

Feature

**AN 'UBAID-RELATED SETTLEMENT
ON DALMA ISLAND, ABU DHABI
EMIRATE, UNITED ARAB EMIRATES**

Mark Beech and Joseph Elders

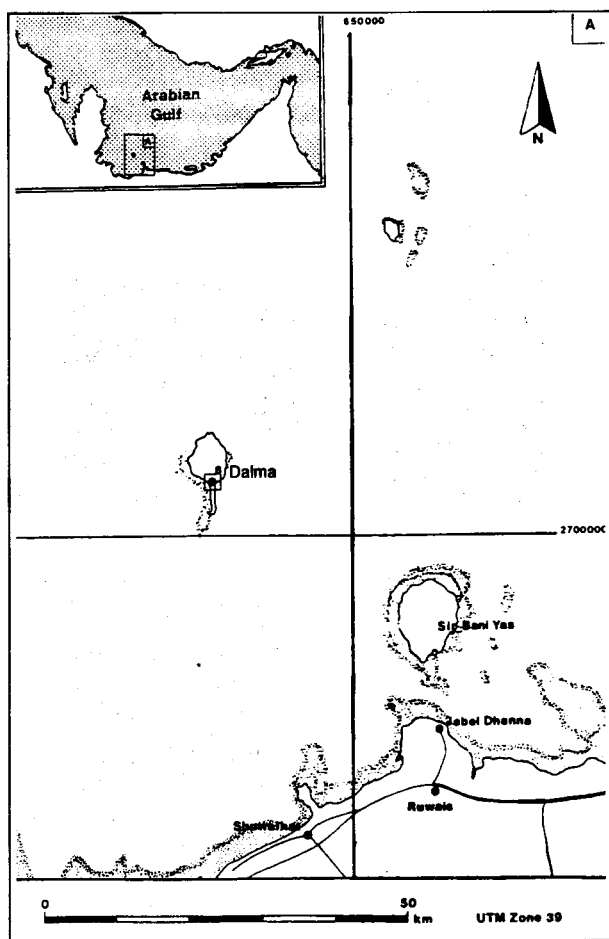


FIGURE 1. Location of the site on Dalma island, United Arab Emirates (Flavin and Shepherd 1994, Fig. 1)

Since 1992 the Abu Dhabi Islands Archaeological Survey (ADIAS) has been carrying out an extensive survey and excavations on the coast and offshore islands of Abu Dhabi emirate (Hellyer, 1998; King 1998). One of the most important sites to be discovered on the island of Dalma (Fig. 1) has proved to be an extensive early fifth millennium BC settlement, with evidence for houses, food preparation and cooking areas. The site appears to have been occupied over a considerable period of time with wide-ranging trade connections, in particular with the 'Ubaid culture of Mesopotamia.

Since 1968 when Grace Burkholder showed a collection of flint arrowheads and painted potsherds from Saudi Arabia's Eastern Province to Geoffrey Bibby, a great number of sites have been discovered.¹ Dalma represents a significant new discovery in that not only were the usual imported painted pottery sherds, flint assemblage, beads, fish/mammal bone and marine molluscs present, but also a number of other unique finds were recovered. These included locally produced plaster vessels, a plaster working area and evidence for longer term settlement in the form of several phases of building structures.

After the initial discovery of the site during the 1992 ADIAS survey (Hellyer 1993; King 1998), further excavation seasons were carried out in 1993-4 (Flavin and Shepherd 1994). This work established the existence of a site covering an area of at least 175m x 250m, located within the area of a children's playground inside the walled compound of the Women's Institute in Dalma town.

Although the playground surface had been mechanically levelled, archaeological layers survived from mere centimetres under the present surface to a depth of some 1.70m. All of these layers appear to date to the prehistoric occupation of the site which, at that time, would have been located on the beach, much nearer to the sea than at the present time. As a result of modern landfill and changes in sea level the site is now about a kilometre from the coastline.

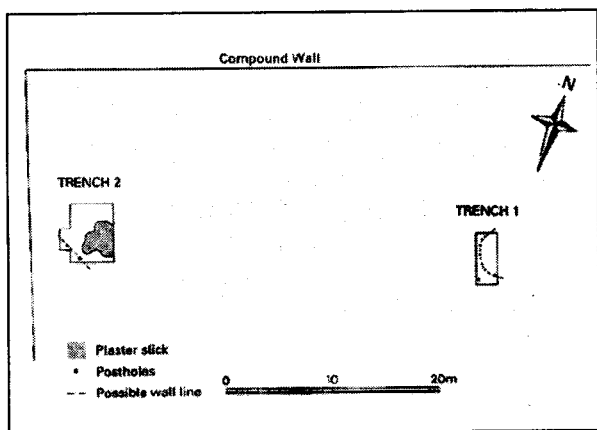
The aim of the brief 1998 season was to take samples for radiocarbon dating and to recover additional samples of animal bones and molluscs for further study. For this purpose the test trenches originally excavated in 1993-4 were re-opened. This was carried out by the authors, in conjunction with five labourers provided by Dalma municipality, between 5-22 March 1998. The two main trenches opened in 1993 and 1994, here referred to as Trench 1 and Trench 2, were reopened and extended. A similar sequence was recorded in both trenches.

Trench 1

It was decided to excavate the 5x2m trench (Fig. 2) down to the lowest level reached in the 1993 trial trench, 0.80m below the modern surface. The stratigraphical sequence is described from the top down, as 'natural' was not reached and more phases can be expected in the future.

- **Phase 1:** Both modern and prehistoric occupation material was found within a mixed layer of sand and stones, the result of levelling of the site to form the modern playground surface.
- **Phase 2:** A layer of aeolian sand with lenses of ash and shell which may represent deflated midden material. In 1993 two parallel ruts were found in the

FIGURE 2. Plan of the location of Trenches 1 and 2 within the Women's Institute compound.



• FIGURE 3. Trench 1 (phase 5) during the 1998 season.



surface of this layer, perhaps the latest traces of prehistoric occupation on the site. However, these features were only sealed by the layer described above, so it is impossible to be certain of their age.

- **Phase 3:** Several interleaving lenses of sand containing occupation material. These probably represent dune movement and midden deflation after the abandonment of the settlement.

- **Phase 4:** An area of charcoal and ash. This contained marked concentrations of oyster shell, sea-urchin spines, and articulated segments of fish skeletons, the distribution of which suggested a hearth surrounded by raked-out or tossed food refuse. Traces of burnt mud-brick with date-stone impressions, as well as a carbonised date-stone, were also recovered from this layer.

- **Phase 5:** A layer of aeolian sand under the charcoal layer sealed an extremely hard and level surface, consisting of small pebbles in a sandy clay matrix. This was a deliberately metalled, laid surface, recorded across the whole trench. Eight post-holes had been dug into this surface, seven of which described an arc. Stones and plaster sherds had been wedged into the sides to pack the posts tightly in place. A concentration of pearl oyster shell was noted outside the line of the post-holes (Figs. 3, 4).

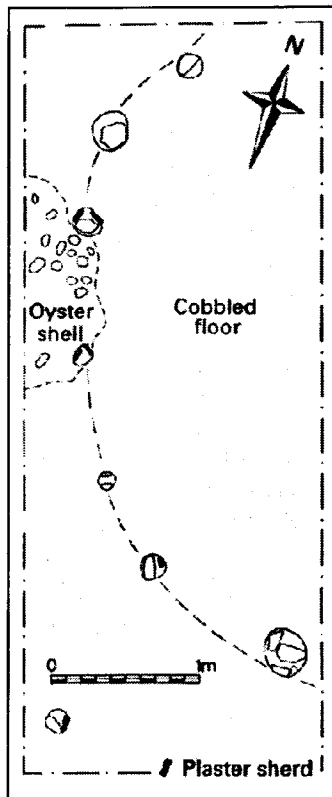
- **Phase 6:** A sondage (0.50m x 0.50m) was excavated through this floor, to investigate the depth of stratigraphy underneath. A lower floor of compacted greenish clay was immediately (0.12m below) encountered, in which the remains of a decayed post could be seen. This represents an earlier structural phase, which we were unable to investigate further due to lack of time.

Trench 2

The 1994 excavation trench had been dug down to a layer rich in fish bone and shell. It was decided to open a small 2x1m extension to obtain a sealed sample from this layer for analysis. The following sequence was recorded.

- **Phase 1:** Identical to the disturbed layer in Trench 1.
- **Phase 2-4:** Sand layers with occasional lenses of ash, shell and scattered fish bone.
- **Phase 5:** The layer of concentrated shell and fish bone recorded in 1994 was uncovered, lying to the north of a post-hole and a plaster (door?) post socket (south of this area the sand was sterile). This seems to represent a structure, with food debris swept, or accumulating, against the wall. To the east of this structure an irregular layer of plaster was noted, interpreted as a mixing slick either from building work or vessel production.
- **Phase 6:** This phase was recorded in section in 1994 in a modern tree-pit and showed sand lenses with occupation detritus and possible surfaces overlying the sterile 'natural', 1.70m below the modern surface.

FIGURE 4. Plan of Trench 1, phase 5.



Discussion

Although the sequences in the two trenches are not identical, they are similar enough for the following interpretation of the settlement sequence to be postulated. There was more than one phase of post-built houses with metalled floors and structural features such as plaster door-post sockets. Areas were segregated for food processing, artefact production and waste disposal, with internal surfaces kept clean. Plaster was mixed on site, for construction and/or plaster vessel production. Over 600 fragments of plaster vessels were recovered from the small area excavated during the 1998 season, in contrast to only a small number of classic 'Ubaid pottery sherds. Interestingly some of the plaster vessel fragments had decoration which appeared to imitate that on the fired classic 'Ubaid pottery vessels (e.g. black stripe and chevron decoration applied to their exterior). This suggests that there was a certain degree of wide-ranging trade and cultural contacts but that the community living on Dalma was perhaps to a certain extent self-sustaining.

Flint was also worked on site; although the source of this poor quality tabular flint is believed to exist in the hills on the island we have not found it, possibly due to the level of recent landscape disturbance. In addition to the fine arrow head and other tools found in 1993 and

1994 (Flavin & Shepherd 1994), a tile knife and several drills were found this season. A small number of beads and other personal ornaments were also recovered.

By far the most common finds on the site were the remains of food debris from the settlement. Great quantities of bone and marine mollusc were recovered in all layers. An initial study of these has demonstrated that the fauna includes domestic sheep/goat, gazelle, dolphin, dugong and turtle as well as large quantities of fish bone (Beech 1998a). These are the earliest records of both sheep/goat and gazelle on the offshore islands of the United Arab Emirates. The fish remains at the site contrast with previously published faunal assemblages in that a wide variety of fishes are represented including inshore as well as pelagic species. These include sharks (some of which were probably up to 3m in size), needlefish (*Belonidae*), groupers (*Serranidae*, some up to nearly a metre in size), sea breams (*Sparidae*), emperors (*Lethrinidae*), Jacks (*Carangidae*) and tuna (*Scombridae*). The size of some of these fishes suggests a surprising degree of sophistication in fishing methods (Beech 1998b). The molluscan remains from Dalma are currently being studied by Emily Glover who has determined that the key species represented were the turban shell (*Lunella coronatus*), the pearl oyster (*Pinctada radiata*) and the clam (*Circenita callipyga*). All of these species were collected for food and together make up about 90% of the total number of individuals (Emily Glover, pers. comm.). Less common than these three species but probably regularly collected for food or bait was the small conch (*Strombus decorus*) and the "murex" (*Hexaplex kuesterianus*).

The houses were subsequently abandoned, with 'squatting' on the site represented by camp fires, although it is also possible that the focus of the settlement simply moved. For this reason we need to excavate a larger area in future seasons to clarify the plan and phasing of the settlement. After the 'squatter' phase, the settlement appears to have been abandoned, and midden deflation and dune movement dispersed sand and occupation debris over the site, though occasional visits to the island after the abandonment of the settlement cannot be ruled out (i.e. Phase 2, Trench 1).

The unexpected bonus during the 1998 season of identifying significant settlement structural remains on Dalma presents the 'Ubaid settlement of the Arabian peninsula in a new light, indicating prolonged settlement on the coastal islands rather than just occasional visits during fishing or trading trips. The house structures on Dalma represent the oldest so far identified along the southern Arabian Gulf coastline (Elders & Beech 1998). Parallels for Dalma can be found in sites such as Dosariyah in the Eastern

Province of Saudi Arabia which had similar structures and reed-impressed plaster fragments, some of them with black paint on their side (Burkholder 1972: 266; Malinowski & Frifelt 1993). Other similar structures have been identified further afield on the coast of Oman such as locality RH5 at Ra's al Hadd (Biagi, Maggi & Nisbet 1989; Biagi & Nisbet 1989) and at Suwayh, just to the south of Ra's al-Hadd (Vincent Charpentier, pers. comm.).

At least two further seasons of excavation are planned on Dalma which will provide an even more detailed insight into life during the 'Ubaid period of south-eastern Arabia. Further technical analyses are to be carried out on samples of the plaster vessels from Dalma in conjunction with Dr. Andrew Middleton and Dr Louise Joyner of the Department of Scientific Research, British Museum, London. Analysis of the samples of painted 'Ubaid pottery sherds from Dalma is currently being carried out by Sophie Méry (CNRS, Paris) and G. Schneider (Berlin). This will investigate if the Dalma painted sherds are similar to those others found elsewhere within the Gulf region, distributed by the so-called "seafaring merchants of Ur" (Méry & Schneider 1996; Oates *et al.* 1977; Oates 1978; Roaf & Galbraith 1994). We are currently awaiting two AMS radiocarbon dates from the SURRC (Scottish Universities Research and Reactor Centre) Radiocarbon Dating Laboratory.

Notes

The Abu Dhabi Islands Archaeological Survey (ADIAS) project was commissioned by President HH Shaikh Zayed bin Sultan al Nahyan in 1991 and is under the patronage of UAE Chief of Staff Sheikh Muhammad bin Zayed al Nahyan. The project is based both in Abu Dhabi and, under the direction of Dr Geoffrey King, at the School of Oriental and African Studies, University of London. The ADIAS project is coordinated in Abu Dhabi by Mr. Peter Hellyer.

Mark Beech is currently pursuing PhD research in the Departments of Archaeology and Biology at the University of York, entitled: 'Ancient marine resource exploitation in the southern Arabian Gulf: an archaeozoological perspective'. He has worked for ADIAS since 1994. Mark Beech would like to thank Carl Phillips and Serge Cleuziou for bringing the article by Malinowski and Frifelt on 'Ubaid plaster technology to his attention.

Dr Joseph Elders is currently employed as an archaeological field officer at Warwickshire Museum, and has worked for ADIAS since 1993. Both authors would like to thank Candy Stevens of Warwickshire Museum for preparing the illustrations for Figs 2 and 4.

¹ Boucharlat *et al.* 1991a,b; Burkholder 1972; de Cardi 1978; Frifelt 1989; Haerincx 1991; Henricksen and

Thuesen 1989; Hermansen 1993; Jasim 1996; Masry 1974; McClure 1971; McClure & Al-Shaikh 1993; Millet 1991; Roaf 1974, 1976; Uerpmann & Uerpmann 1996.

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