



The City in the Arab World

in Light of Archaeological Discoveries: Evolution and Development

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The shell-middens of the Arabian Sea and Gulf: maritime connections in the seventh millennium BP?

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Abstract. *The discovery of seventh millennium uncal BP shell-middens along the coast of Las Bela in Balochistan raises the question of possible connections between the two coasts of the Arabian Sea during the Neolithic. It is well known that a few chronologically contemporaneous shell-midden sites are distributed along the coasts of the Oman Peninsula in similar environmental settings, such as that of RH-6 in the Qur'im mangrove swamp at Muscat. An almost identical radiocarbon date is currently available for the site H3 in Kuwait, which shows evidence of possible trade activities throughout the southern regions of the Arabian Peninsula around the end of the seventh millennium uncal BP. It is important to point out that the first shell-middens of both the coasts of the Arabian Sea and the Gulf started to be inhabited roughly during the same period of the Middle Holocene. Further investigations and the radiocarbon dating of these sites will undoubtedly improve our knowledge of the earliest Neolithic fisher-gatherers of the region and their movements along and across the coasts of the Arabian Sea and the Gulf.*

1. Preface

The surveys carried out by the writer in 2000-2004 along the coast of Las Bela in Balochistan (Pakistan), led to the discovery of ten shell-midden sites scattered over a well-defined area around the Bay of Daun, south of the Gadani Promontory, and on the top of a terrace of the large Pleistocene sand complex (Snead, 1969: 35), some 70 feet high, a few kilometres south of the above-mentioned bay⁽¹⁾. Six of them have been radiocarbon-dated from samples of marine or *Terebralia palustris* mangrove shells (Biagi, 2004). The result obtained from one of these sites, Daun-1 (fig. 1), is of major interest because it allows to attribute it to a period that immediately follows the middle of the seventh millennium uncal BP (GrN-26368: 6380±40 uncal BP). Apart from *Terebralia palustris*, the site is composed of marine bivalves and *Ostreidae*. A few bladelet cores of Gadani jasper, microflakelets of light grey flint and "a few fragments of weathered, coarse pottery" were also collected (Biagi, 2004: 9).

This discovery raises a number of questions regarding 1) the existence of seventh millennium uncal BP mangrove swamps along a coastline, which is still nowadays subjected to strong morphological changes (Alizai et al., 1986), and the precise location of the same coastline during the period under study, 2) the dislocation of probable complementary Neolithic sites in the interior of Las Bela coast and 3) the possibility of relationships between the seventh millennium uncal BP sites of the two coasts of the Arabian Sea and the Gulf, a problem that has already been pointed out by D.T. Potts (1990: 57-58) on the basis of nineteenth century ethnographic parallels reported by Baron R.C. Keun de Hoogerwoerd (1889) that the discoveries recently made at site H3, in Kuwait, might reinforce (Carter and Crawford, 2003).

2. The seventh millennium uncal BP coastal sites of the Arabian Sea and Gulf

The research carried out during the last thirty



Fig. 1: The shell-midden site of Daun-1 (Las Bela coast, Balochistan) from the northeast (photograph by P. Biagi).

years along the coasts of the Arabian Sea and the Gulf have shown that the first Holocene sites of this maritime region (fig. 2) were settled between the end of the eighth and the middle of the seventh millennium uncal BP (fig. 3), by populations whose subsistence economy was often almost exclusively, or more rarely, partly based on fishing and the collection of marine and mangrove molluscs. The palaeoenvironmental data which are currently available for this region would indicate that around 7000 uncal BP the shoreline was at least 1 m. higher than that of the present (Boucharlat et al., 1991: 97), and the climate was characterised by a moderately humid phase that lasted until around 4500 uncal BP (Sanlaville, 1992: 21). Other observations, which were possible, thanks to the recovery of a few *Telescopium telescopium* mangrove shells, would indicate that a few coastlands of eastern Arabia were very fertile at least during most of the above-mentioned period (Charpentier et al., 2000: 78). These are supposed to be the reasons

why some of the coastal zones, which were preferably selected for habitation by prehistoric fisher-gatherers, were located very close to mangrove swamps. This fact is documented by the recurrent presence of shell-midden sites rich in fragmented *Terebralia palustris* shells, which indicate the occurrence of mid-Holocene mangrove swamps that, in most cases, have currently totally disappeared.

The location of the shell-midden of the Umm al-Quaiwan lagoon, in the Arabian Emirates, is a typical example. The oldest of these, ar-Ramlah 6 (RA-6) has been radiocarbon-dated to 6181±50 uncal BP (Bln-4735: *Terebralia palustris* mangrove shells). Amongst the other tools, this site yielded an elongated, bifacial, flat-retouched arrowhead. Slightly later dates have been obtained from other sites located around the same lagoon, a few of which yielded Ubaid pottery (Uerpman and Uerpman, 1996: 132).

The first shell-midden sites of Ra's al Hamra

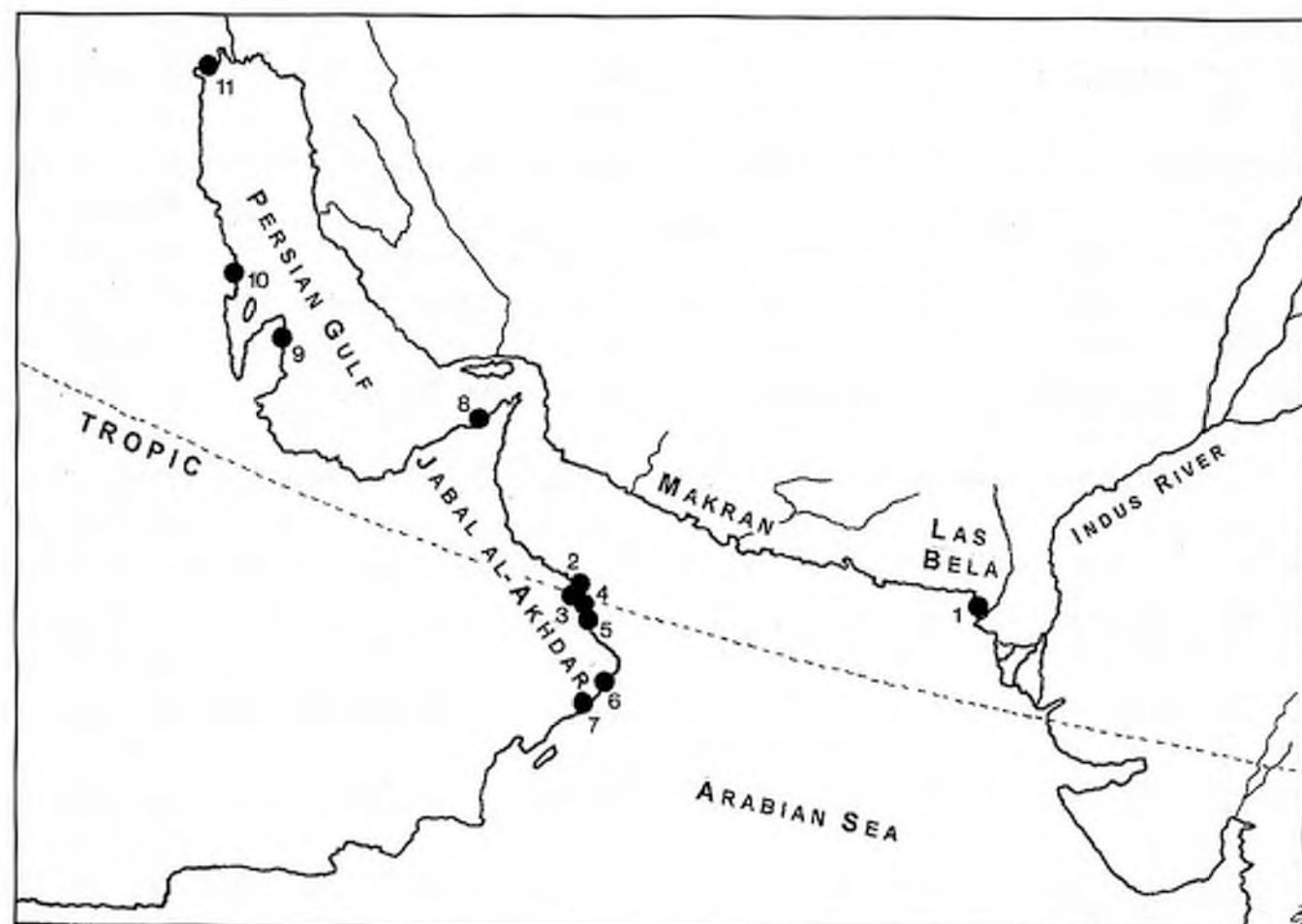


Fig. 2: Distribution map of the radiocarbon-dated sites mentioned in the text: Daun 1 (1), RH-6, RH-7, RH-10 and Saruq (2), Wadi Wuttaya (3), Bandar Khayran (4), Daghmar (5), SWY-11 (6), SAQ-1 (7), RA-6 (8), Khor D and Khor FB (9), Dosariyah (10) and H3 (11) (drawing by P. Biagi).

and Qur'm Swamp, in the Sultanate of Oman, were inhabited during the above-mentioned time-span. More precisely, RH-7 and RH-10 (Durante and Tosi, 1977; Biagi et al., 1984: 57) have been radiocarbon-dated, from marine shell samples (Biagi, 1994: 19), respectively to 6876 ± 105 uncal BP (Hv-10926: RH-7) and 6713 ± 105 (Hv-10001: RH-10), 6550 ± 100 (Hv-10002: RH-10) and 6443 ± 105 uncal BP (Hv-13199: RH-10), while the lowermost layer of the RH-6 sequence, to 6530 ± 80 uncal BP (Bln-3637/II, from *Terebralia palustris* shells).

All these sites are situated in an area of ecological tension, the end of the Batinah Beach, where the Qur'm mangrove swamp opens, and the beginning of the limestone terrace that extends southeastwards as far as the Cape of Ra's al Hadd. Furthermore they are very close to outcrops of different varieties of workable lithic raw material (Maggi and Gebel, 1990: 6) (fig. 4).

Of great importance is the surface site of Saruq, which is located in the same region, "on the summit of a limestone hill south of the

Atmospheric data from Stuiver et al. (1998); OxCal v3.9 Bronk Ramsey (2003); cub r:4 sd:12 prob usp[chron]

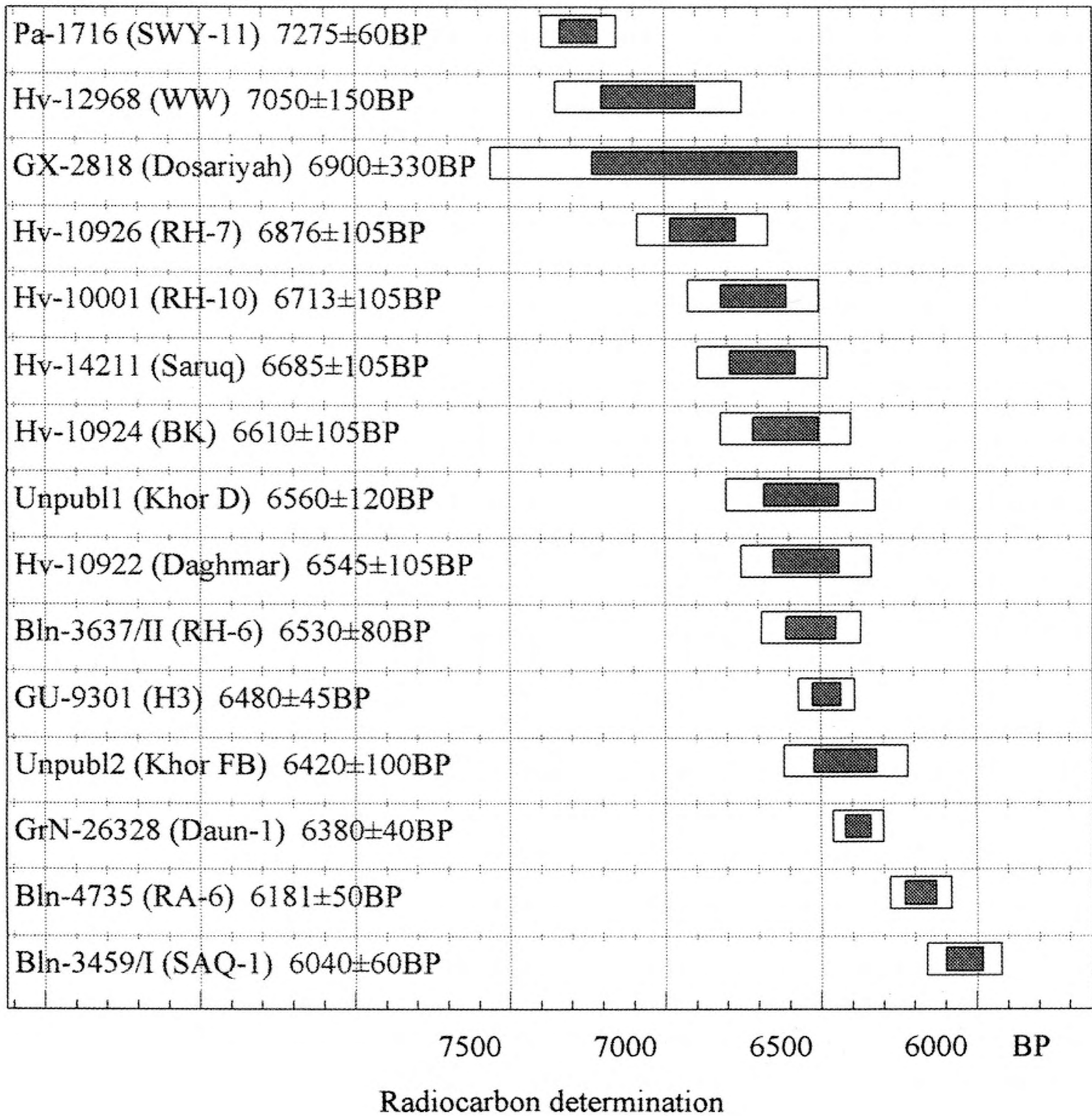


Fig. 3: Plot of the oldest radiocarbon dates from the sites listed in Fig. 2.

village of Saruq" (Uerpmann, 1992: 69). Here "a total of 6892 flints were collected systematically in 1983 in an area little more than 1300 m²". From this site, three radiocarbon dates were obtained from *Terebralia palustris* samples: 6685±105 (Hv-14211), 6445±100 (Hv-12970) and 6275±100 uncal BP (Hv-12971) (Uerpmann, 1992: 341). A similar result has been obtained

from mangrove shell samples collected by H.-P. Uerpmann (1992: 341) from the surface of the sites of Bandar Khayran (6610±105 uncal BP [Hv-10924]), a bay a few kilometres southeast of Muscat, and Daghmar, further to the southeast (6545±105 uncal BP [Hv-10922]).

Slightly older dates come from the second occupation layer of Wadi Wuttaya (7050±150 [Hv-12968: *Terebralia palustris*] and 7250±80

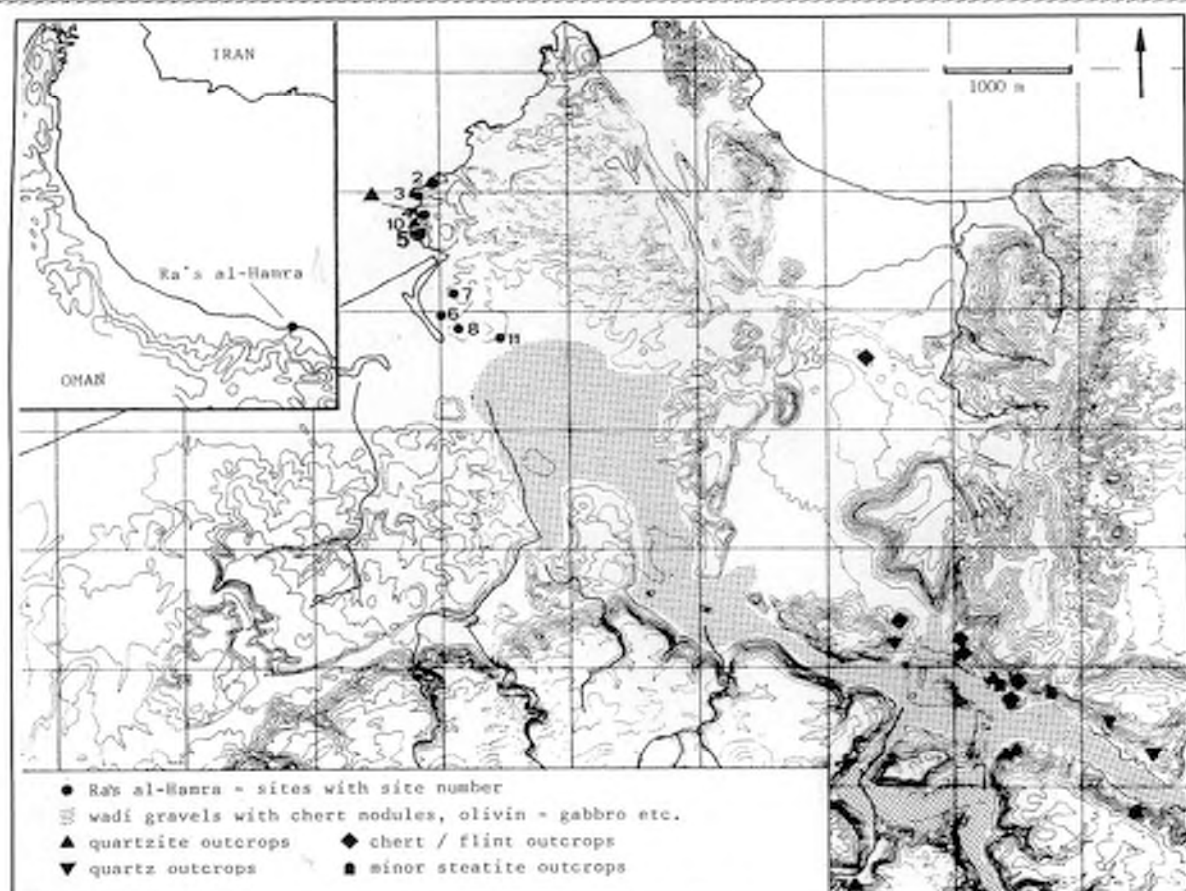


Fig. 4: Distribution map of the shell-midden sites of Ra's al-Hamra and Qur'm and the lithic raw material sources available in the area (after Maggi and Gebel 1990: 6).

uncal BP [Hv-12963: ashy sediments]: Uerpman, 1989; 1992: 341 and 344), a stratified site on the right bank of Wadi Aday, the watercourse that flows into the ocean after crossing the Qur'm Swamp.

Another shell-midden has been recently test-trenched at Suwayh (SWY-11), some 40 km south of Ra's al-Hadd, by Charpentier et al. (2000). The lowermost layers of this site, which have yielded elongated, bifacial arrowheads, have been radiocarbon-dated to 7275 ± 60 (Pa-1716) and 6970 ± 45 uncal BP (Pa-1787) from marine shell samples. Farther south, along the same coast, the shell-midden Ra's Shaqallah (SAQ-1) (Biagi, 1994: 27) is the southernmost currently known, from which long, bifacial, flat-retouched arrowheads have been collected

(Spoor, 1997). This site has been radiocarbon-dated to 6040 ± 60 uncal BP (Bln-3549/I) from a sample of *Bullia mauritania* marine shells collected from its surface.

Moving towards the northwest, along the eastern coast of the Arabian Peninsula, the lowermost layer of the shell-midden site Dosariyah in Saudi Arabia (Burkholder, 1972), dated to 6900 ± 330 uncal BP (GX-2818) (Masry, 1997: 84), yielded a great quantity of Ubaid potsherds, while those of Khor D and Khor FB, along the north-eastern coast of Qatar, to 6560 ± 120 and 6420 ± 100 uncal BP respectively (Inizan, 1979; 1980). All these dates have been obtained from marine shell samples.

At the northern edge of the Gulf, the Kuwaiti

settlement H3 is of unique importance. The oldest date obtained from a shell sample, collected from the pre-building occupation layer of this site, gave a result of 6480±45 uncal BP (GU-9301) (Carter and Crawford, 2003: 84). It is well known that many finds indicate that, during this period, H3 was involved in long-distance trade and seafaring activities. Among these, indicative are the presence of fragments of obsidian bladelets from Anatolian and Caucasian sources, many pieces of bitumen with evident traces of reed impressions, a pottery disc with a painted image, most probably representing a vessel, and a ceramic boat model (Carter and Crawford, 2002: 4). Other models of reed boats are reported by Vosmer (1996: 225) from a few almost contemporary Ubaid sites of lower Mesopotamia.

3. Sites' main characteristics

Different types of man-made structural remains have been uncovered at most of the above-mentioned sites, while others are just scatters or heaps of shells without any evidence of anthropogenic structures. For instance, almost nothing is known about the shell-midden Daun-1, along the Las Bela coast of Balochistan (fig. 1), which has not been so far excavated. It consists of a main heap, some 25 m. long and at least 25 cm. thick, mainly composed of *Terebralia palustris* fragments, although a low percentage of marine shells has been observed on its surface. No structural remains, such as pits or fireplaces, have been noticed, apart from concentrations of small, cup-marked lower querns. The absence of fish bones and fishing implements would suggest that a seasonal mangrove and marine shell gathering was practised at this site.

The Ra's al-Hamra and Qur'm shell-midden structures of this period are exclusively known

thanks to the results obtained from the excavations carried out at RH-10 and RH-6. RH-10 is a thin, very deflated, multi-layered, complex site located on the top of the headland that faces the ocean. It yielded many structural remains among which are "curvilinear dwellings with aligned post-holes" (Santini, 1978: 180). RH-6 is a shell-midden located along the right edge of the Qur'm Swamp, very close to the mouth of Wadi Aday. The excavations revealed a sequence, some 1.70 m. thick, which lasted some 700 years. It has been radiocarbon-dated between the middle of the seventh and the second century of the sixth millennium uncal BP (Biagi, 1998). The oldest structures brought to light consist of postholes excavated into the rubified, calcareous bedrock. Net-sinkers, shell fish-hooks, fish bones, marine and mangrove shells show that both fishing and the collection of shellfish were practised at the site. The presence of domesticated animals, since the earliest occupation layers, is indicated by sheep/goat and cattle remains (Uerpmann and Uerpmann, 1996: 133).

Pits, fireplaces and most probably a kiln have been discovered at the shell-midden SWY-11. It yielded a great quantity of both marine and mangrove shells, fish bones as well as one net-sinker and one shell fish-hook (Charpentier et al., 2000: 81). In contrast, nothing is known about the internal structure of the shell-midden SAQ-1, which so far has not been excavated.

The collection of plaster pieces with reed-impressions from the surface of Dosariyah, along the eastern coast of Saudi Arabia, would suggest the existence of light habitation structures. This multi-layered site, some 3.5 m thick, where the gathering of marine molluscs is documented by the abundance of oyster shells, is important because of the recovery of a great quantity of painted Ubaid ceramic potsherds.

The subsistence economy of this site, apart from the collection of oyster shells, was based on both hunting wild animals and herding sheep/goat and cattle (Potts, 1990: 45).

Moving towards the Qatar Peninsula, the site Khor FB is of unique importance. It yielded painted Ubaid potsherds and locally manufactured lithic bifacial tools. The occurrence of both marine and mangrove shells indicate that the gathering of molluscs was practised at this site that J. Desse (1988) has interpreted as a "fishery", given the abundance, and the excellent state of preservation, of the fish remains.

The excavations carried out at H3, along the Jazitar Dubai Peninsula, at the northern end of the Kuwait Bay, have brought to light a complex Neolithic village composed of stonewall structures and chambers (Carter and Crawford, 2003: 80). They yielded thousands of painted Ubaid, and locally made, ceramic fragments and lithic tools, among which are flat-retouched arrowheads. The subsistence economy of the site was based on hunting gazelle and herding sheep/goat and cattle as well as fishing and the collection of marine shellfish resources.

4. Discussion

The synthetic description of the above-mentioned sites clearly points out the noticeable differences that exist between their structural remains and subsistence strategy, even though their environmental location and absolute chronology are rather similar. Theoretically, these observations might suggest that, at least on what is known from sub-recent, ethnographic parallels (Keun de Hoogerwoerd, 1889), these sites might have been complementary to each other and represent stations where different activities were practised

by multi-ethnic groups of itinerant populations coming from different Gulf and Arabian Sea regions, which seasonally moved across the most favourable coastal zones of the two basins. This observation is reinforced by the recent discoveries made along the Las Bela coast of Balochistan. Nevertheless it is to be remembered that only very few sites of this period have been so far discovered along the Iranian coast of the Gulf (Cleuziou, 2004: fig. 3). Furthermore, all the surveys carried out along the coast of the Musandam Peninsula, failed to recover any shell-midden of this period (De Cardi, 1975; Biagi, 2003).

To sum up, the results so far obtained reinforce the impression that 1) some type of oceanic navigation was already practised at least by the middle of the seventh millennium uncal BP, if not a few centuries earlier, 2) chipped stone assemblages, characterised by (elongated) bifacial, flat retouched arrowheads, resembling those of the Levantine PPNB Culture, occur almost all over the territory addressed in this paper. Nevertheless the lithic assemblages sometimes strongly differ, both region-by-region and site-by-site, most probably because of the workmanship specialisation at each different settlement. It is still debated whether they originated from the northwestern regions of the Arabian Peninsula, from which they spread, or somewhere else (Amirkhanov, 1996: 136), and whether it was just the idea to circulate instead of the finished tools, 3) the circulation of Ubaid pottery is well attested at many sites distributed along the shores of the Gulf (Cleuziou, 2004: fig. 3), while "nowhere was there any evidence of Ubaid-related materials" east of the Musandam Peninsula (Masry, 1997: 96), even though their presence has been suggested also for the Oman Peninsula on the basis of the occurrence of shell-middens with Ubaid pottery at Umm

al-Quaiwan (Uerpmann and Uerpmann, 1996: 136), 4). The seafaring movements across the Gulf and the Arabian Sea, which are abundantly reported by the classic authors between the coasts inhabited by the fish-eaters (Nalesini, 1996: 199), most probably began earlier than previously suggested (Cleuziou, 2004: 136). They undoubtedly predate the Bronze Age maximum expansion of the mature Indus Valley, or Harappan, Civilisation

of the middle of the third millennium Cal BC. It is mainly during this period that the maritime trade between the two shores of the ocean is testified by the circulation of (specific) ceramic vessels (Méry, 1996: 170; Gogte, 2000), other items and prestige goods (Charpentier, 1996: 184) as well as by the discovery of Indus harbour outposts along the shores of the Arabian Peninsula (Cleuziou and Tosi, 2000; Cleuziou, 2003).

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ملخص:

إن اكتشاف أكوام صدفية بحرية تعود للألفية السابعة غير المعاييرة (قبل الزمن الحالي) على ساحل لاس بيلا في بلوختان يثير مسألة احتمال صلات بين ساحلي بحر العرب إبان العصر الحجري الحديث. فمن المعلوم جيدا أن عدة مواقع للأكوام الصدفية البحرية متزامنة تاريخيا تتوزع على طول سواحل شبه الجزيرة العمانية في مواقع بيئية متشابهة. مثل الموجودة في (RH 6) في مستنقع المناجروف بالقرم عند مسقط. ويتوفر حاليا تأريخ بالكربون 14 الذي يتطابق تطابقا شبه تام في موقع (H3) في الكويت، ويقدم دليلا على إمكانية وجود نشاطات تجارية عبر المنطقة الجنوبية لشبه الجزيرة العربية حوالي نهاية الألفية السابعة غير المعاييرة (قبل الوقت الحاضر). وجددير بالإشارة أن المخلفات الصدفية الأولى لساحلي بحر العرب والخليج العربي تقع في منطقة بدأ استيطانها تقريبا خلال الحقبة نفسها من منتصف العصر الحديث (العصر الهولوسيني). وإن مزيدا من دراسة هذه المواقع وتحديد تاريخها بالإشعاع الكربوني سيطور معرفتنا ببداية ظهور صائدي الأسماك في المنطقة إبان العصر الحجري الحديث وتحركاتهم على طول وعبر ساحلي بحر العرب والخليج العربي.

Note

- (1) These sites were discovered between January 2000 and February 2004, during brief surveys carried out along this part of the coast of Las Bela. Thanks are due to all the people who accompanied us to Daun, and to Dr. M. Spataro (Institute of Archaeology, UCL), who took part in the fieldwork seasons.

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