian Neolithic. "Arabian Neolithic" is a portmanteau term covering a vast time scale (from the ninth to the fourth millennium BC) and a huge geographical range (from Yemen to Kuwait), within which numerous quite different and potentially unrelated population groups existed. According to current evidence the Eastern Middle Arabian Neolithic comprised mobile groups variously reliant on a combination of pastoral resources (the herding of cattle, sheep, goats), fishing (mainly but not exclusively in shallow waters), coastal foraging (particularly for shellfish) and hunting (gazelle and equids, smaller mammals, wild birds, marine mammals) (Carter 2010c: 193; Beech 2010; Uerpmann and Uerpmann 1996; Uerpmann et al. 2000).

Evidence of barley grains at H3, As-Sabiyah, Kuwait, either indicate that trade in grain from southern Iraq supplemented the pottery trade (Parker 2010: 197–198), or feasibly that grain was grown in the vicinity of the site during the wetter climate of the late sixth and early fifth millennia BC. If proof of the latter could be established, this would be the first hint that Arabian Neolithic people in the northern Gulf region grew crops themselves. As noted below, there is evidence of closer contacts with Mesopotamian groups in this area than in other regions further south, and perhaps even the presence of individuals from Mesopotamia living at H3 or nearby Bahra. The local adoption of Mesopotamian cereal-farming techniques may be considered feasible in this light, and likewise agriculture practised locally in Kuwait by people of Mesopotamian origin, or their descendants.

Date stones were also found at H3 and at the Neolithic island site of Dalma 11 (UAE). The morphology of those from H3 identifies them as wild

according to Gros–Balthazard (2012). The same study concluded that the wild progenitors of the date palm (*Phoenix dactylifera*) were native to the Gulf region and Arabia, and were not domesticated until the later fourth millennium BC (Gros–Balthazard 2012: 234, 259; Boivin and Fuller 2009: 135–136). One may therefore speculate that date palm remains found in southern Iraq, in 'Ubaid 4 contexts at Oueili and Ur, originated from the Gulf. Thus, wild dates and date products (unprocessed leaves and rachis, matting, fibre, wood) may have constituted Arabian trade items exchanged for 'Ubaid pottery.

The Eastern Middle Arabian Neolithic appears to be characterised by a high degree of mobility. In a previous publication I hypothesised that the transformative effect of Arabian–'Ubaid trade relations, could have led to a degree of sedentarisation (Carter and Crawford 2010b: 211). So far this remains unproven, despite the existence of a minority of larger mounded sites within the Neolithic settlement pattern (H3, Bahra 1, Dosariyah, Abu Khamis, Ain Qannas, Khursaniyah, perhaps Ain As-Sayh). Eastern Neolithic sites are typically very small and unstratified, with only surface scatters of artefacts and sometimes hearth outlines and buried firepits. The larger ones that exhibit depth of stratigraphy, and that are measurable, range in size from ca. 0.75 ha (H3 As-Sabiyah) and 1.7 ha (Abu Khamis) to allegedly 16 ha (Dosariyah), though the central mounded part of the latter is only 0.83 ha (Carter 2010c: 193; Masry 1997: 48–50). The apparently unstratified sites, some consisting of surface scatters only but others having a widely distributed buried firepit occupation or deflated stone structural remains visible on the surface, can also obtain reasonable size, for example, Al-Da'asa (ca. 0.5 ha judging from the extent of the pot scatter) and Ras Abaruk 4 (4 ha), both in Qatar (Smith 1978b: 82; Smith 1978a: fig. 2).

So far, excavations at the mounded Neolithic sites imply sporadic or seasonal occupation rather than permanent habitation. Dosariyah, despite its large area and around 2 m of stratified deposits, is a large midden and campsite. Rather than being a build-up of collapsed architectural remains, it is most likely mounded because of the entrapment of wind-blown sand by heavier midden deposits, largely shell and fish bone, laid down by numerous successive but architecturally ephemeral occupations, probably seasonally (Drechsler 2011: 79). The only evidence of architecture consists of reed-impressed plaster (probably the corners of reed huts with plaster daub) and three post-holes (Drechsler 2010: 2, fig. 2; Drechsler nd: 10). Dosariyah's size and long sequence of campsite occupations is nonetheless significant: here we may have a seasonal gathering place of several groups of people who were widely dispersed across the landscape for most of the year. The site was evidently used in this way for generations. I speculate that this gathering place, like the much earlier example from Jordan mentioned above, formed a central venue for trade, alliance-formation, matrimonial exchanges, feasting and other ceremonial events. I have already mentioned the likely role of 'Ubaid pottery in these

events. Dosariyah, and perhaps other large sites in eastern Arabia (Abu Khamis, Khursaniyah, Ain Qannas), could therefore be regarded as special-function sites or central places where large gatherings took place seasonally, most likely timed to coincide with the arrival of boats emanating from or returning from southern Iraq or Kuwait.

Migratory patterns are also suggested at Buhais 18, an inland piedmont Neolithic cemetery and settlement in Sharjah, UAE. Here, secondary burials together with data from associated minerals, faunal age profiles and isotopic studies suggest that its inhabitants followed a migration circuit that included the coastal zone, Buhais 18 itself and the higher mountainous areas (Jasim et al. 2005: 33; Uerpmann et al. 2008: 51). At H3 in Kuwait, frequent rebuilds of simple stone architecture separated by phases of short-term abandonment imply seasonal occupation and therefore mobility on the part of its inhabitants, as do broad comparisons with the architecture of mobile pastoralists of other eras and regions (Carter 2010a: 31–32). The architecture and material culture of Bahra 1, Kuwait, remain difficult to interpret (see below), but frequent rebuilding and opportunistic modification are broadly indicative of a mobile population.

Migratory circuits would inevitably have brought Neolithic populations into contact with neighbouring groups, allowing the possibility of exchange. Typological lithic analysis implies that at least two separate but related population groups circulated in eastern Arabia (Spoor 1997), while the inhabitants of Buhais 18 apparently had very close neighbours, demonstrated by a contemporary cemetery at FAY-NE15 just 17 km away, interpreted as belonging to a different but related population group (Kutterer and De Beauclair 2008).

Within the Arabian interior there is tantalising but unresolved evidence of overland interactions across immense distances, hypothetically through down-the-line trade and "small-world" exchanges (the latter term signifying long-distance exchange facilitated by agents that trade with distant partners rather than only with their nearest neighbours; see below). The desert core of the peninsula (the Ru'b al-Khali and Nafud deserts) once possessed lakes fringed by Neolithic (and older) sites, situated in a landscape of rich grasslands stimulated by an early-to-mid-Holocene pluvial phase (Parker et al. 2006; Crassard et al. 2013; Edens 1982; Edens 1988; Magee 2014: 42–43). Rather than an arid wasteland, we may therefore imagine interior Arabia at this time as a vast pasturage occupied and traversed by mobile Neolithic herdsmen and flocks. Artefactual evidence for cross-peninsula contacts, albeit not decisive, include close similarities in the manufacture and form of polished stone axes and adzes in Yemen and eastern Arabia, as well as polished stone bangles (Kallweit 2003: 56–61). The question of whether obsidian from Yemen or elsewhere in western Arabia made its way to eastern Arabia awaits archaeometrical proof. This possibility was first raised by Zarins following compositional analysis of an obsidian bead from a Neolithic burial in Qatar (Zarins 1990: 531), and since then it has been

suggested that analysed obsidian from H3, As-Sabiyah (Kuwait) had its origin in southwestern Arabia (Carter and Crawford 2010c: 111). Ongoing study of the H3 data has called this preliminary conclusion into question, however, and an Anatolian/Transcaucasian origin for it cannot now be ruled out (Dr Lamya Khalidi, CNRS, pers. comm.). Obsidian from the Yemeni highlands certainly reached a great distance from source, for example with material from Yafa' Ridge being found ca. 1000 km away in Dhofar, Oman (Khalidi et al. 2013: 65). Further work on Neolithic obsidian from eastern Arabia is required to establish what proportion has a northern source (Anatolia/Transcaucasia), in which case it would have been passed through 'Ubaid-period Mesopotamian networks before being traded into the Gulf.

This kind of movement of small amounts of obsidian across vast distances is usually understood as the result of down-the-line exchanges, following Renfrew (1975). More recently, multi-agent modelling of obsidian exchange has indicated that purely linear down-the-line trade, passing goods from nearest neighbour to nearest neighbour, would not likely permit the passage of obsidian for such great distances; instead, for it to travel huge distances one or more of the exchange partners must be prepared to short-cut the line, trading with partners more distant than their nearest neighbours (Ortega et al. 2014). This so-called "small-world" network vastly increases the connectivity of human population groups and settlements, and has major relevance for our understanding trade between and among the villagers of 'Ubaid-period Mesopotamia and the Neolithic herders of Arabia.

An eastern Anatolian/Transcaucasian origin for some of the obsidian found in eastern Arabia and Bahrain, shown by previous analyses (Renfrew and Dixon 1976: 148), indicates a northern axis of communication up the Euphrates and/or Tigris systems. A northern origin has also been established for some of the bitumen found in Neolithic contexts: although the boat-related bitumen from H3 is from a local Kuwaiti source 70 km to the south of the site (Connan et al. 2005), bitumen from Dosariyah (Saudi Arabia) and UAQ2 (Umm al-Qaiwain, UAE) has been identified as being from northern Iraq, from one of the seeps around Mosul on the Tigris (Van de Velde 2015; Connan and Carter 2007: 175, table 11). The Arabian–'Ubaid network therefore includes the movement of bitumen across 1,670 km (between Mosul and Umm al-Qaiwain), along with the movement of pottery 1,100 km (between the southernmost Mesopotamian sites and the furthest pottery-bearing ones around Jazirat al-Hamra), and obsidian across even larger distances.

MEDIA OF COMMUNICATION: SYMBOLIC OBJECTS

A range of small objects is found in 'Ubaid period Mesopotamia which are identified as tokens, whereby different shapes correspond to specific goods

or recognised quantities of specific goods, presumably used to record some kind of social or economic transaction. Other small objects are considered markers of personal and group identity, including items of personal ornamentation, and small objects of unknown function which are particularly associated with Mesopotamian 'Ubaid-period material culture and symbolic identity (to use Stein's terminology). The former category implies the existence of a common symbolic language of representation and communication, and the latter objects communicate and symbolise selfhood and, sometimes unconsciously, group membership. Both tokens and personal ornamentation are relevant to the communication and exchange network that connected the 'Ubaid Mesopotamian and Arabian Neolithic worlds. It is not always clear whether these small objects, crafted from clay, stone and other materials, should be regarded as tokens, personal ornaments, or tools particularly associated with the 'Ubaid symbolic identity, and for this reason they are treated together in this section, and grouped under the term "symbolic objects."

Regarding tokens, Schmandt-Besserat proposed that they represented a widely understood system of accounting rooted in the Neolithic of the Levant, Mesopotamia and Iran, originating long before the 'Ubaid period, which ultimately led directly to the development of writing after the 'Ubaid period, in the later fourth millennium BC (Schmandt-Besserat 1992). This hypothesis is not universally accepted by archaeologists and assyriologists, at least not in all its details (Zimansky 1993; Englund 1998). Regarding 'Ubaid-period tokens, buried caches of common types (mainly clay cones and spheres but also rarer types and stone examples) at Abada and Gawra are usually understood as groups of tokens which represent records of transactions in specific commodities (Forest 1989; Jasim and Oates 1986). Forest (1989: 214) considers that the stone examples represent prestige goods, while the clay ones represent more mundane goods. These issues are more fully discussed below.

Of particular interest to this study is a range of small objects of Mesopotamian association found at the sites of the northern Gulf, namely H3 and Bahra 1 in Kuwait, with fewer examples found at other Gulf sites (Dosariyah and Abu Khamis). These were previously described as "functionally enigmatic" (Carter and Crawford 2010a: 86); they remain so but deserve closer examination. Table 2.1 lists examples known from the Gulf.

Discussion of Symbolic Objects

Table 2.1 is far from exhaustive in terms of the complete range of Mesopotamian "tokens," items of personal adornment and symbolic objects, and has focused only on those found in the Gulf which are considered to be of Mesopotamian style or origin. There is no space to discuss re-used pierced sherds usually described as pendants or net weights, known from both

TABLE 2.1 *Tokens and symbolic objects*

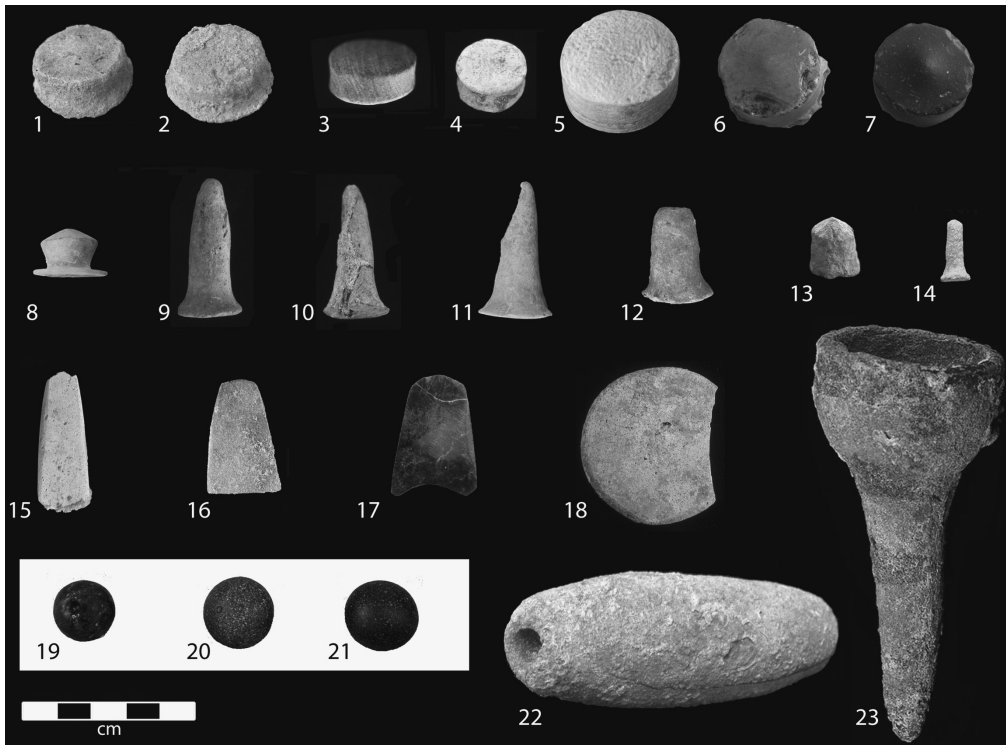| Type	Description	Comments and interpretation	Gulf distribution	Wider distribution (not comprehensive)
Ceramic flanged discs ("spools," "labrets") (Fig. 2.4: 1–2)	Flat discs, usually with a groove running around the circumference to create flanges. Ceramic examples often have concave faces, and sometimes only have one flange around the circumference. Generally 2–4 cm in diameter; some morphological overlap with ceramic nails (below). Gulf examples are made in same local red coarse ware as local cooking pots.	Usually interpreted as "labrets," cf. Choga Mami figurines with large facial studs, and a Deh Luran burial with one on the mandible (Hole et al. 1969: 235 and fig.102a–e). Some seen as tokens, e.g. at Abada (Jasim 1985: fig. 69: c, f; Jasim and Oates 1986: 352–355). See also Schmandt-Besserat Types 3.1, 3.6, 3.7 (Schmandt-Besserat 1992: 208).	**H3**: 22 clay examples (Carter and Crawford 2010a: 67, fig. 4.1: 1–11). **Bahra 1**: Several clay examples, included in the same category as ceramic nails (Reiche 2011: 46).	Common at Mesopotamian 'Ubaid sites, as well as contemporary Iranian sites. See for example Uruk, Oueili, Ras al-Amiyah (Becker 1993: Pl. 7: 60, 65–71; Woolley 1955: Pl. 15: U.16603, U.17764A; Breniquet 1996a: Pl.V: 4–5; Breniquet 1991: Pl. IV: 1–7; Breniquet 1987: Pl.II: 2–5; Stronach 1961: Pl. XLIII: 10–12). Where stratified these are 'Ubaid 2/3 i.e. early 'Ubaid 3 (Ras al-Amiyah, Abada); and 'Ubaid 0–1 at Oueili (Breniquet 1996a: 154; Breniquet 1991: 314). Among Arabian Neolithic sites, only found at H3 and Bahra 1.
Stone flanged discs ("spools," "labrets") (Fig. 2.4: 3–8)	Similar to the above, but stone examples often have slightly convex faces. Groove is occasionally absent. Not certain whether these are functionally similar to ceramic flanged discs.	As above.	**H3**: 7 examples, in limestone, a hard banded stone, a pair in clear flint or obsidian, and a knobbed one in obsidian (Carter and Crawford 2010a: 67, fig. 4.1: 12–18; Carter and Crawford 2010b: Pl. 16).	Common at Mesopotamian 'Ubaid sites, as well as contemporary Iranian sites. Among Arabian Neolithic sites, only found one in H3. Parallels at Uruk, Oueili and Ras al-Amiyah as above.

| Nails and studs (various materials, mainly ceramic) (Fig. 2.4: 9–14) | Small nail-shaped objects in various materials, generally with flat heads; ceramic and bitumen examples usually have thick tapering points; stone and shell ones (usually obsidian) are more rod-like. Ceramic examples from the Gulf are made in the same local red coarse ware as local cooking pots. | Apart from the possible Dosariyah rod, stone examples are so far absent from the Gulf. Function is uncertain. Some may be tokens cf. Schmandt-Besserat Types 1.1 and 1.2 with widened ends, and Type 4.2 (Schmandt-Besserat 1992: 20, fig. 15, 212). | **H3:** 15 complete or partial ceramic examples (Carter and Crawford 2010a: fig. 4.2). **Bahra:** At least 3 ceramic examples (Reiche 2011: 46). **Dosariyah:** Small broken obsidian rod with an extended flat head (Drechsler 2010: fig. 24). | Mesopotamian 'Ubaid parallels for clay nails at Ras al-Amiyah (Stronach 1961: Pl. XLIII: 8–9) and Ur (bitumen, obsidian and shell) (Woolley 1955: Pl. 15: U.2806). Ur bitumen examples are closest in shape to ceramic nails at H3, Bahra, Ras al-Amiyah. Stone and clay rods at Abada, Eridu, Gawra and other Mesopotamian sites (Carter and Crawford 2010a: 70; Jasim 1985: 67). |
| *Ceramic rings* (not depicted) | Fired clay rings or truncated hollow cones. At Bahra crudely made in the local Gulf red coarse ware, varying in size, 0.8–4 cm in diameter. At Abada described as "bracelets and beads"; similar range of sizes as Bahra but only simple rings present (i.e. rings with circular cross-sections). | Reiche speculates that they might be ornaments for clothing or hair. A role as tokens cannot be ruled out. | **Bahra:** 26 complete and 69 partial examples (Reiche 2011: 46–47). | Abada examples (Jasim 1985: fig. 65) are similar but not identical because they have simple circular cross-sections. |

(continued)

TABLE 2.1 (*Continued*)

Type	Description	Comments and interpretation	Gulf distribution	Wider distribution (not comprehensive)
Bent ceramic nails ("mullers") (not depicted)	Shaped like large bent clay nails, shafts sometimes painted, heads frequently showing abrasion.	Usually considered to be grinders ("mullers"). Strongly characteristic of the Mesopotamian 'Ubaid.	**Dosariyah**: Handle fragment (Masry 1997: fig. 29:2'). **Abu Khamis**: Handle fragment (Masry 1997: fig. 44:1).	Common at Mesopotamian 'Ubaid sites, e.g. Abada, where 97 were found (Jasim 1985: 63, and figs. 56–57).
Stone and ceramic discs, palettes or spatula (Fig. 2.4: 15–18)	A range of small flat objects of uncertain function from H3 and Mesopotamia. Formed in clay before firing (rather than shaped after firing) or made of polished stone, in a variety of shapes.	Function uncertain. Jasim and Schmandt-Besserat consider similar objects to be tokens. Functional use (e.g. cosmetic palettes or applicators) or magico-religious purposes also possible.	**H3**: Ceramic examples: 1 broken barrel-shaped, 2 trapezoidal or "axe-head shaped" spatulae, at least 3 broken circular discs, unpierced (Carter and Crawford 2010a: fig. 4.6: 6–11). Plus a small polished stone (probably obsidian) fish–tailed palette or plaque (Carter and Crawford 2010a: fig. 4.9: 1, fig. 4.10: 5027:05).	A circular disc at Oueili ('Ubaid 3); similar objects at Abada ("tokens," "proto tablets," "calculi" (Breniquet 1987: Pl. II: 1; Jasim 1985: fig. 69: a, fig. 68: a, d–e, fig. 70: d; Jasim and Oates 1986: fig. 3). Schmandt-Besserat's tokens include thicker and more lenticular examples (Schmandt-Besserat 1992: 208, Types 3.3, 3.4). H3 obsidian fish-tailed plaque cf. obsidian and ceramic examples from Ras al-Amiyah (Stronach 1961: Pl. XLIII: 13).
Cupped cones ("ladles") (Fig. 2.4: 23)	Ceramic cones with cupped ends, either entirely conical or shaped like large golf tees; 13 or more cm in length; usually painted.	Function unknown, perhaps ritual, amuletic, divinitory or magico-religious paraphernalia.	**H3**: 1 complete at H3, and broken stump, both painted and in 'Ubaid ware (Carter and Crawford 2010a: fig. 4.7: 3–4).	3 from Abada, at least 4 from Ur, others at Choga Mami and Oueili (Jasim 1985: fig. 58: a–c; Woolley 1955: Pl. 15: bottom row; Oates 1968: Pl. XII: 11–14; .

			Examples	Comparanda
			Bahra: 1 complete example in local coarse red ware (Reiche 2011: 47).	Breniquet 1987: Pl. IV: 1–3, 51956, Plate 15). Some of a funerary cache of 19 large bent clay nails at Gawra XVIII have cupped ends, but are much smaller
Stone balls (Fig. 2.4: 19–21)	Small stone balls, with or without indentations, 1.5–1.7 cm diameter at H3 and 3.4–5.5 cm diameter at Bahra 1.	Another diverse category, some members of which may be tokens.	**H3**: 4 examples, of which 2 had drilled indentations (Carter and Crawford 2010a: 83 and fig. 4.10). **Bahra**: Undrilled spheres, dia. 3.4 and 5.5 cm; somewhat large, perhaps *bolas* hunting balls (Reiche 2011: 49).	Cf. Schmandt-Besserat's token subtype 2.3 (spheres with one punctuate mark) (Schmandt-Besserat 1992: 206). At Abada cf. spherical "tokens" ranging from 0.3 to 3 cm in diameter; mainly in clay but also 4 "in other materials" (Jasim 1985: 70 and fig. 66: a–s).
Ceramic rollers (Fig. 2.4: 22)	Large tubular ceramic beads or rollers with tapered ends, up to 12.6 cm in length.	The function of these remains to be determined.	**H3**: 1 example in 'Ubaid ware (Carter and Crawford 2010a: fig. 4.7: 5).	Ras al-Amiyah ("apparently used for grinding or rolling"); Oueili ('Ubaid 3); common at Eridu ("large clay beads") (Stronach 1961: Pl. XLIII: 23; Breniquet 1987: 5; Safar et al. 1981: 127).
Boat models (Fig. 2.7)	A variety of small fired clay boat models, more fully described in Table 2.2.	Possibly of amuletic significance, possibly votive, or toys (Carter 2012: 359).	**H3**: A model in the local Gulf coarse ware showing reed bundle construction (Carter 2010b). **Dosariyah**: A new painted fragment in 'Ubaid ware, hitherto unpublished.	Relatively common in Mesopotamian 'Ubaid contexts (Carter 2012: 348–349, fig. 19.1).

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2.4 Some examples of symbolic objects from H3. 1–2: ceramic flanged discs; 3–8: stone flanged discs; 9–14: ceramic nails and studs; 15–16: ceramic "palettes"; 17: stone (obsidian?) palette; 18: ceramic disc; 19–21: stone spheres; 22: ceramic roller; 23: ceramic cupped cone. Illustration by Robert Carter, photos courtesy of British Archaeological Expedition to Kuwait.

Mesopotamia and the Gulf region, or objects with more obvious functional attributes such as spindle whorls, also found in both regions and in the case of the Gulf apparently imported from Mesopotamia. The ones listed may be classified as falling into four categories, notwithstanding ambiguous group membership:

1. *Decorative items encoding personal and group identity*. Such items might include personal adornments such as ceramic and stone flanged discs, nails and studs (Fig. 2.4: 1–14), and possibly the ceramic rings (not illustrated). As well as personal identity and conceptions of beauty, these objects symbolise and communicate membership of a wider group identity, whether it be based on kinship, ethnicity, gender, sodality, age-group, religion, caste, class or any other social groupings and combinations thereof. This identity appears to be typically Mesopotamian rather than Arabian Neolithic. As noted above, the identification of most of these objects as personal adornments is far from certain, and some may equally be interpreted as tokens (see below).

2. *Tokens*, being directly representative of livestock, people or goods, and of exchanges in such things. These may be broadly described as records of economic

and/or social transactions. Within the Gulf dataset these possibly include small stone balls, palettes and spatula (Fig. 2.4: 19–21, 15–18). We cannot exclude that some of the objects tentatively identified as personal adornments above were in fact tokens of some kind, for example the ceramic nails and flanged discs.

3. *Ritual objects* with amuletic, votive, divinitory or other ritual and magico-religious purposes. These may include "cupped cones" (Fig. 2.4: 23), boat models and some of the objects tentatively identified as tokens above.

4. *Functional objects with associations of identity.* Several kinds of objects are usually ascribed a more purely practical function, for example, large bent ceramic nails usually described as "mullers" or grinders (not illustrated), and very large ceramic biconical bead-shaped objects (Fig. 2.4: 22). Even some of these may have had a ritual function and belong to the group above, or indeed have functioned as tokens. Moreover it could be argued that objects falling into any of the categories listed above would have equally functioned as markers of identity, being characteristic of particular population group(s) (in this case typical of Mesopotamia and the 'Ubaid). The same is true of 'Ubaid pottery and perhaps unseen categories of perishable or recyclable decorated goods (textiles, basketry, feasibly metalwork).

Far more detail and function must be encoded in these objects than we can interpret. Common to all categories is a symbolic language recognisable and interpretable to those widespread communities participating in the 'Ubaid-period interaction zone across Greater Mesopotamia, and parts of the Gulf region. Some may relate to exchanges we would recognise as economic, others to more social communication and transactions, and others more cosmological concerns. All are *media of communication* and are implicated in the globalising processes that are the subject of this chapter.

Their presence at sites in the northern Gulf (Kuwait), and to a significantly lesser extent in the central Gulf region (Dosariyah and Abu Khamis), indicates very close interaction between the peoples of Mesopotamia and that part of Arabia. The presence of locally manufactured versions (flanged discs, nails, cupped cones and boat models), whether made by Mesopotamian visitors or local imitators, suggests a connection between Arabian and Mesopotamian peoples that goes beyond exploration and simple exchange. While I consider that local interpretation and expressions of these elements of material culture are inevitable, I also consider that their meaning and function were broadly shared, and recognised as being part of a wider cultural construct.

Caches of Symbolic Objects and Function

Also significant is the context of some of these finds in Arabia. Many of the examples from H3 were clustered in three groups associated with the later occupation of the site ('Ubaid 3): namely a small building away from the original central core of the site (Area G), and two successive occupations of a late

chamber in the central core (Chamber 33, phases 33a and 33b). These clusters cannot aptly be called caches as they were not found in identifiable pits or vessels, but they likely represent redistributed caches or collections of personal items belonging to the final occupants of those spaces. It is uncertain whether these groups of objects should be regarded as miscellaneous collections of personal ornaments and "ritual" or amuletic objects, or groups of tokens, or a combination of both. The collections can be summarised as follows:

- *Area G, Chamber 30*: 7 ceramic flanged discs, 5 ceramic nails, 2 ceramic discs, 1 ceramic palette ("spatula"), 1 ceramic roller, 1 obsidian palette ("plaque"), various shell jewellery
- *Chamber 33/phase 33a*: 2 ceramic flanged discs, 2 stone flanged discs, 1 ceramic nail, 1 stone sphere, various shell jewellery, worked bone and reworked ceramics, plus 2 small whole pots (a miniature jar and a bowl)
- *Chamber 33/phase 33b*: 2 ceramic cupped cones, 2 stone spheres, 2 spindle whorls, various shell jewellery, plus 2 small whole pots (two identical fine cups)

Groups of tokens ("calculi") were also found at Abada, where they were found in pots and therefore more readily identifiable as discrete caches; additionally the high occurrence of repetition of a small range of simple shapes in clay (mainly cones and spheres) supports an interpretation as tokens. They were concentrated in two phases of a single building (Building A) which also contained a high number of infant burials, and which is larger and has more complex architecture than the surrounding buildings. Ninety tokens were found in 11 groups of 4 to 16 tokens; nearly half were spheres (49 per cent) with others mainly comprising rods, cones and discs (Jasim and Oates 1986: 352–355). Apart from the simple varieties described above in comparison to those from H3, Bahra and Dosariyah, more complex versions of spheres and discs were found with varying numbers of incised lines. Oates and Jasim consider these to be "evidence which genuinely attests the related function of some small, fifth millennium, 'geometric', clay objects. Namely, it is clear that these objects functioned within a single system" (Jasim and Oates 1986: 352). Forest, using the same data from Abada, considers that the 'Ubaid world possessed a "sufficiently extensive and intensive exchange network to justify the emergence of an administrative *lingua franca*" (Forest 1989: 200). Forest's very specific interpretation that the Abada caches are the records of animals given as dowry to acquire a wife is feasible but based on several unprovable assumptions (patrilocal residence, exogamy, the identification of the caches as dowry records). It is safer to see the caches more broadly as household records of significant unspecified exchange transactions, whether from local exchanges or longer-range trading expeditions.

Arguing against an identification of the H3 objects as tokens is the absence of the commonest kinds seen at Abada, namely ceramic spheres and truncated

spheres, and simple ceramic cones which lack any widened end (i.e. not nail-shaped). Difficulties in confirming the identification of small clay and stone objects are not confined to Kuwaiti sites in the Neolithic/'Ubaid period: a recent study of purported tokens from the Kopet Dagh piedmont, the range that divides Turkmenistan from Iran, noted an increase in frequency of simple clay geometric objects in the mid-sixth–fourth millennium (Late Neolithic to Early Chalcolithic in local terminology, roughly contemporary with the 'Ubaid period) but acknowledged that the objects could have been used in "games, divination or other magic/religious activities" (Bonora et al. 2014: 59). Schmandt-Besserat's designation of many of the very extensive range of small clay and stone objects as tokens (as opposed to beads, amulets, gaming pieces or animal figurines of different function) has rightly been questioned (Zimansky 1993: 515–516).

Whether or not the clustered objects at H3, and similar objects at Bahra 1, should be considered tokens, personal ornaments or amuletic/ritual objects, we see a process of cultural engagement between very different peoples: the pastoral–nomadic fishermen of the Arabian Neolithic, and the agrarian villagers of southern Iraq. Moreover, I argue that this process of engagement extends beyond simply the presence of both groups in one locality and the exchange of goods. In Kuwait we see a deeper interaction which probably involves the co-habitation at the same site, and possibly the intermixing through marriage of Mesopotamian and Arabian people and culture, to the extent that the dividing line between the two groups becomes blurred or meaningless.
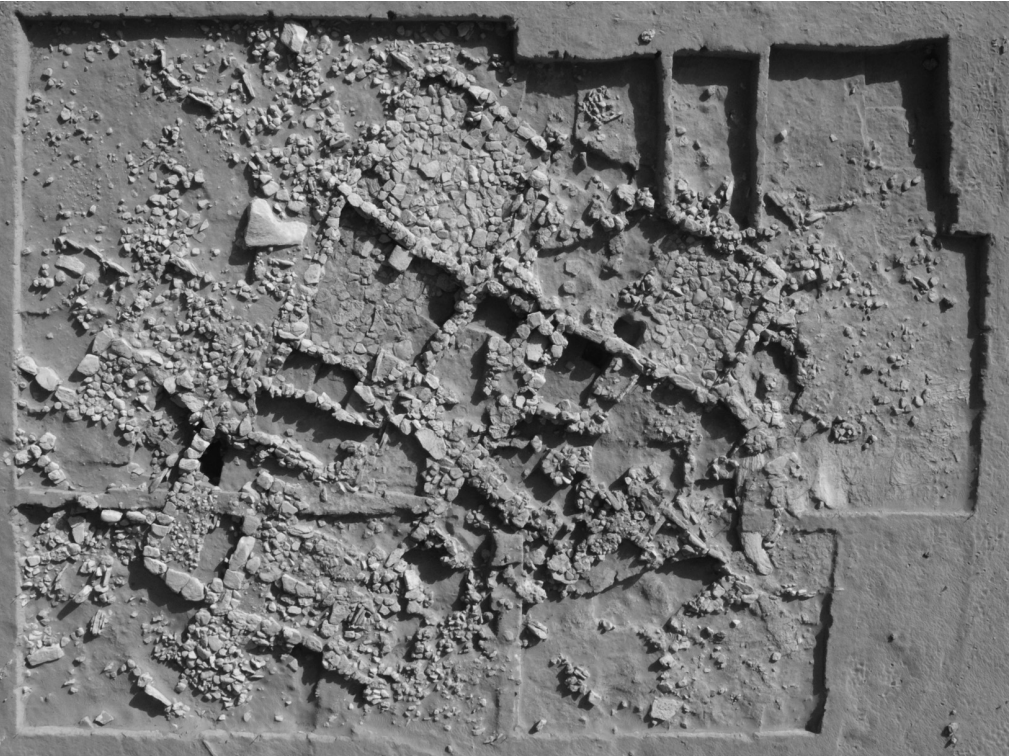
ARCHITECTURE

While some Arabian Neolithic architecture comprises huts made entirely from perishable and semi-perishable materials, indicated by posthole arrangements at Dalma and several coastal Omani sites, e.g. Ras Al-Hamra 6, and by reed-impressed plaster chunks at Dosariyah (Beech and Elders 1999: fig. 3; Marcucci et al. 2014: fig. 2; Drechsler 2010: 2, fig. 2), some sites exhibit architecture with stone-built foundations, for example at H3 (Kuwait), Shagra (Qatar), Marawah (UAE) and Wadi Thayyilah 3 (Yemen) (Carter 2010a; Inizan 1988: 99–125; Beech et al. 2005; Fedele 2008) (Fig. 2.5). This architecture nonetheless appears opportunistic and unstandardised, consisting of ovoid hut foundations with ad hoc cellular additions, subdivisions and alterations. Broad resemblances with the much later architecture of pastoral nomadic groups in the Negev and Dhofar have previously been noted (Carter 2010a: 32).

In contrast, Bahra 1 exhibits orthogonal architecture, i.e. the building of straight walls at right angles to each other (Fig. 2.6). This is more character-istic of Mesopotamian architecture than that of the Arabian Neolithic. Indeed, the excavators go as far as to suggest that the buildings at Bahra 1 are "clearly
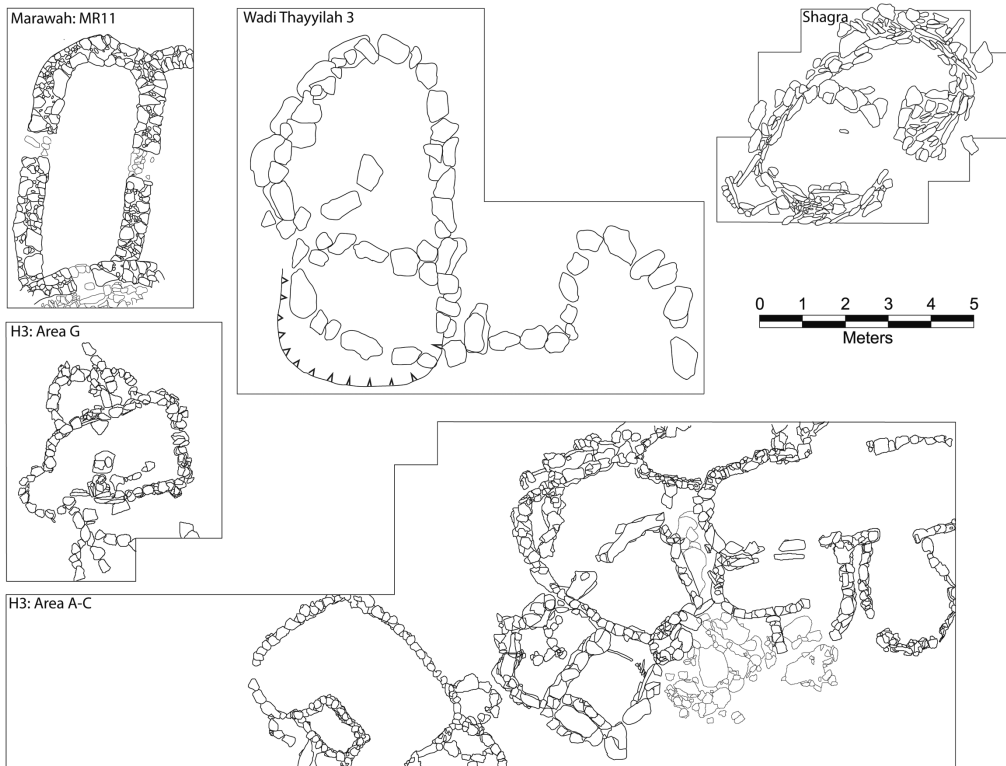
2.5 Stone-built Arabian Neolithic architecture from Marawah (UAE), Wadi Thayyilah 3 (Yemen), Shagra (Qatar) and H3 (Kuwait). Plans redrawn by Robert Carter from the following: Marawah: Beech et al. 2005: fig. 7; Wadi Thayyilah 3: Fedele 2008: fig. 7; Shagra: Inizan 1988: fig. 48; H3 (Kuwait): Carter and Crawford 2010c: Pl. 13. Illustration by Robert Carter.

reminiscent of typical tripartite plans of Ubaid-culture houses known from Mesopotamia and Syria" (Rutkowski 2011: 37). This is perhaps overstating the case, as it is currently impossible to identify discrete tripartite structures in the published photographs. Rather, because of frequent rebuilds, additions to and subdivisions of the rooms (rather in the manner of the more obviously Neolithic architecture of H3), it is possible to discern any number of tripartite structures on a variety of different axes, or alternatively none at all. The putative tripartite arrangement may be clarified once a detailed stratigraphic analysis of the buildings is published, but at the moment we can merely state that there was potentially Mesopotamian influence on the architecture of this site. To take this hypothesis further, we can speculate that Bahra 1 was founded by people of Mesopotamian origin who were in close communion with surrounding Neolithic peoples (for example at H3), and that over time the Mesopotamian character of their settlement architecture became progressively more Neolithic, perhaps over a period of a few generations as a result of intermarriage between the two groups.

2.6 Architecture of Bahra 1 (Kuwait). Photo courtesy of the Kuwaiti–Polish Archaeological Mission and Thomas Sagory/www.du–ciel.com, with thanks to Piotr Bielinski, Łukasz Rutkowski and Thomas Sagory.

IDENTITY IN KUWAIT DURING THE 'UBAID/ARABIAN NEOLITHIC PERIOD

The evidence presented above therefore indicates a strong element of cultural hybridisation at the Kuwaiti sites that is not evident further south in the Gulf. The lithic technology of Bahra 1 remains to be clarified, but that of H3, along with its architecture and shell jewellery, suggests a base population of Arabian Neolithic origin, which accompanies the portable elements of Mesopotamian material culture appearing at both sites, and the Mesopotamian influence on the architecture of Bahra 1. Mutable and multivalent identities are recognised as an emerging element in modern conceptions of globalisation, as opposed to bipolar concepts (e.g. core and periphery, this ethnicity or that, undeveloped or developed), making it challenging to define boundaries in a "globalised" system (Kearney 1995: 549–550). This concern with contemporary identities and boundaries, theorised by scholars of modern globalisation, is entirely relevant to the Kuwaiti sites, which are situated midway between the southern Iraqi 'Ubaid sites and the dense cluster of Arabian Neolithic sites in the central Gulf region. At the Kuwaiti sites, archaeological

reflections of identity are complex and, according to binary models, contra-dictory. However, if we accept the dissolution of ethnic, cultural and geograph-ical boundaries into "discontinuous and interpenetrating" geographical and social space (adapting Kearney's conceptualisation of globalisation), in which "culture becomes increasingly abstracted from a local, geographically fixed, context" (Jennings 2011: 125), we can resolve these contradictions. Indeed, the emergence of the 'Ubaid horizon across Greater Mesopotamia can be seen as the outcome of such a process of dissolution, as much as the consolidation of an agreed ideology and public identity. The hybridisation we see in Kuwait has well-known contemporary analogies in the northern 'Ubaid, manifested in the retention of Halaf-style animal motifs on the pottery and the con-tinuing use of Halaf-style, non-'Ubaid figurines at Zeidan (Stein 2014: 57), as well as a prolonged five-phase period at Gawra (phases XIX–XV) where both Halaf and 'Ubaid elements of material culture were present, as well as local expressions of 'Ubaid style architecture as far north as Degirmentepe in Anatolia (Stein 2010a: 34–37).

A TRANSPORT REVOLUTION OF THE SIXTH–FIFTH MILLENNIUM BC

The use of boats in the Gulf, and their involvement in stable and long-lasting maritime exchange relationships and cultural interchange, is merely a single aspect of a much wider transport revolution that occurred throughout Mesopotamia from the late sixth millennium BC onwards, namely a dramatic-ally increased familiarity with and reliance on watercraft throughout the Tigris and Euphrates river systems, and the Gulf. It is this growing exploitation of marine and inland waterways that provided the technical foundation for the intensification of interaction and communication that is materially manifested as the 'Ubaid horizon. Thus, we see the development of a pivotal element of globalisation and interregional integration in the sixth millennium BC, namely reliance on watercraft for the swift exchange of bulky items, which retains its central role up to the present day,

The evidence lies in the appearance of ceramic boat models during the 'Ubaid period. Before the 'Ubaid 1 period, no boat models are known from anywhere in the region. So far, fifteen are now known from the 'Ubaid period (Table 2.2), of a variety of different types (Fig. 2.7), scattered across the whole region (Fig. 2.8). They first appear in the 'Ubaid 1 period (two models), and then become common in the 'Ubaid 3 period. Numerous excavated Halaf sites in the north, contemporary with these early 'Ubaid phases, have failed to produce any boat models.

The geographical distribution is wide and varied: the northern part is purely riverine, the central part (southern Iraq) straddles rivers, marshes, estu-arine environments and the sea, and the southern part (the Gulf) is maritime.

TABLE 2.2 *Boat models*

| Fig. No.	Site	Date	Comments/Location	References
1	Eridu	'Ubaid 4	Eridu Cemetery, above platform of Grave 51	Safar et al. 1981: 230, fig. 111
2	Oueili	'Ubaid 3	Only one end preserved	Breniquet 1987: Pl. III
3	Al–Ubaid	'Ubaid 3	"Loose in soil" in settlement	Hall and Woolley 1927: 153, Pl. XLVIII
4	Tell Zeidan	'Ubaid 3	Operation 14, "uppermost levels"	Stein 2010b: fig. 5
5	Dosariyah	'Ubaid 3	From the Gulf, but Mesopotamian ceramic fabric	Previously unpublished
6	Mashnaqa	'Ubaid 3	Stratum II, "a featureless deposit (perhaps midden) with burials"	Thuesen 2000: 73, fig. 5
7	Oueili	'Ubaid 1	"Two fragments of boats, small elongated vessels with flat bottoms, belonging to the 'Ubaid 1." Both painted	Breniquet 1996b: 166, 199, Pl. XXVIII: 2
8	Oueili	'Ubaid 1	As above	Breniquet 1996b: 166, 199 Pl. XXVIII: 3
9	Abada	Early 'Ubaid 3	"Level 1"	Jasim 1985: 66, fig. 63a
10	Uqair	'Ubaid 4	"Roughly made and baked hard," from area with "a private house and a street"	Lloyd and Safar 1943: 151, Pl. XVIII:13
11	Abada	Early 'Ubaid 3	"Level 1"	Jasim 1985: 66, fig. 63b
12	Uruk	'Ubaid 4 or 5	"Lacking only chips from both ends"	Lenzen 1968: Taf. 23: h; Qualls 1981: 14, Cat. 2
13	As-Sabiyah	Early 'Ubaid 3	In local Gulf fabric. Tips missing, pierced. Found at foot of wall.	Carter 2006: 53–55, fig. 3
Not depicted	Eridu	'Ubaid 4?	"Rounded upturned ends sharply curved inwards," one end higher than the other, piercings. Assigned to cemetery by Qualls, but to "'Ubaid settlement situated to the southeast of the 'Ubaid cemetery" by Safar et al.	Qualls 1981: 14, Cat. 5; Safar et al. 1981: 230

(continued)

TABLE 2.2 (*Continued*)

Fig. No.	Site	Date	Comments/Location	References
Not depicted	Eridu	'Ubaid 1	Fragmentary, curved, upturned end, flattened bottom, perhaps marks from thwarts. Bitumen coated, coil-made, mat impression on bottom. Temple Sounding, "Floor of Level 17"	Qualls 1981: 12–13, Cat. 1; Safar et al. 1981: 230

Note: dates follow Oates. 'Ubaid 2/3 = Early 'Ubaid 3. Abada 1 is cf. Eridu XII–XI, Early 'Ubaid 3 (Oates 1987: 479, Chart 1). The Eridu Cemetery and Uqair are considered 'Ubaid 4 (Oates 1960: 37; Oates 1987: 479, Chart 1) (Oates 1960: 37; Oates 1987: 479, Chart 1). 'Ubaid levels at Uruk/Warka are either 'Ubaid 4 or 5 (Oates 1983: 260). The relevant Zeidan and Dosariyah strata are dated by the author to 'Ubaid 3 according to their radiocarbon dates and ceramics.

Nonetheless a common watercraft technology is evident, particularly in the models with curved ends and painted lines along the outside edges (Fig. 2.7: 3, 5–6, 9). Good parallels for the most southerly model (Dosariyah, Fig. 2.7: 5) are evident with the most northerly one (Mashnaqa, Fig. 2.7: 6), separated by 1,340 km in a straight line, as well as with painted models at Al-Ubaid and Abada (Fig. 2.7: 3, 7). The coating on one of the two unillustrated models from Eridu, and the H3 bitumen fragments, indicate that some were coated with bitumen. The curled ends of several models and the impressed bitumen fragments from H3 suggest a reed bundle construction for the majority, but a few models (e.g. Fig. 2.7: 11–12) indicate possible differences in form, function or construction: one of the Abada models has vertical ends (Fig. 2.7: 11), resembling a vessel made of skins on a wooden frame, or a log-boat. Further variation is demonstrated by the difference in mast and sail technology shown by the socketed mast foot in a model from Eridu (Fig. 2.7: 1), compared to the bipod mast depicted on the painted disc from H3 (Fig. 2.2). The overall shape of this Eridu model is broader-beamed than the others. This variety implies that a mature watercraft tradition had developed which included a variety of different vessel types and sizes.

The privileging of water transport from the early 'Ubaid 3 period onwards precisely coincides with the appearance of Mesopotamian materials in the Gulf region, and also with the "'Ubaid expansion," i.e. the emergence of a widespread 'Ubaid material culture throughout greater Mesopotamia, which is considered by many scholars to have supplanted an indigenous ("Halaf") Late Neolithic horizon in the north at the start of the 'Ubaid 3 period, albeit with a certain degree of admixture (Stein 2010a: 32–38). The phenomena are most likely intimately connected. Whether or not the "Northern 'Ubaid" is conceptualised as a spread from a southern core (Stein 2010a) or a decentred
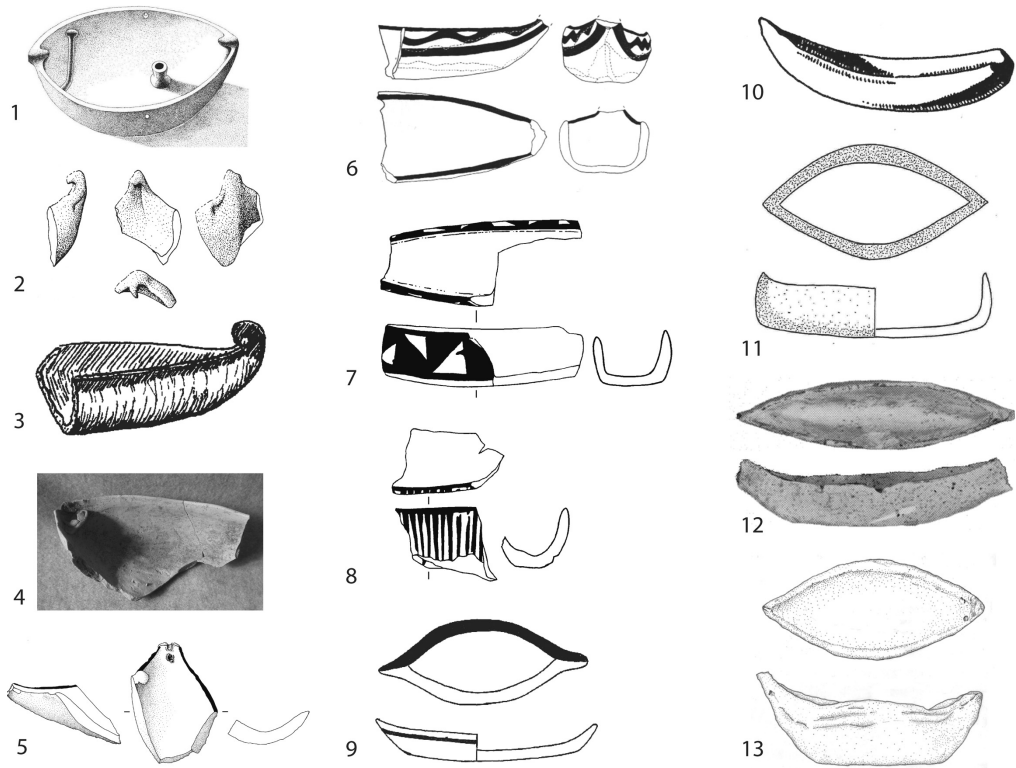
2.7 'Ubaid-period boat models. See Table 2.2 for identification, dating and references. No. 4 (Tell Zeidan) courtesy of the Oriental Institute of the University of Chicago, with thanks to Professor Gil Stein. No. 5 courtesy of the Dosariyah Archaeological Research Project (DARP), with thanks to Dr Philipp Drechsler.

intensification of interactions leading to convergences of behaviour, symbolism, identity and material culture (Karsgaard 2010), this represents a major ratchet in the development of globalisation, entailing a shrinkage of cultural and effective distance, mediated through advances in transport and perhaps communications media (the use of tokens).

The watercraft revolution should not be regarded merely as a technological development: earlier inhabitants would have possessed the raw skills to build such boats, and it is safe to assume that boats existed in the Halaf and earliest 'Ubaid phases in the south (as indicated by the 'Ubaid 1 models from Oueili and Eridu). New technology does not become commonplace until it has social utility, sufficient resources to sustain it and ideological acceptance; see, for example, the slow adoption of the sail in the western Mediterranean (Broodbank 2010: 257–258). Rather, advanced, rapid and (comparatively) large-scale water transport arose through interplay with social developments, particularly the need for 'Ubaid-period communities to communicate intensively and engage in regular exchange across a range of geographical scales.
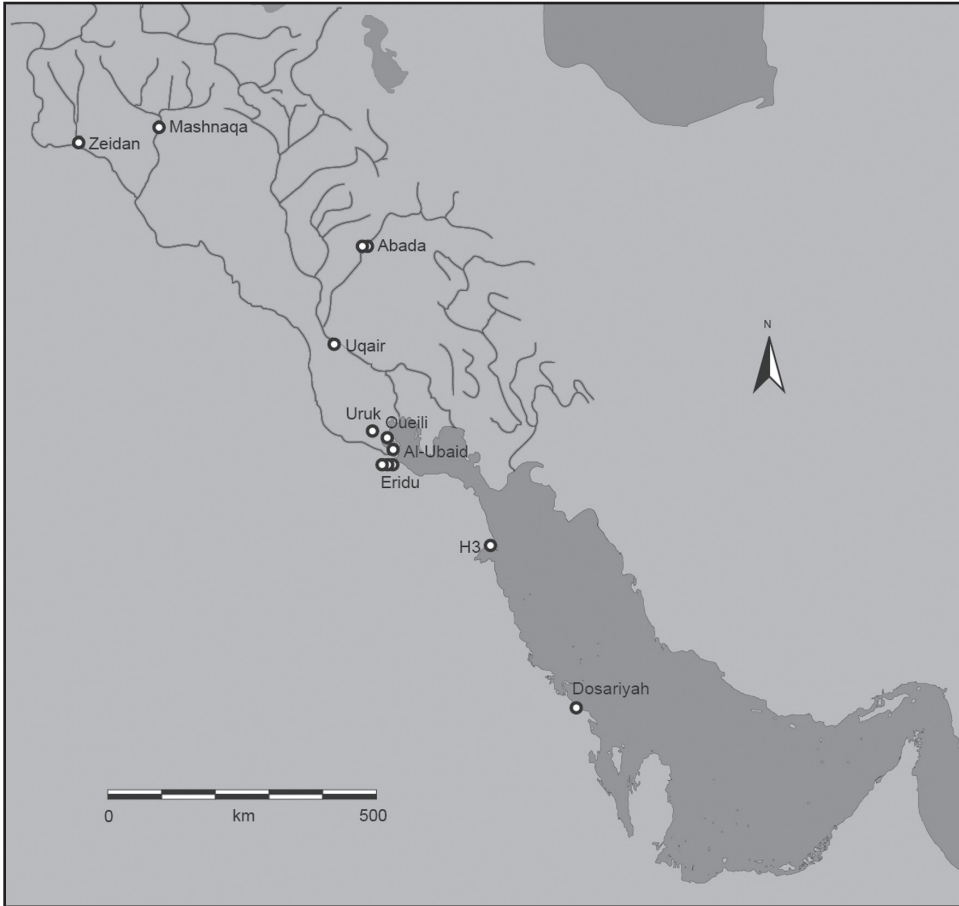
2.8 Map of distribution of 'Ubaid-period boat models. Map and illustration by Robert Carter.

The importance of watercraft in speeding up communication, and in vastly increasing the volume and speed at which goods can be moved, cannot be overstated. The marshes and rivers of Mesopotamia acted as great, branching highways running through the most populated parts of the vast Tigris and Euphrates systems, and offered quicker access to resource areas in the Taurus, Zagros and the Gulf regions, and a means of transporting bulky and heavy commodities across large distances at comparatively little cost. The later development of urbanism in southern Iraq and the florescence of its cities (many of which were founded in the 'Ubaid period) is directly ascribed to their location on these waterways (Algaze 2005: 9). The significance of faster and more efficient transport in accelerating integration and productive output has been noted previously, and the "time–space compression" afforded by intensive use of watercraft is central to the development of both the Arabian–'Ubaid network and the wider 'Ubaid horizon.

In contrast, developments in land transport appear to have been absent. Some consider the domestication of the donkey as a pack animal as a key turning point in the development of transportation technology (Jennings 2011: 124) but there is no evidence that the donkey was domesticated before the mid-fourth millennium BC, and genetic research places this process in Africa (Wengrow 2008: 18; Rossel et al. 2008; Vila et al. 2006: 342). The camel was not domesticated until the early Iron Age (Magee 2014: 201–206). Unfortunately we lack good evidence to reveal when cattle began to be used as draught animals. The oldest evidence for yoked oxen is from the mid-fourth millennium BC (in Europe) and representations of ploughs are known from fourth-millennium Mesopotamia (Sherratt 1983: 91–92, 98); there is no earlier evidence that animals were used for traction. Claims for a fifth- or sixth-millennium origin (Ovadia 1992) are based on supposition rather than evidence. In his last work on the subject, Sherratt concluded that wheeled transport and other forms of traction machinery were probably developed in Mesopotamia early in the fourth millennium BC, though the use of cattle for draught purposes – dragging or carrying loads – may have begun earlier (Sherratt nd). Ghassulian figurines from the southern Levant of a donkey, a ram and an ox apparently carrying loads (Sherratt 1983: 95; Ussishkin 1980: fig. 11) allow the possibility that the use of pack animals was developed before animal traction, in the fifth millennium. These finds remain rare and localised, and it is unclear to what extent such cultic figurines represent reality, particularly given that an equid is shown carrying a load, no species of which had yet been domesticated.

I conclude, therefore, that a watercraft revolution, leading to the shortening of journey times and transport costs (defined as expenditure of time and manpower to undertake the journey) across a vast network of waterways, had an integrative and transformative effect on the societies of the Gulf, southern Mesopotamia and northern Mesopotamia during the sixth and fifth millennia BC. This complex, created by the people of small-scale, non-state societies, and in the Gulf by wholly nomadic peoples, not only defined the 'Ubaid horizon in Mesopotamia and stimulated one of the world's first maritime trading networks, but also laid the foundations of a Middle Eastern culture zone that endured for five millennia.

CONCLUSIONS

The central remit of this volume is to investigate the role of mobile peoples in the emergence of increasing production, trade, connectivity, and economic and political integration. In this contribution I hope I have demonstrated the role of Arabian Neolithic people(s) in such processes during the sixth–fifth millennium BC. The Arabian–'Ubaid relationship that has been the focus of

this study is set within wider networks of intensifying interactions between disparate groups, at many different scales, across a huge area and a large expanse of time which both promoted and were facilitated by a developing *lingua franca* of style, symbolism and ideology – the so-called 'Ubaid horizon. Within the Arabian Neolithic world, integration into this network is most clearly evident in the northern Gulf, in Kuwait, but its reach extended as far as the Straits of Hormuz. Insofar as globalisation is "a process that transforms economic, political, social and cultural relationships across countries, regions and continents by spreading them more broadly, making them more intense and increasing their velocity" (Hopkins 2002a: 16), then the integrative forces and shrinkage of social and cultural distance, which become particularly evident around the start of the 'Ubaid 3 period, fully qualify Mesopotamia and the Gulf in the sixth–fifth millennium as a key location and phase of globalisation.

I am not the first to allude to the global significance of the 'Ubaid horizon and its association with long-distance communications: "The First Global Village" was recently used provocatively to refer to the 'Ubaid period communities and networks of greater Mesopotamia (Wengrow 2010: ch. 4). The term "Global Village" was coined in the 1960s by Marshall McLuhan with reference to media and communications technology, and it is to this aspect of 'Ubaid-period society that Wengrow alludes. To this I would add, or emphasise, the importance of developments in water-borne transport during the period in question. Here we see a progressive dissolution of boundaries: the mitigation of distance through these new systems of communication and transport, most likely accompanied by increasing demands for luxuries, manufactured goods and raw materials (such as metals from Anatolia), though such goods remain frustratingly elusive in the archaeological record. In short, from the start of the 'Ubaid 3 period we see continually revised conceptions of remoteness and value leading to greater willingness and abilities to push through the barriers of distance.

These developments unfolded over around a millennium, and arguably did not culminate until the emergence of fully literate, urban Mesopotamian civilisation between the late fourth and mid-third millennium BC, thus being only the opening act of a prolonged process of population increase and agglomeration, productive specialisation, social stratification, administrative elaboration, technological development, ideological elaboration, communications development, political control and social management. The roots of this lie in interactions among "the people without history" (Wolf 1982), noted in this volume's title and repeatedly in many of its chapters – prehistoric, non-state actors, some nomadic, engaged in millennial-scale processes of integration, communication and globalisation.

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