

Wind-towers and pearl fishing: architectural signals in the late nineteenth and early twentieth century Arabian Gulf

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In this exercise in early modern Islamic archaeology, the authors make an intriguing link between pearl fishing and the wind-towers which provided air-conditioning to the luxury apartments of the successful merchants.

Keywords: Persian Gulf, nineteenth century, pearls, maritime trade, buildings

Introduction

The United Arab Emirates is a peninsular country located on the south-west side of the Arabian (Persian) Gulf and on the north-west banks of the Gulf of Oman (Figure 1). With an area of 83 600 square kilometres (Al Abed *et al.* 1996: 269), the United Arab Emirates consists of seven emirates: Abu Dhabi, Dubai, Sharjah, Ajman, Umm al-Qawain, Ras al-Khaimah and Fujairah. It was known prior to confederation in 1971 as either the Trucial Coast or Trucial Oman and was dependent on the few resources that the difficult climate and geography offered. Small towns, villages and hamlets were strung along the coastal inlets and off-shore islands, and set into the interior desert oases and mountain *wadis*. Mountain and beach stone, coral, palm frond, mud brick, and the occasional palm log have served as the main building materials.

The Emirates have long been regarded as having no great architectural tradition of the Islamic period. Indeed, we may reflect on Creswell's biting conclusion that: '*... Arabia, at the rise of Islam, does not appear to have possessed anything worthy of the name of architecture. Only a small proportion of the population was settled, and these lived in dwellings which were scarcely more than hovels*' (1932: 7). But these words were written in the 1930s, and are of their time, for since then greater appreciation for the inventiveness of the local building traditions has emerged. Through the Gulf generally, examples of late nineteenth and early twentieth century architecture have been preserved and documentary texts about the buildings and their architectural styles have begun to appear. However, this existing evidence generally emphasises functional and decorative description over social context. In recent years, archaeological investigation, with its combination of scientific, imaginative

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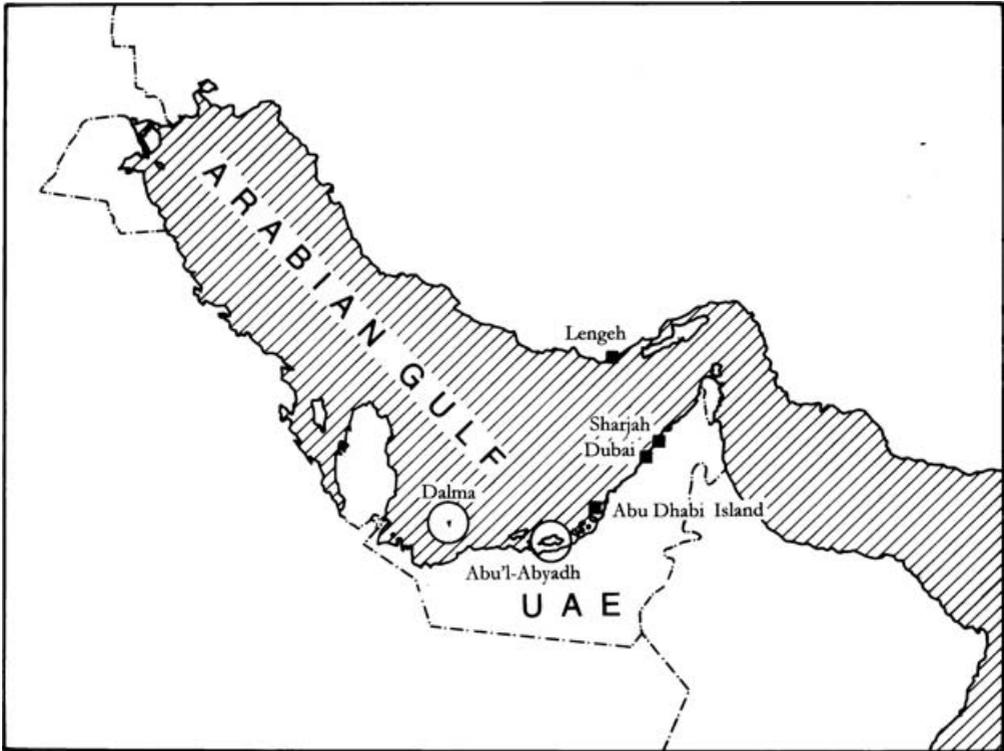


Figure 1. Map of the Arabian Gulf, showing the position of the UAE, and of sites mentioned in the text.

and deductive methods, has pursued a research agenda seeking to determine economic and ecological sequences. In some cases these inquiries have begun a dialogue with those of history and architecture, to the great enrichment of both.

Between 1857 and 1929, the most pervasive and lucrative economic activity in the Gulf was trading in pearls, and this provided a substantial underpinning to the material culture of that period. In this paper an archaeologist, an art historian and an architectural historian explore how the various aspects of the pearl trade were reflected in material culture, using two case studies. The first reviews archaeological evidence for the extraction of the pearls and the impact of the trade in the area of Abu Dhabi, and the second shows how the development of the trade and the consequent movement of merchants left its mark on the architectural corpus in Dubai. In both cases the focus is on the social complexity of the nineteenth-century Arabian Gulf, and the explanatory wealth made possible by a multi-disciplinary, indeed a *cross-disciplinary* approach.

Pearl extraction in the Abu Dhabi area

Since 1991, the *Abu Dhabi Islands Archaeological Survey* has surveyed and recorded over a thousand archaeological sites throughout the region, in which archaeological evidence for the pearl trade has been found in abundance. Although fieldwork has identified extensive



Figure 2. A typical *Pinctada radiata* midden (photo: D. Hull).

evidence for settlement during the Late Islamic period on almost all of the islands in Abu Dhabi waters, as well as much of the coastline, this evidence is ephemeral, and suggests intermittent settlement deriving from patterns of regular nomadic movement (Hellyer 1998; King 1998, 2001). Natural resources are scarce, and permanent water sources few and far between.

The most obvious form of evidence for the extraction of pearls is shell middens, resulting from the opening of oysters in order to remove the pearl within. These shell middens range in quantity from just a few to several million shells (Figure 2), and give us a range of information, including the species of oyster collected, usually *Pinctada radiata*, but also *Pinctada margaritifera*, or, for mother-of-pearl, the winged oyster *Pteria macroptera*. Pearl-oyster middens occur along the full length of the Abu Dhabi coastlines, and on many of the islands. The exception is those areas where access by boat is difficult, especially where *sabkha* (or salt flats) occur. Dating these areas of pearling activity can be more problematic. Middens may be associated with pottery scatters, for example, or hearths which have been dated by radiocarbon analysis (Beech 2002). Other features which may occur in similar areas to the pearl-oyster middens, though not necessarily directly related, are graves, mixed middens consisting of domestic rubbish, water catchment facilities, structures of various kinds and marine jetties.

Heard-Bey estimates that, typically, most able-bodied men – as many as 22 000 at its height – would have been involved in pearl harvesting during the summer months (1996: 182). Archaeological evidence for this scale of activity is provided by findings on the island of Abu'l-Abyadh which is located 55km south-west of Abu Dhabi island. It is 35km east-west by 15km north-south, and is an approximately diamond-shaped island of largely low-lying, sandy topography, with frequent inter-tidal flats, and occasional rocky terrain, especially along the north-west coast (for earlier accounts of this evidence, see Hellyer & Hull 2002; Hull & Rowland 2003). The archaeological survey has located 51 sites, or a total of 134 sites including sub-sites. A combination of the collection of surface sherds and radiocarbon dating

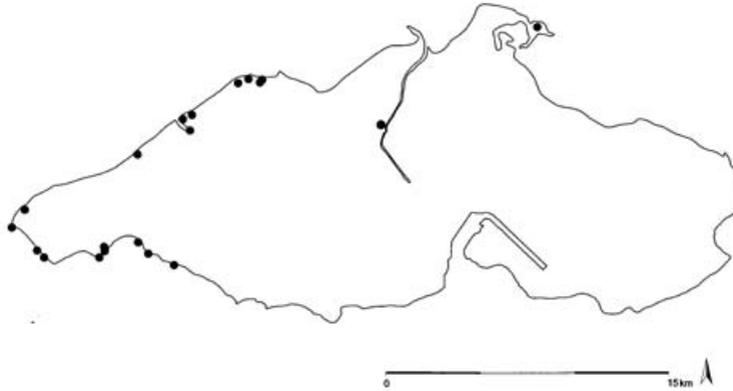


Figure 3. Distribution of pearl middens on the island of Abu'l-Abyadh.

of hearth sites has determined the date of the majority as Late Islamic, that is to between the fifteenth and the twentieth centuries.

The range of archaeological sites within the Late Islamic period fits in very well with the more general picture for the islands of north-eastern Abu Dhabi, suggesting a nomadic, marine-based lifestyle for much of the population. This lifestyle used Abu'l-Abyadh for the collection and processing of a wide range of reptile, bird, mammal and fish species, but it featured in particular, the regular use of the island's coastline for the processing of the pearl-oyster. We know from oral historical evidence that this activity was, for the late nineteenth and earlier twentieth centuries at least, carried out by members of the Rumaythat subsection of the Bani Yas, the dominant tribal confederation in Abu Dhabi and Dubai, but also by the Al Bu Mehair tribe, and was thus the preserve primarily of locally based Arab tribes.

Evidence for pearling activity within this Late Islamic period is extensive. Of the 51 sites surveyed to date, a total of 23, almost half the total, contain evidence for one of the varieties of pearl oyster, *Pinctada radiata*. These range from small, discrete middens, to very great, long-term deposition sites. An example of this is a midden surveyed in 1993, which is over 3km in length, and around 40m wide (Hellyer & Aspinall 1999). An examination of the distribution of these sites has revealed that the majority of pearl oyster middens occur on the north-west and the south-west coasts, with only two exceptions (Figure 3). No middens at all occur on the less navigable east and south-east coasts.

This distribution was especially interesting when compared with another form of archaeological evidence: sherds of large storage vessels. The distribution of storage vessels, often interpreted as suggesting longer-term settlement, implies that the north-west and south-west coasts are predominant. This suggests that pearl harvesting occurred in the same places on the island as, and *perhaps* in direct correlation with, areas of settlement activity. We have learned from oral historical evidence that, although settlement was never permanent on the island in the earlier twentieth century, it could occur for fairly long periods of time, depending on the availability of resources (Hellyer & Hull 2002). Other evidence is suggestive of longer-term settlement in the form of outline mosques constructed from upright slabs of local stone, assembled in order to form a simple *mihrab* and *qibla* wall. In

one area of the northwest coast, these mosques are placed at regular 300m intervals along the coast, each mosque design differing slightly from the last, as if to suggest that different family groups or boat crews were assembling mosques for their own use. These examples occur very close to a number of pearl-oyster middens.

Such evidence for longer-term settlement on the island, while not *necessarily* related to the pearling season, *may well* be related because it falls within the same areas and in some cases the same settlement patterns. Pearl harvesting on Abu'l-Abyadh seems therefore to have been carried out either during the winter months, when shells were collected not from boats, but by a process of wading out to harvest from the shallower waters, or by pearl boats which actually stopped in at regular intervals during their summer season, in order to process the contents of the shells on land.

Evidence complementary to the working end of the pearl trade can be found on the island of Dalma which lies 45km north of mainland Abu Dhabi. Dalma is known to have had fresh groundwater, and even supplied water in barrels towed behind ships, to Abu Dhabi island. Dalma is distinctive in that it features a complex of Late Islamic buildings, including a high status house. The house has a mosque associated with it, built of coral, gypsum and palm trunk construction, and of similar ornament with abundant fenestration surmounted by blind arches. Two further mosques, attributed to Said Ali al-Qubaysi, stand nearby (King 2004).

According to Lorimer (1908: 409), Dalma island was a centre for the pearl trade. It had pearl banks to the north, north-west, the south-west and the south-east and a temporary market was established each year at the end of the pearling season, at which pearls gathered from the season's diving were sold and accounts settled. Merchants visited this market specifically in order to purchase pearls and receive settlement of debts incurred by the boat captains in setting up the crews prior to the commencement of the diving season. This Dalma market therefore played a vital role in the socio-economy of the pearl trade at all levels.

The high status house is known to have belonged to Muhammad Jasim al-Muraykhi and has now been restored as a museum by Abdul-Sattar Al Azawi. Al-Muraykhi was a pearl merchant. It is probably the same house, observed in the 1932 *Persian Gulf Pilot*, which noted that a single tower was visible from the sea, and dates to the late nineteenth or early twentieth century (British Admiralty 1932). It is of typical Gulf construction, with numerous windows, fine wooden doors and blind ornamental arches. Geoffrey King, who recorded the structure in 1992 prior to its reconstruction, observed that it had '*two enclosed storage rooms on the ground floor and on the upper floor was an elegant, extremely open room with terraces on each side*' (King 1998: 52). What makes the house of particular interest is that it includes a two-storey *wind-tower*, a device for trapping light airs and ventilating the interior (see Figure 4). Buildings such as these, though common in Dubai, are rare in Abu Dhabi Emirate, especially for the western region. No other complexes of this kind are known from the coast or islands. Abu Dhabi island itself had no such architecture, although palm frond versions are known from early photographs (Hawker 2001: 20).

Dalma therefore played an important, albeit localised, role in the larger network of the Gulf. It acted as one of the initial re-distribution points in the pearl trade. Pearls were harvested around the surrounding coast and islands and sold at the Dalma market. The resulting wealth was manifested in the al-Muraykhi house and its companion mosques. The social



Figure 4. The al-Muraykhi pearl house, undergoing restoration (photo: P. Hellyer).

hierarchy hinted at in the grandeur of these buildings is re-affirmed by the ephemeral nature of the structures left by the pearlers themselves, who occupied a lower position in Emirati society. Impermanent and temporary, these structures occur on islands within the area of the pearl banks, such as Abu'l-Abyadh, and are evidenced by the material remains recovered through the on-going archaeological survey. The al-Muraykhi house, the simple outline mosques of Abu'l-Abyadh, and the palm frond houses were all part of the social continuum evident in the larger market and re-shipment centres of Dubai, and even further afield, Lengeh and the towns of the Iranian littoral. The wind-tower of the al-Muraykhi house proves to be diagnostic of rather more than the wish to keep cool. Our second case study throws light on its broader message and context.

Dubai

As pearling flourished, small towns like Dalma, Abu Dhabi, Dubai, Sharjah and a number of others grew into local trading centres, feeding the material needs of the pearl fleets and feeding off the prosperity pearls generated. With greater regional security and intensified commercial activities came an increased movement of people. Indian Moslem merchants, the Khojah, established neighbourhoods throughout the Gulf (Lorimer 1908-1915: 1034). Pearl exports were dominated by Indian Hindu merchants, known as Banyan. Bandar Abbas had a Hindu temple located close to the city's market. Manama in Bahrain, with a majority Shi'i Arab population (known as Baharinah) (Lorimer 1908-1915: 207-8), emerged as an important pearl export centre with close ties to Iran and a similar architecture. Many Iranian ports had large numbers of Arab residents referred to as Huwalah (Lorimer 1908-1915: 754-5).

In 1879 Gray, Paul and Co. (agents for the British India Steam Navigation Co.) set up an office in Lengeh, on the southern Iranian coast, and went on to open offices in Bahrain in 1883 and Dubai in 1891. Lengeh became the major pearl re-exporter of the region through its status as a tax free port and its central location in relation to the pearling banks off the Arabian coast. In 1902, Qajar officials ended the city's free port status and by 1904 Lengeh was no longer able to compete with the Arab ports.

Many merchants from around the Gulf relocated at this time to Dubai, creating a complex social hierarchy constructed through ethnicity, tribal lineage and material wealth. The highest economic position in the city's mercantile community was occupied by the B.I. executives, who ran a monopoly in the supply and export of all goods in and out of the port city. One step down the socio-economic ladder were the Banyan merchants, British subjects of Indian origin. Fluent in English and with access to credit sources and supplies in British India, they acted as middlemen between the B.I. agents and officials and the local Dubai shopkeepers. Since Islam forbids the charging of interest, the Banyans, as non-Muslims, also served as money-lenders, providing credit to the pearl industry. Dubai also had a stratum of local merchants called *tujar*, or *musaggamin*, who imported rice, spices and textiles from British India by way of B.I. shipping. Local merchants in the pearl industry were called *tawawish*. Even though the local merchants did not enjoy the same levels of economic privilege as the Banyan stratum, they exercised more political power and cultural prestige because they were typically Sunni Muslim and many were directly related to the sheikh.

The Iranian merchants who migrated from Lengeh and the towns of southern Iran after 1902 were either in the pearl industry or importers and distributors of goods from British India to Trucial Oman. Depending on their origin, they settled in different quarters. Merchants from Lar, Awadh and Grash settled in quarters named after the cities of origin: Lariyyah, Awadhiyyah and Grashyyah. The *Bastakiya* merchants, who had moved from Bastak (a coastal region near Lengeh with strong connections to the interior province of Fars through the small interior town of Bastak) constituted the largest group and settled in an area of Bur Dubai close to the creek-side shipping docks and the main market. Each group further specialised in specific trade items. The *Bastakiya* residents typically re-exported pearls to India.

The Iranian merchant migration also encouraged other tradesmen, such as pearl divers, masons and carpenters to relocate. As Dubai prospered, more came from other parts of the Gulf. Bahrainis, mostly Shi'i Muslims, worked as pearl divers, blacksmiths or were employed as shopkeepers or petty traders and settled in an area of Dubai called Firij al-Baharinah. Other immigrants came from Zubeir in Iraq as accountants, especially for the pearl merchants. The various strata within this group, the pearl divers, craftsmen, shopkeepers and clerks, had varying economic privileges ranging from low to middle. They had little political power and, depending on their ability to speak the Arabic language, their wealth, and their literacy, varied in cultural prestige. The fact that some of these middle strata were Shi'i also detracted from their position in Dubai's otherwise predominantly Sunni society. The lowest class consisted of local and immigrant divers who worked as servants between the diving seasons. Some local pearl divers fished during the off-seasons; many moved back and forth between the coast and the interior oasis date farms. Women worked as domestic servants in the

merchants' houses, sold fish or vegetables at the local market or sold home-made foods door to door. They enjoyed few economic privileges and little political power or cultural prestige.

Wind-towers

The incoming merchants patronised the construction of fine Iranian-style houses on the Arab coast, acting as both a form of identity and a utilitarian way of coping with the harsh Gulf summer. While the wealthy Arab classes used the higher stories and roofs of their homes for ventilation, the houses of the Iranian merchants had *wind-towers* that rose above the second storey to trap the slightest wind from any direction. The wind-towers worked well with the slightest breeze and often rose 15m above the ground level. At that height, wind velocity increases. The length of the wind-tower was an enclosed funnel that further increased the velocity of the air passing down the tower into the main room of the house, terminating approximately 2m above the floor. The air flow was confined to the area below the tower in order for the downwards draft to be matched by a strong up flow from the opposite side. This air movement helped the displacement of the hot air by fresh cool air. In the winter, when ventilation was no longer required, the air vents of the wind-tower were blocked. Typically wind-towers were constructed from coral and *sarooj*, a paste composed of red clay mixed with manure and water. The porous coral acted as a pocket of thermal insulation within the internal walls and the external surfaces remained cool. A finishing plaster of chalk and water was applied to smooth the surface. The projecting ends of the poles were often left after the tower was completed to serve as scaffolding when the towers needed re-rendering or other maintenance. The style of the *Banna*, or builder, could easily be distinguished by his choice of decorative details. Similar structures and decorative details can be found at the same time throughout the Gulf, since the services of the Bastaki masons were in demand in the other ports and pearling centres as well. Members of the Al Banna family, for example, originated in the Bastak region, and worked on Sheikh Said's house in Dubai (see Figure 5), as well as a number of houses in Bahrain, Kuwait, eastern Saudi Arabia and the Shaqil district of coastal Iran in the first half of the twentieth century (Yarwood 1988: 126-35; Reem Suhail Aqil Mohammed Al Banna 2004 pers. comm.). In the early twentieth century, Dubai was forested with wind-towers – testimony to its key position in the Gulf after the British installation of a regional steamer service in 1862. Indeed, the presence or absence of these particular structures indicated the relative wealth of the community.

Discussion

On both Dalma and Dubai, the wind-towers carry particular messages about the structure of society and the status imparted by the pearl trade. The house of al-Muraykhi and its attendant mosques on Dalma were not repeated elsewhere in the area. Some well-water was available on Abu Dhabi, and wells have been identified, for example on the island of Belghelam, yet *these* islands do not display the kind of architecture found on Dalma. So,



Figure 5. Sheikh Said House, in the Shindagha district of Dubai (photo: R. Hawker).

why is it that Dalma, far away from the Bani Yas capital in Abu Dhabi and the booming commercial ports of Dubai and Lengeh, had such high status architecture?

At the end of the pearling season at markets such as that on Dalma, the boat captains would sell the pearls and pay off their debts with their creditors, often the same merchants to whom the pearls were sold. They would also settle the loans and the complex share-arrangements with the boat crew, made up of a combination of members of permanent coastal communities, as well as casual labour from the tribes of the interior and migrant workers from South Asia, Yemen and East Africa. The boat crew would then obtain a release document from their boat captain and purchase supplies with their profits as well as gifts for their family. Debt, and the resolution of debt, was therefore central to the pearl industry. The Dalma *sug* is an important arena for the resolution of that debt, and of the processes of settlement at the end of the pearl season. The al-Muraykhi house is a direct result of that denouement.

What we have in Dalma is a high status expression of wealth gathering as a result of the pearl trade, similar in scale and purpose to the houses of Bastakiya in Dubai. This situation is emphasised particularly by the fact that these are the only examples, or at least the only remaining examples, of a particular form of architectural expression in Abu Dhabi Emirate. They are therefore artefacts of conspicuous consumption silhouetted yet more clearly against a background of sparse architectural evidence. Further support is provided by historical and oral historical sources, which appear to give context to these buildings by informing us when and by whom the buildings were constructed, as well as the circumstances by which

wealth to fund them was collected. They need to be understood as part of a larger economic network and its associated social structure.

The wind-tower house was also used to particular effect by the ruling classes of Dubai. With their patrilineally inherited lineage positions, the highest political class was occupied by the sheikhs. Tribally constructed authority allowed the sheikhs to capitalise on the nineteenth century boom economy. They levied customs taxes on imports and collected revenues informally from the merchants. The sheikh and his family monopolised ferry services across the creek, in-land taxi service and all taxi service between Dubai and neighbouring Sharjah. In return, the sheikhs maintained security for all the emirate's residents. But despite their revenues, the rulers sometimes earned less than the local pearl merchants, who, consequently, gained political prestige at the expense of the sheikhs. While this would later be reversed with the collapse of the pearling industry, it illustrates the significance of architecture in sorting out the complex commercial and political hierarchy of Gulf society.

As an example, when Sheikh Maktum built a new house for his family in Shindagha overlooking the Creek in 1896 (or possibly sometime after 1912, when Sheikh Maktum's son, Said, assumed leadership of Dubai and moved into the Shindagha house and expanded it), the wind-tower and the building style of Bastakiya was adopted by the indigenous Arab ruling family of Dubai (Omer 1998: 9; Kay & Zandi 1991; Hawker 2002). This was an important symbolic shift away from the older, fortified Arab style of architecture personifying the ruler, seen for example in the Al Fahidi fort (built in 1799), to the newly imported mercantile housing of what is now known as the Sheikh Said house (Kay & Zandi 1991: 30-32; Omer 1998: 9). Clearly this house was built by the newly arrived Iranian masons, with all the concomitant features of the Iranian wind-tower house. This shows, that by adopting the material trappings of the wealthy, and therefore politically competitive merchants, the established ruling class of Dubai was attempting to symbolically re-assert their former tribally constructed political authority.

The commercial network of the Late Islamic period entailed a complex social entanglement in which competing claims to status and authority were asserted through the patronage of specific types of monumental architecture, including the wind-tower house. The combination of architectural history and archaeological recovery and analysis allows us to understand the spatial distribution of pearling activities, the economic foundation of the Gulf's late nineteenth century economy and therefore social structure. Documentary evidence provided in British administrative texts from the period illuminates the social context for these activities. From Dalma to Dubai, from architectural history to archaeology, we have a fuller picture of how Late Islamic Gulf society functioned.

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