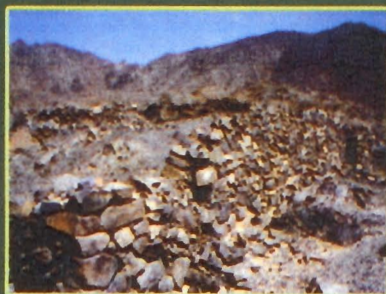
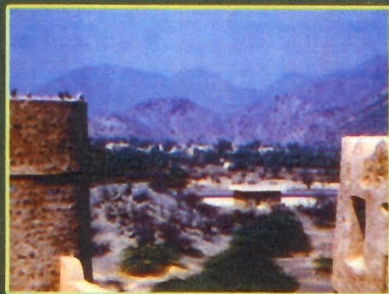




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# Excavations at the Neolithic Settlement of MR11 on Marawah Island, Abu Dhabi, United Arab Emirates: 2004 Season

Mark Beech, Richard Cuttler, Derek Moscrop, Heiko Kallweit and John Martin

## Abstract

Since 1992 the Abu Dhabi Islands Archaeological Survey (ADIAS) has been involved in surveying and excavating archaeological sites on the island of Marawah in the Western Region of Abu Dhabi. Work carried out in 2000 had initially suggested that a group of stone mounds located at the western end of the island, known as site MR11, was perhaps a church and Nestorian monastic complex much like that on the island of Sir Bani Yas, located about 75km to the west of Marawah (Elders 2001). Excavations carried out at site MR11 in March 2003 and 2004 subsequently proved that it was not a church or monastic complex but rather a series of major buildings forming an important early prehistoric settlement (Beech *et al.* 2005). Two of these structures have now been partly excavated and this has revealed well-constructed buildings with stone walls still surviving to a height of almost a metre in some places. Radiocarbon dates as well as associated finds suggest that the settlement was established by the mid sixth millennium BC. This makes it one of the oldest sites so far discovered in the United Arab Emirates. The final phase of occupation at the site seems to be soon after the mid-5th millennium BC. The quite remarkable structures at site MR11 add to our growing knowledge of Neolithic building structures and settlements in SE Arabia. Important finds uncovered in the 2004 excavations included a human skeleton, as well as an almost complete pottery vessel of a type not previously found in South Eastern Arabia.

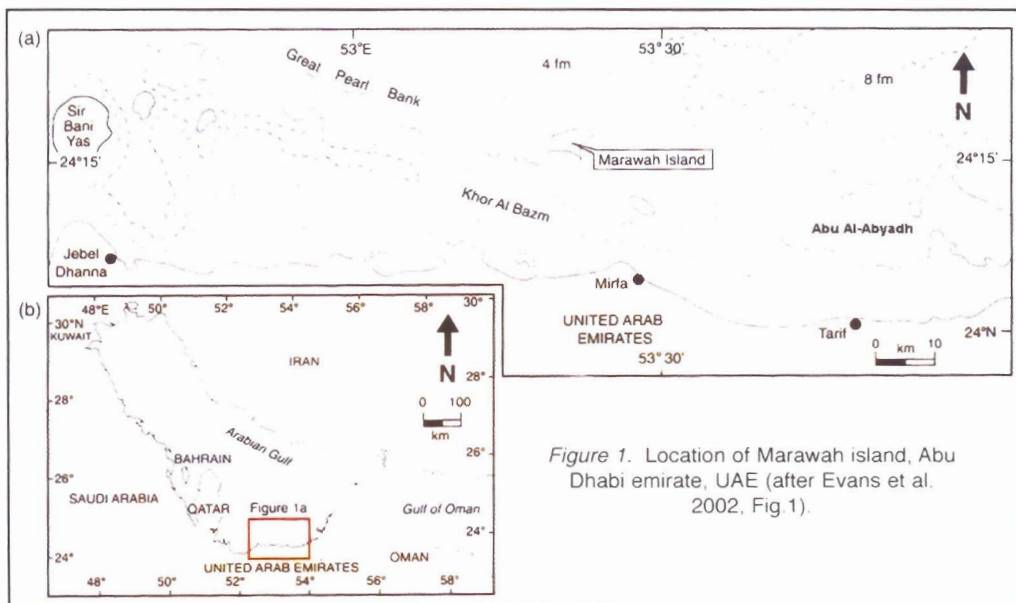


Figure 1. Location of Marawah island, Abu Dhabi emirate, UAE (after Evans *et al.* 2002, Fig. 1).

## Introduction

The following paper summarises the results of the 2004 excavation season at site MR11, a Neolithic settlement located on the island of Marawah in the Western Region of Abu Dhabi, United Arab Emirates. Marawah lies around 100 kilometres to the west of the city of Abu Dhabi, and is located just to the north of the Khor al Bazm (*Fig. 1*). Marawah island is around 13 kilometres from east-west and a maximum of 5.5 kilometres north-south. A more detailed presentation of the results of the 2004 excavation season was presented at the 2004 Seminar for Arabian Studies in London (Beech *et al.* 2005).

## Site Location

The site of MR11 is located at the NW tip of a limestone ridge located in the SW part of Marawah, about two kilometres SW from the modern day settlement of Ghubba (*Fig. 2*). Other archaeological sites in the vicinity (*Fig. 3*) include: (i) site MR12, a group of seven Pre-Islamic period cairns in a line along the edge of the limestone ridge running south of MR11; (ii) site MR8, a group of six wells, located about a kilometre SW of Ghubba, with an associated water catchment system and channel; and (iii) site MR9, a complex of around 160 hearths located to the south of MR8 at the southern end of the limestone area (Garfi 1998). Ash from five of these hearths have been radiocarbon dated providing a range of dates from the late 3rd to late 1st millennium BC. One hearth dated to the Late Pre-Islamic period, 2nd - 4th century AD.

MR11 consists of a group of seven mounds (*Fig. 4*). The largest of these, designated as MR11.1, was 20m long x 8m wide x 2m high, whilst the others varied in size and were generally only 1.5-2m in height. MR11.4 was much smaller and measured 5m in diameter, being only 50cms high. MR11.7 lay to the south of the main group of mounds.

## Earlier work at MR11

The Abu Dhabi Islands Archaeological Survey, ADIAS, carried out a preliminary survey of archaeological sites on the island in 1992 (King 1998). This identified a total of 13 major sites ranging in date from the Late Stone Age to the Late Islamic period. Site MR11 was initially interpreted in this 1992 brief survey as being Pre-Islamic burial mounds (King 1998: 79).

The site was subsequently re-examined in 2000 (8-18 April) and 2003 (16-24 March) by an ADIAS team, comprised of Dr Joseph Elders and John Martin. In 2000 one of the smaller flatter mounds, MR11.6, redesignated as area A, was selected for examination due to the available time frame and manpower available. It was noted that no anthropogenic material was visible on the surface of the mounds with the exception of possible "plaster" fragments (Elders 2001: 47). An area 10m east-west and 8m north-south was cleaned, and a 2m x 1m sondage was opened in one area. This revealed a sequence consisting of natural limestone bedrock followed by a thin occupation layer a few cm thick and then successive layers of rubble. After the 2000 season it was concluded that it was probably a church due to a number of reasons such as the quality of its build, its ground plan and orientation (east-west), the lack of occupation detritus, and its similarity in dimensions to the church known from Sir Bani Yas island (Elders 2001: 54 and *Fig.5*). It was noted that the walls of the structure were well built and constructed from blocks of local limestone and beachrock.

The church hypothesis fell apart, however, in 2003 when the brief excavations conducted at the site by Dr Joseph Elders and John Martin revealed that the ground plan of the buildings could not be so confidently defined. A flint arrowhead (*Fig.11, no.10*) was also retrieved during removal of the coarse grey-white aeolian sand covering area A (layer 1).

In area A the exposed wall lines clearly did not follow the hypothetical figure published in 2001 (Elders 2001, Fig.5; and see discussion below, and *Figs.5, 6 and 8*). In room 5, to the south of room 1 (the large apsidal room previously identified as the 'chancel'), an ashy burnt deposit (layer 32) was noted just below the modern day ground surface. A sample of this ash was taken for radiocarbon dating. This was successfully AMS dated at the Scottish Universities Environmental Research Centre (SUERC), the uncalibrated radiocarbon date being 5630  $\pm$  50 BP, which using the CALIB4.4 programme gives a calibrated range of 4550-4350 CalBC (2 sigma). The stratigraphic position of this layer high up above the neighbouring structure may suggest that this deposit forms part of the final phase of occupation at the site.

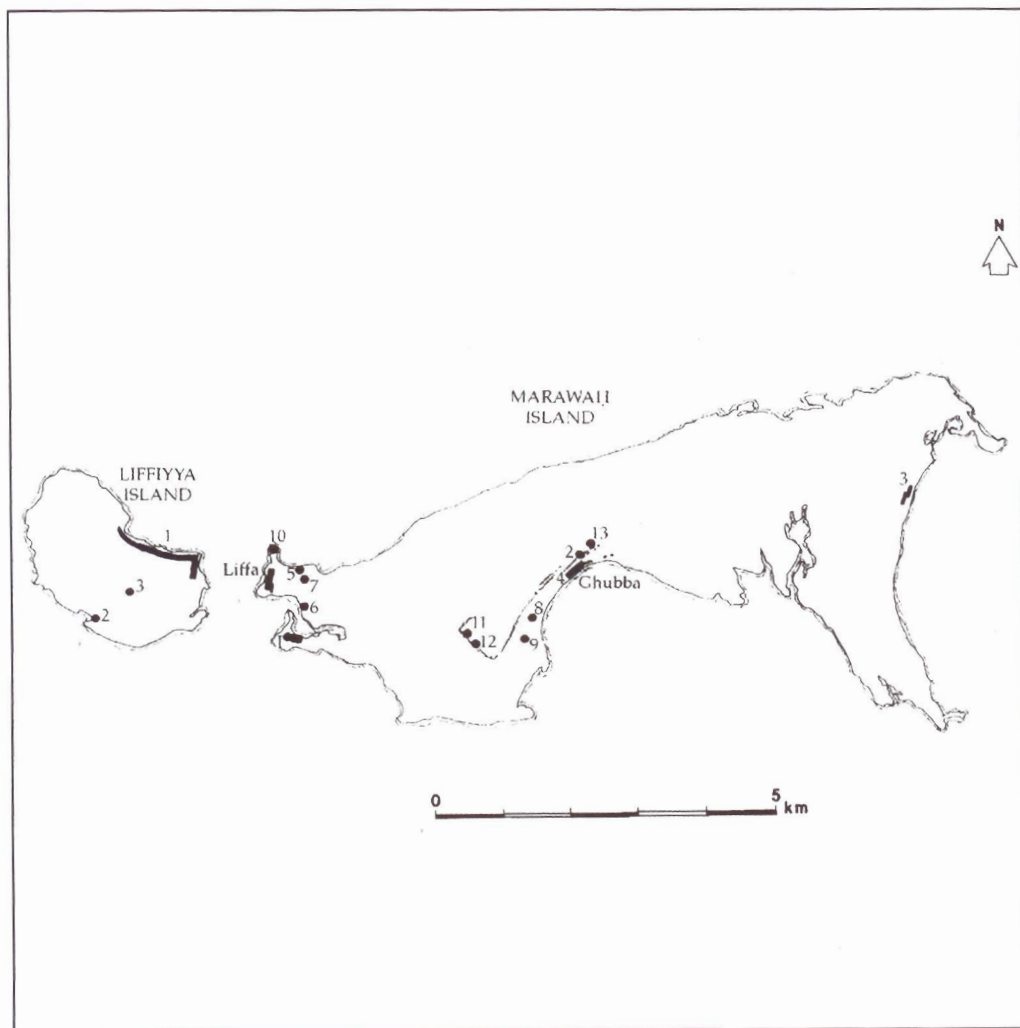


Figure 2. Location of archaeological sites on Marawah island (after King 1998, Fig.31).

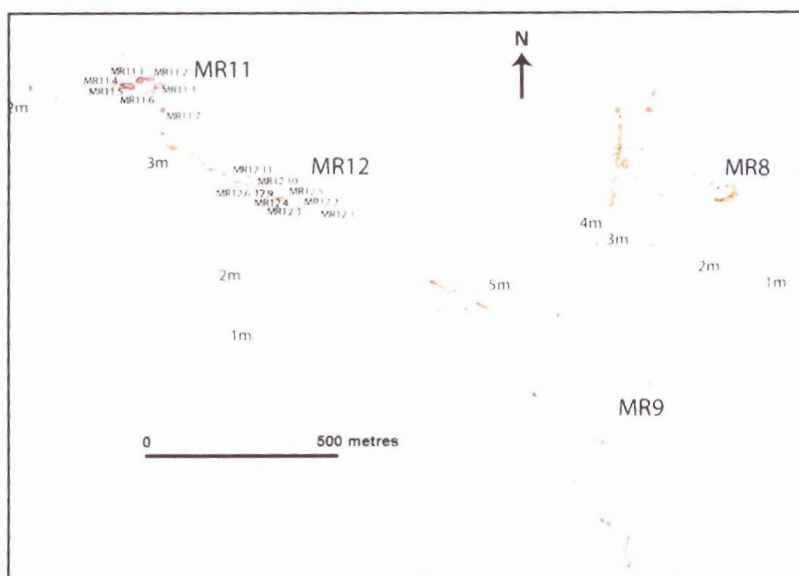


Figure 3. Contour map of the SW part of Marawah island showing the major archaeological sites.

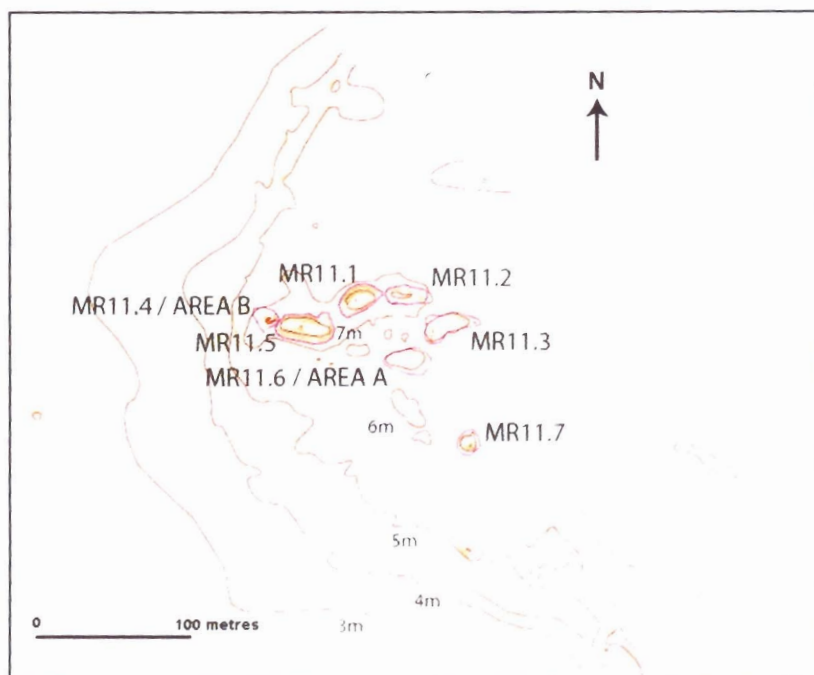


Figure 4. Contour map of site MR11 showing the seven mounds



A second small trench 3 x 2m was excavated by John Martin in 2003 in mound 11.4, re-designated as area B. This revealed a rectangular stone built structure measuring 2.4m east-west and 1.2m north-south, with a doorway in the north wall adjacent to the north-east corner. The walls were roughly built of the locally occurring limestone, generally employing small thin slabs roughly coursed but with some larger, irregularly shaped blocks interspersed. They appeared to be constructed as dry-stone walls, the interstices being filled with silty brown sandy sediment. It is possible that the walls continue to the south of this room, perhaps defining further rooms. Traces of walls were also noted further down the slope to the north-west. The walls were more than 50cm thick and stood to a height of nearly 1m at their highest point. The room and the immediate area to the north and west were buried in a layer of rubble from the collapsed walls, in turn sealed by an uneven layer of windblown sand. Following the removal of these layers, a large bifacial point (*Fig. 11, no. 1*) was found in the north-west corner in the very lowest lens of rubble and sand (layer 23), slightly above the surface of a dark occupation layer (26) which appeared to spread from outside the walls (25), under them, and through into the room itself. This layer contained on its surface a tip fragment of a stone pestle, made from a black coloured stone. This was found very close to the large bifacial point in the north-west corner of the room, less than 30cm away. The dark occupation layer lay directly on the bedrock on which the walls were built, sloping down and thickening to the north, but was never thicker than 20mm. It contained charcoal fragments and tiny fragments of bone. The layer was present throughout the western half of the room and extended underneath the wall to the exterior of the structure. A sample of ash from this layer was taken for radiocarbon dating and gave an uncalibrated date of 5850 +/- 50 BP. This provides a *terminus post quem* for the construction of one of the walls of the structure of 4833-4552 CalBC (2 sigma).

## 2004 Season at MR11

A topographic survey was initially undertaken by Richard Cuttler and Mark Beech of the SW area of Marawah island, using a total station. This was carried out in order to provide data on the physical setting of the site. The work concentrated on the provision of a detailed contour map of site MR11 and the adjacent site of MR12 (the series of stone cairns along the top edge of the ridge). This mapping was joined to the earlier extensive mapping work undertaken for sites MR8 and MR9 by Salvatore Garfi and Jakub Czastka for ADIAS. It is now possible to view the topography of the entire SW corner of Marawah (*Fig. 3*). The base of the mounds at site MR11 lies some 6m+ above the modern day sea level high tide mark, and the height on top of the tallest mound is about 8.6m above sea level.

Excavations at MR11 during the 2004 season were directed by Mark Beech, and the excavation team included Richard Cuttler, Derek Moscrop and John Martin. Some field assistance was also provided by Heiko Kallweit and Mohammed Hassan (ADCO). Work was carried out between March 3rd and April 3rd 2004.

During the 2003 season a small test-pit had been excavated into Room 1, which provided a window into the deposits at the northern extent of the mound. The northeastern extent of the mound was cleaned and recent deposits removed until a well-defined structure (Room 1) was apparent. The aim of the season was to entirely excavate one of the cells. As the chronology of the structures was not clear, Room 1, as a clear, discrete deposit, was subsequently chosen for excavation. All deposits were hand excavated and sieved using a 4mm mesh. Twelve samples were taken from appropriate deposits for the recovery of carbon suitable for radiocarbon dating and possible charred plant macro remains.



Figure 5. Plan of the excavated structure and its possible collapsed roof.



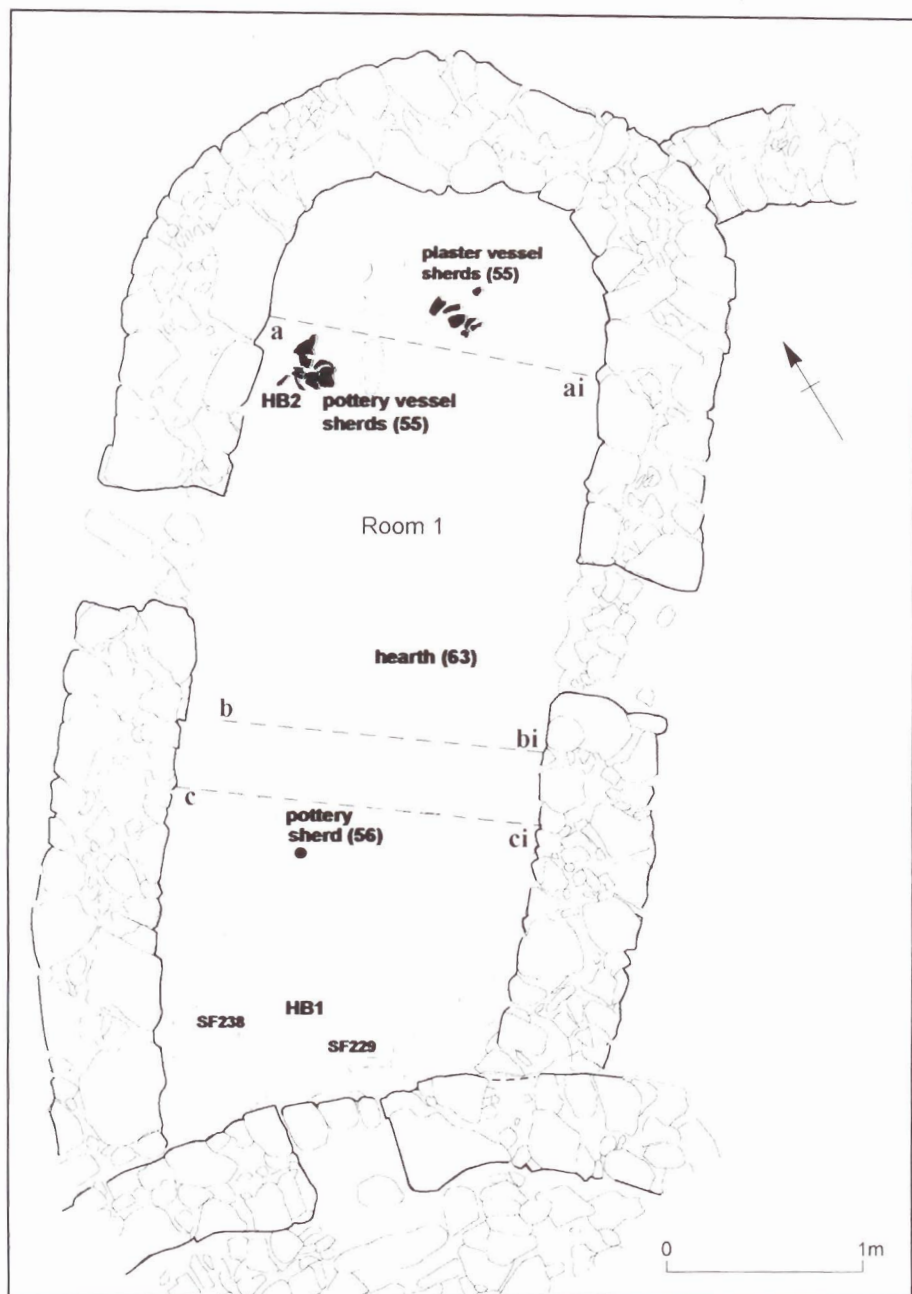


Figure 6. Plan of major finds within Room 1 and the location of section lines. Numbers in brackets indicate layer numbers. Key: HB1 = location of human skeleton; HB2 = articulated foot from the human skeleton; SF229 dugong rib; SF238 dugong scapula.

## Excavation Results

A more detailed description of the stratigraphy is provided elsewhere (Beech *et al.* 2005). To summarise four phases were identified during the 2004 excavations.

### Phase 1. Pre-dating the building

The natural limestone bedrock (layer 53) was sealed by the remains of a small hearth (63), located towards the middle of Room 1 (*Fig. 6 and 7*). Layers of sand built up against this hearth deposit (57-61). A fragment of charcoal was retrieved from layer 58. This gave an uncalibrated date of 6750  $\pm$  40 BP, which using the CALIB4.4 program gives a calibrated range of 5724-5563 CalBC (2 sigma). This same layer also contained one of the sherds belonging to a remarkable ceramic jar (*Fig.10*).

### Phase 2. Rooms 1, 2 and 3

#### *Room 2*

To the south of Room 1 was a building (Room 2, *Fig. 6*), that was only partially exposed, against which Room 1 abutted. Room 2 was not excavated, but appeared to be aligned east-west and clearly predated Room 1. The northern wall of Room 2 measured 0.5m in width and survived to a height of 0.70m as approximately eight courses of roughly shaped limestone slabs. From the exterior of the wall (47 and 52), there was no evidence of the use of mortar. Within the wall was an opening, 0.50m in width. The opening did not reach ground level but commenced at a height of three courses of stonework (0.3m) from the bedrock. Assuming Room 2 was in use prior to the construction of Room 1, this opening would have provided a northwards exit to the outside.

#### *Room 1*

Room 1 (*Figs. 6, 7 and 8*) was also built on the layer of grey sand (57 to 62), with the walls surviving approximately 10 courses to a height of 0.75m. Layer 62 included a dugong scapula and rib. The room was aligned northeast-southwest with internal measurements of 1.8m by 4.8m. This had three openings, the southernmost (previously described) led through to Room 2. One opening faced to the northwest and the other to the southeast. Each of these measured approximately 0.60m in width and, unlike the opening into Room 2, were both constructed without a step. The wall of Room 1 (49, 50 and 51) abutted Room 2, and, while clearly later, is of a very similar construction, which may suggest a similar date for the two structures. It seems likely that the upper surface of the grey sand (57 to 62) is contemporary with the occupation of Room 1

#### *Room 3*

Abutting the eastern wall of Room 1 was a wall aligned east-west (66, *Fig 5*), approximately 3.2m long, which may have formed the northern wall of a third building (Room 3). While this was later than Room 1, it is possible that all these structures were in contemporary use.

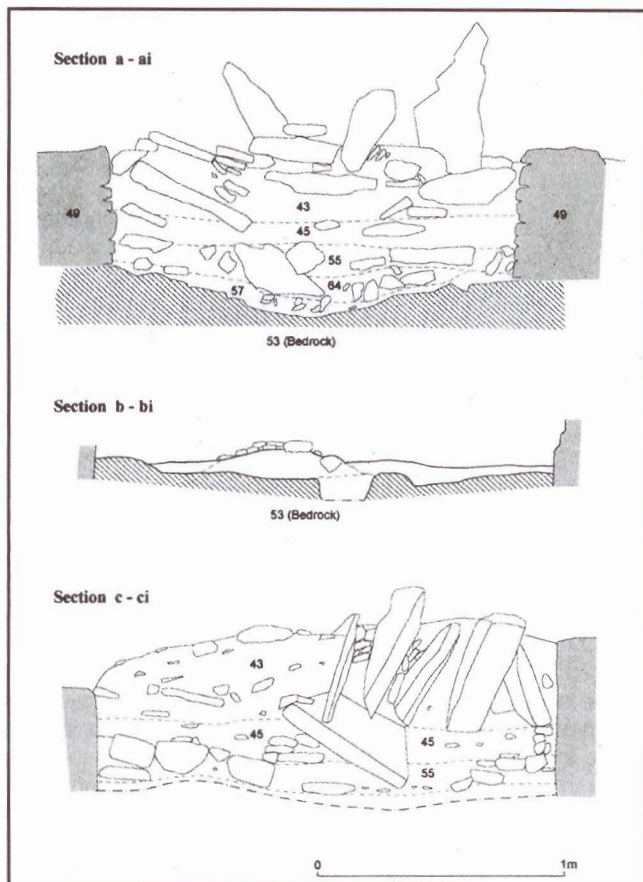


Figure 7. Sections through Room 1. See Fig.6 for locations of sections.

### Phase 3: Post occupation/burial

#### Room 1

It seems likely that two sandy rubble layers (55 and 56) represent the last phase of use of the structure for settlement. While these layers contain some settlement detritus (eggshell, plaster vessel fragments and beads) there is clearly some signs of the early stages of building collapse in the form of a few large slabs and some smaller limestone rubble. Some of the finds contained in this layer may still correspond to Phase 2, as the building debris has probably collapsed into the upper surface of sand relating to the occupation. This boundary could not easily be determined until the rubble was all removed.

A fragment of charcoal was retrieved from layer 55. This was successfully radiocarbon dated by AMS and gave an uncalibrated date of 6675  $\pm$  40 BP, which using the CALIB4.4 program gives a calibrated range of 5663-5485 CalBC (2 sigma). Layer 55 also contained a concentrated cluster of potsherds which formed the greater part of the remarkable ceramic jar (Fig.10). One potsherd belonging to the same vessel was also found in layer 56.



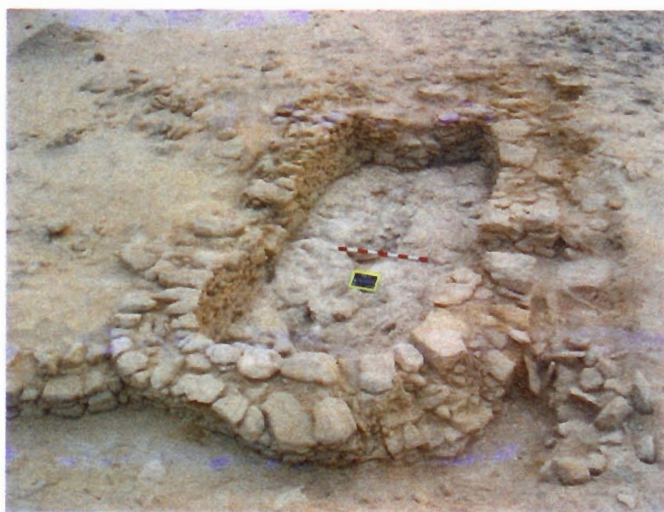


Figure 8. Photograph of the structure at the end of the 2004 excavation season. Room 1 has been excavated down to bedrock.

At the southern extent of the building it appeared that the stones from Layer 56 had been deliberately laid to form a flat surface, suggesting that these provided a platform for a burial (HB1, 54, Fig. 9). It seems unlikely that the buildings were occupied by this time, since the burial would have impeded access from the opening to Room 2. There is also some suggestion, from the rubble encountered in Layer 55, that the building was no longer subject to repair by this time. This phase does, however, clearly predate the collapse of the roof. This would appear to have remained in place for a long period, enabling the build up of sand and rubble (Layers

45 and 46) to a depth of 0.19m within the interior.

While much of the skeleton is articulated, there is also evidence that the burial was disturbed. This is suggested by the fact that some of the bones are spread across the interior of the building (see below). The remarkable pottery vessel may well have been a grave good associated with the burial, even though it was not found adjacent to the majority of the bones. The fact that conjoining sherds occur in a number of different locations and levels demonstrate that there has been some disturbance to the site. This is not as a result of the previous archaeological excavations of the "church", but is more likely due to robbing of the structure in antiquity.

#### Phase 4: Abandonment and collapse

Layers 45 and 46 were sealed by large slabs of limestone, measuring approximately 0.75m x 0.50m, with a thickness of 0.40m (Fig. 5 and Fig. 7, Section C). Set within a matrix of loose sand, 0.36m in depth, these tilted from the exterior in towards the middle of the building. It seems unlikely that these were once upper courses of the walls, which subsequently collapsed. The walls were carefully constructed from selected and shaped flat stones. Most of the collapsed stones on the interior of Room 1 (43) are too wide to have formed part of the wall. It seems more likely that these were once part of a superstructure, and Room 1 was built with a corbel roof. One of the more interesting finds within the collapsed stone layer (43) was a button (sf-119) made from pearl oyster shell, with two holes perforating it (Fig. 12).

A layer of loose brown sand and rubble (35 and 37) sealed the collapsed roof.

#### The Finds

##### *Human Skeleton*

The skeleton identified in Phase 3, Room 1, was of an adult male and may have originally been in a highly flexed position turned slightly on its left side, with its head facing north-east (Fig. 9).

Unfortunately most of the bones were poorly preserved, probably as a result of post-burial disturbance and the collapse of the walls and roof. All that remained of the skull were a few fragments and some loose teeth, located close to the SW corner of the room.

The trunk was represented by a number of vertebrae, some ribs, a sacrum fragment and both pelves, all of which appeared to be largely *in situ*. There were also fragments of the arms. Most of the left femur remained, and part of the right tibia. The position of these suggested that either the legs had been bent in a highly flexed position, or that the legs had been bundled post-mortem with the rest of the body. Clearly the burial has been disturbed, with the right femur being found towards the SE corner of the room. The feet from this individual were found some two and a half metres away in the northern half of the room. One of the feet was found next to a cluster of pottery sherds which turned out to be the greater part of a pottery vessel (see below). The conjoining pottery fragments were found distributed across the room, perhaps indicating that there has been some linear pattern of disturbance.

The bones were not very well preserved so it was not immediately possible to determine the precise age and sex of the individual, although it is estimated that the skeleton is of an adult aged approximately between 20-40 years in age. Assistance was subsequently provided by the Abu Dhabi Police Forensic Science Laboratory.

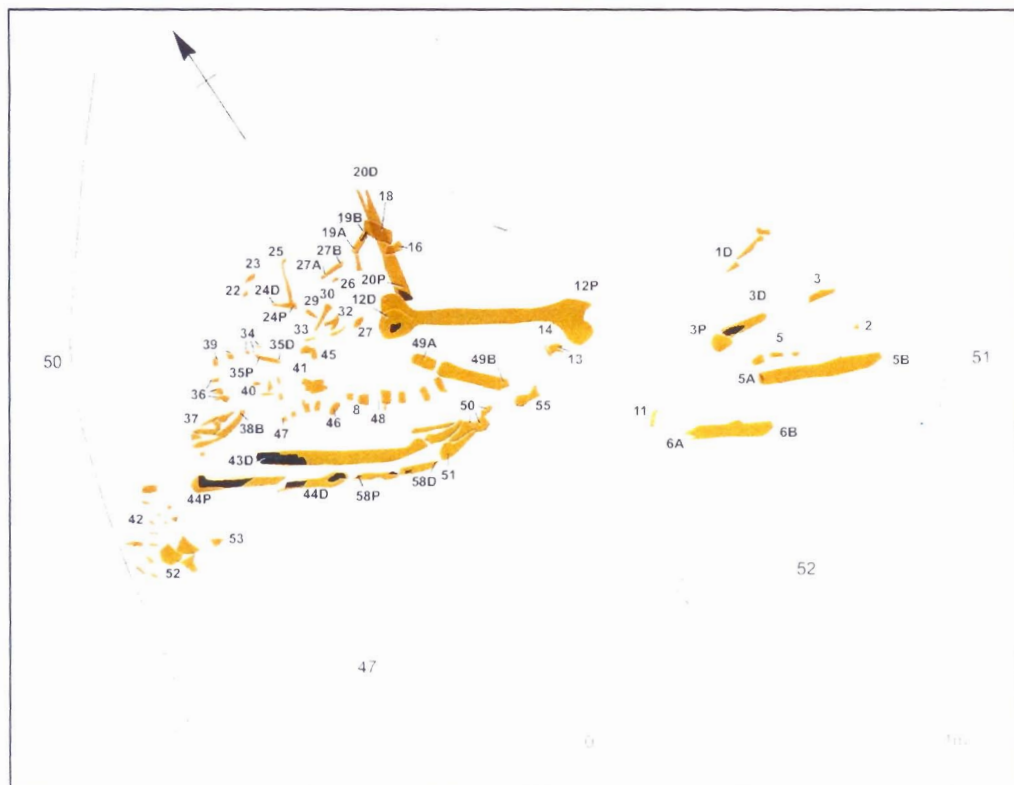


Figure 9. Plan of the skeleton (HB1) found on the stone platform at the southern end of Room 1. KEY  
12=left femur. 38=?right clavicle. 43=right tibia. 48=lumbar vertebrae. 52=skull frags.

Among parts of the skeleton that were better preserved were several teeth. Three of these have been examined by Lt. Col. Ahmad Hassan Al-Awadi, Director of the Forensic Science Laboratory, and Dr. Saeid M.E. Shawgi, Head of the Forensic Pathology Unit at Abu Dhabi Police Headquarters. Although the ancient DNA was not well preserved, Al-Awadi and Shawgi, using the latest forensic science techniques, were able to determine that the skeleton was a male from its DNA profile.

### *Pottery*

The most spectacular of the finds recovered from Room 1 was an almost complete pottery vessel. An initial sherd from this vessel was found in a sandy rubble deposit (layer 56) whilst cleaning the base part of the section of the sondage. This layer was from Phase 3 in Room 1 and dated to the final use of the room. A further sherd from the same vessel was recovered from a layer of firm, grey sand (58) which was built up against the hearth deposit in the same phase. The remainder of the conjoining sherds were discovered in a rubbly layer (55) situated only 1.5 metres away, next to an articulated foot from the skeleton. This layer was part of Phase 3, the post-occupation burial phase in Room 1. The same phase also had a plain undecorated sherd in a sand and rubble layer (45). A further very eroded sherd, decorated with a dotted line between nested chevrons, was noted in Phase 4, the abandonment/collapse phase, amongst a layer of collapsed stones (43).



Figure 10. The pottery vessel from Room 1 at MR11

This pottery vessel could well be a grave good associated with the burial. It is characteristic for Ubaid-period burials to be accompanied by pottery. The vessel is a high necked jar with an intricate painted design on its exterior (Fig. 10). This jar has an estimated height of about 20cm from rim to base, with a 4.5cm tall neck and a rim diameter of 11.5cm. As far as we are aware, this is the earliest, most complete, pottery vessel ever found in the United Arab Emirates. Whilst the form of the vessel and, to some degree, its painted components are clearly "Ubaid" in tradition, this vessel, however, does not at first impression match previous Ubaid material found in the UAE or indeed elsewhere in the Arabian Gulf. Work on the precise attribution of the pottery vessel is currently under way. A sherd from the vessel has been thin-sectioned and subjected to chemical analysis by Dr Sophie Mery (UMR 7041-CNRS, Paris). The fabric has also been sampled by Dr M. James Blackman (Smithsonian Center for Materials Research and Education, SCMRE, Washington DC) who is undertaking instrumental neutron activation analysis (INAA) in the SCMRE facility to compare it with known reference samples from different sites in Mesopotamia and Iran. The results of this analysis will be presented in due course (Mery *et al.*, *in prep.*).



## Plaster vessels

A large number of fragments of plaster vessels were found within Room 1 (Table 2). Most were plain, although some had traces of pinkish-red and dark grey paint on the outside of them. Some were clearly pieces of quite large vessels with walls almost 1cm in thickness. There were also some very fine fragments of plaster vessels, which were only about 4mm in thickness.

Similar plaster vessels have been found during ADIAS excavations at the Ubaid period settlement on Dalma Island. Some of these plaster vessel fragments have painted black chevrons and lines on them, as well as pink colouration (Carter, *in prep.*). Some of the fragments from Dalma have been analysed by Dr Louise Joyner (Department of Archaeology, Cardiff University, UK) when she was formerly employed in the Department of Scientific Research at the British Museum (Joyner 2001). Her work demonstrated that whilst most were manufactured from local gypsum, some were also made of lime plaster.

The tradition of using plaster is, of course, known from the early pre-pottery Neolithic period in the Levant and Mesopotamia. Now that such plaster vessels have been found at two sites in the lower Gulf, Dalma and Marawah islands, perhaps we are beginning to see that it is a genuine expression of a local tradition. It is interesting that the peoples of the southern Gulf felt the need to manufacture such vessels, and, in particular, that the painted patterns on some of these apparently emulated the designs on the imported Ubaid pottery.

## Lithics

Surprisingly few lithics have been so far excavated from MR11. In contrast to other Neolithic settlement sites in the Arabian Gulf, where debitage and tools are counted in thousands, only 128 pieces have been recorded to date. The reason for the small number of lithics recovered from MR11 remains uncertain. A possible explanation could be the function of the excavated part of the site, which might not have been designed as a living area, as perhaps indicated by the presence of human remains. Another reason could be the lack of a natural source of suitable raw material on the island. Natural flint sources, mostly tabular flint, are known from Dalma and other islands as well as from the mainland of Abu Dhabi Emirate. Flint-bearing strata in these cases are tertiary limestone, and usually the flint is of poor quality, but homogenous fine grained material does also occur. The lithic assemblage resulting from the 2004 excavations at MR11 is characterised by a few arrowheads, cutting tools and a number of flakes. The flint flakes are exclusively of blue brown, translucent flint with a fine grained texture, although, in most cases, a very thick, whitish patina covers the original colour. The flint is very similar to the material found on the coast of Abu Dhabi, embedded in tertiary deposits. A few flakes of presumably volcanic rock stones are also present. Seven arrowheads were recorded from MR 11, six of which are trihedral (Fig. 11).

The total number of flint tools and debitage is far too low to draw far-reaching conclusions, but it is clear that the typology of the flints so far recorded matches other Neolithic sites known from the Gulf region. The other known Neolithic settlement site on Marawah, MR1, appears to be extremely rich in flint weaponry and tools (Charpentier 2004; Charpentier, *in prep.*). In this case, however, the flint is of various different colours and textures, reflecting its diverse origins. Lithic assemblages on the islands of Abu Dhabi should be considered within their wider social and economic context. We now know that sophisticated boats were already in existence in the Gulf during this period (Carter 2002). Sites located on the islands would have been in regular contact with the mainland and even with other coastal areas, so raw material as well as finished artefacts would have been introduced as a result of these contacts.

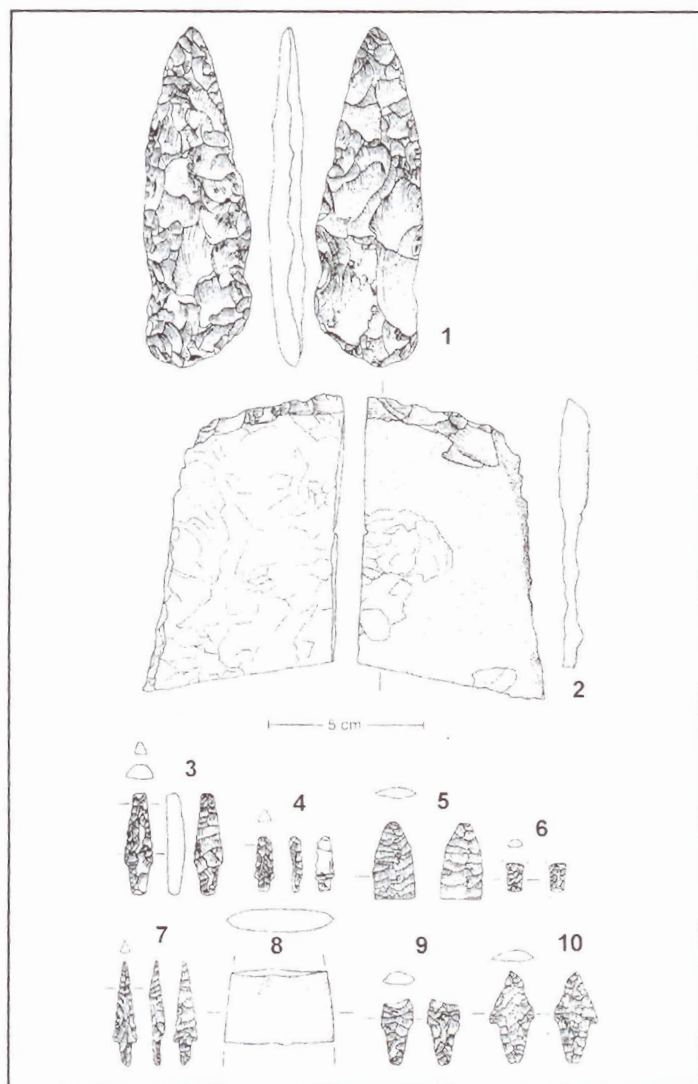


Figure 11. Lithics from MR11. All finds are from the 2004 season and Area A, unless otherwise indicated. (1) 2003 season, Area B, context 23, no.13,

(2) context 58, no.210

(3) context 64, no.214,

(4) context 43, no.57,

(5) context 48, no.140,

(6) context 38, no.341,

(7) context 43, no.82,

(8) context 43, no.87,

(9) context 35, no.51, (10) context 1, no.15.

### Beads and other artefacts

A total of 139 beads were recovered. The majority of these (n=136) came from area A, Room 1. Three examples were recovered from area B. They were generally made from marine shell, although there were a few which may be of coral, and several of stone. Most were extremely small, just a few millimetres in size, although there were also a few larger longer tubular beads made of limestone. The beads are similar to those found at other late 6th/early 5th millennium BC sites in the UAE such as site DA11 on Dalma Island (Flavin and Shepherd 1994: 131, Fig.10; King 1998: 90, Pl.45) and Al-Buhais 18 in Sharjah (Kiesewetter *et al.* 2000: 139-141, Figs.2-5).

Two buttons made from pearl oyster shell with double perforations were amongst the most delicate and beautiful finds found at the site (Fig.12). A very similar pearl button with double perforation was found at Al Khor in Qatar (Nayeem 1998: 215, Fig 7). Similar artifacts have also been noted at the Ubaid-related site of H3 at Sabiyah site in Kuwait (Carter and Crawford 2002: 2, Fig.2). The tradition of making jewellery from mother of pearl has also been observed in different forms elsewhere, e.g. the bay-leafed pendants at Al-Buhais 18 (Kiesewetter et al. 2000: 141, Fig 6), as well as the artifacts from the somewhat later shell middens at sites RH5 and RH10 at Ra's al-Hamra near Muscat (Biagi et al. 1989, Coppa *et al.* 1985: 99, Fig.1 and Plate 3; Santini 1987).



Figure 12 Pearl oyster buttons from Room 1 at MR11

Other finds at MR11 included a couple of other small pieces of worked shell, one of which may be the shaft of a fish hook. A bone awl made from an ovicaprid/gazelle metapodial was also uncovered in one of the main occupation layers (61) in room 1.

#### Food remains

The remains of food consumed by the inhabitants included bone fragments from domestic sheep or goat, dugong, marine turtle, as well as various types of fish including sawfish, requiem shark, grouper, emperor and seabream. A small quantity of crab remains has been noted to date, some of which include chelae fragments from portunid crabs. Bird bones as well as eggshell fragments occurred in a number of layers throughout the site. This suggested that they may have formed an occasional part of diet. Shellfish were also collected and these included predominantly the bivalve species, *Asaphis violascens*, the gastropod species, *Lunella coronata*, and pearl oyster, *Pinctada* spp. No archaeobotanical remains have been retrieved to date, with the exception of small fragments of charcoal, which have not yet been studied.



## Conclusion

MR11 site provides a dramatic new insight into the life of early Neolithic coastal communities in the southern Arabian Gulf. It is clearly an important discovery and prompts the asking of more questions than it provides answers.

The unique building architecture discovered has no obvious parallels with other sites in south-east Arabia. The quality of the build of the walls at site MR11 is really quite striking if compared to the Neolithic building structures already known in the Gulf from sites such as H3 at Sabiyah in Kuwait (Carter *et al.* 1999; Carter and Crawford 2001, 2002, 2003), Al Qannas (Inizan 1988a: 129 and 219), sites 29 and 38 in the Hawar islands (Cromb  *et al.* 2001: 149), Ras Abaruk 4b (de Cardi 1978: 182), Shagra (Inizan 1988b: 101, 214-5; Figs.47-8), Dalma island (Beech and Elders 1999; Beech *et al.* 2000) and Kharimat Khor Al Manahil (Kallweit *et al.* 2005). If one considers evidence of building structures on the Omani coast, then Suwayh SWY-11 is one of the most ancient habitation sites on the Oman coast with stratified levels. A number of man-made structures were identified, including one described as being delimited by large angular stones (Charpentier *et al.* 2000: 74).

At the nearby site of Suwayh SWY-1 a circular stone structure was also noted (Charpentier *et al.* 2003: 16, Fig.6). Interestingly, as at MR11, this site was transformed towards the end of its occupation into a funerary area, a number of skeletons being excavated there.

A geophysical survey of MR11 using Ground-Penetrating Radar is planned in the future. This will help to inform the strategy for future excavation seasons at the site.

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**Table 1. Radiocarbon dates from site MR11.**

All the radiocarbon dates are AMS dates from the Scottish Universities Environmental Research Centre (SUERC) Radiocarbon Dating Laboratory.

Calibrated radiocarbon dates are presented using the 2-sigma values which account for 95.4% of the probability of the date falling within that particular range. All samples are calibrated using CALIB4.4 and the atmospheric terrestrial calibration curve of Stuiver *et al.* (1998a,b).

SITE AREA	CONTEXT	TYPE OF SAMPLE	RADIOCARBON AGE BP	LAB CODE	CALIBRATED RADIOCARBON DATE BC (2 sigma)	DELTA 13C REL. PDB
A	58 (sample 283)	charcoal	6750 +/- 40 BP	SUERC-3612	5724 - 5618 CalBC (0.952) 5578 - 5563 CalBC (0.048)	- 23.1 ‰
A	55 (sample 195)	charcoal	6675 +/- 40 BP	SUERC-3608	5663 - 5647 CalBC (0.052) 5644 - 5512 CalBC (0.927) 5497 - 5485 CalBC (0.021)	- 23.4 ‰
B	26 (sample 16)	ashy soil	5850 +/- 50 BP	SUERC-1181 (GU-11460)	4833 - 4822 CalBC (0.016) 4807 - 4580 CalBC (0.959) 4569 - 4552 CalBC (0.025)	- 15.3 ‰
A	32 (sample 17)	ashy soil	5630 +/- 50 BP	SUERC-1182 (GU-11461)	4550 - 4350 CalBC (1.000)	- 15.7 ‰

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