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Bidyah Mosque, Fujairah, U.A.E.

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Abstract: *This paper is concerned with the historical site of Bidyah mosque, Fujairah, United Arab Emirates. Bidyah mosque reflects an important site in terms of the Emirate's history and also for contemporary tourism. The mosque will be examined using archaeological and historical evidence. This includes survey finds (associated structures and material finds), excavation, radiocarbon evidence, architectural comparisons, historical sources pertaining to the area, combined with the study of the mosque and building materials. The overall aim is to determine spatial and temporal contexts for the mosque.*

Introduction:

The following paper aims to highlight the historical site of Bidyah mosque (Site 45). Bidyah, located on the East Coast of the United Arab Emirates, is situated within the emirate of Fujairah (Fig. 1) (GPS, WGS-84: N25.439194 E56.354083). The mosque was built at the base of the mountains behind the date palm gardens adjacent to the coast (Fig. 2). It is immediately surrounded by various features including mudbrick buildings, defensive towers, rock built walls and petroglyphs. According to local sources, the site of the mosque formed the main interior village, which was separate to the coastal settlement located along the shoreline (Site 44) (Ziolkowski 2002:I: 169)[1].

The current study will encompass a description of Bidyah mosque and the adjacent features at the site. An overview of the excavation undertaken at the mosque will also be included. This will be followed by an architectural comparison of Bidyah mosque with a number of sites in various locations, including the Sultanate of Oman (including the Musandam Peninsula/ Ru'us al-Jibal), Qatar, Yemen (including the island of Soqotra), Saudi Arabia, East Africa, India and Iran. Historical references pertaining to the village of Bidyah will also be examined in order to contextualise the mosque temporally and spatially. The concluding discussion will focus on providing an archaeological context for the site of Bidyah mosque.

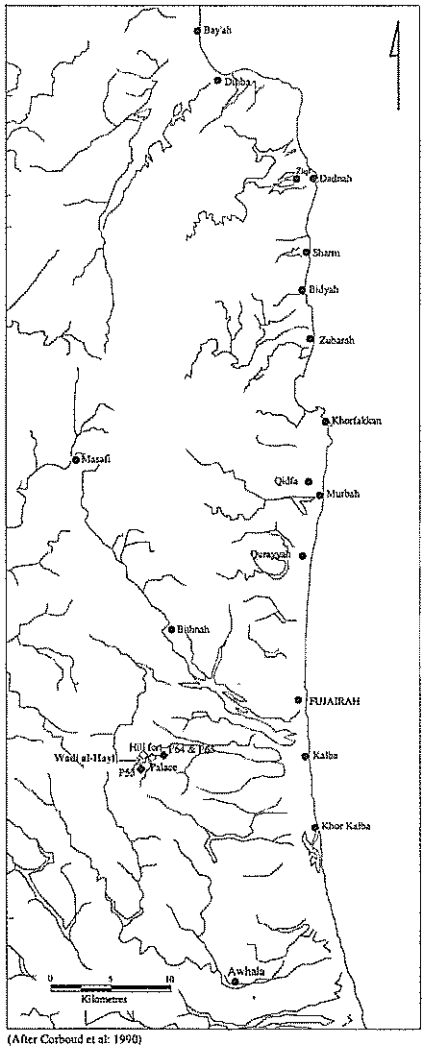

Fig. 1: East Coast Map (after Corboud et al 1990).

Description of Mosque[2]:

The mosque at Bidyah is square in plan (6.8x6.8m) but irregular

in shape (Fig. 3)[3]. The entrance is flanked by two large, protruding curved walls (door jambs) (Fig. 4). Exaggerated door jambs have been noted on defensive structures in Ras al-Khaimah (Towers 24, 33a and 36) (Kennet 1995: 28). Similarly, buttresses have also been recorded in various mosques, which are discussed in Table 4. These narrow sloping buttresses are built on either side of the doors, and taper into the wall at the top (Kennet 1995: 28). Buttresses built onto forts and towers are primarily used for defensive purposes, however, their appearance in mosque architecture is less obvious.

The mihrab, which extends out from the building by 1.3 metres, is square in shape and contains three levels or tiers. The roof (max height 5m) is decorated with four pointed domes constructed with three to four layers, which diminish in size towards the top of each dome. The walls (max wall height 3.5m) gently slope inwards and the entire structure is supported by a single central pillar (base width 1.8m) (Fig. 5). The interior contains a pointed niche (width 0.95m) for the mihrab and a stepped minbar (pulpit) (Fig. 6). The interior walls are covered with what appears to be gypsum plaster and the ceiling is decorated with simple geometric patterns only partially visible (Fig. 7). Several smaller niches are also present and these hold various objects such as candles and incense. The building is constructed with mountain rocks, coral and farush (beach rock),4 bound with a central matrix of saruj,5 which also contains charcoal fragments. The exterior of the mosque is covered by at least six layers of render with varying degrees of thickness. These include (from the interior to exterior) layer 1: saruj; layer 2: gypsum and wadi sand (?); layer 3: gypsum and wadi sand; layer 4: gypsum; layer 5: gypsum; layer 6: gypsum. The front of the mosque contains a walled courtyard, which was once covered with a sablah (sunshade) of bound date palm branches and wooden poles (Fig. 8). The courtyard wall was built with mountain rocks, coral, and mudbricks, bound with mud mortar, covered with a layer of mud plaster and eventually a layer of cement.

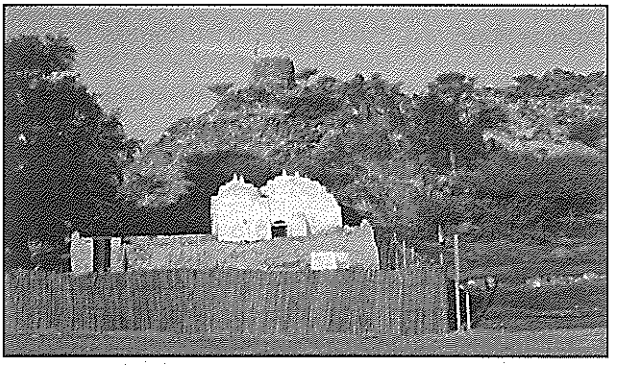

Fig. 2: Bidyah mosque & Tower I, prior to restoration.

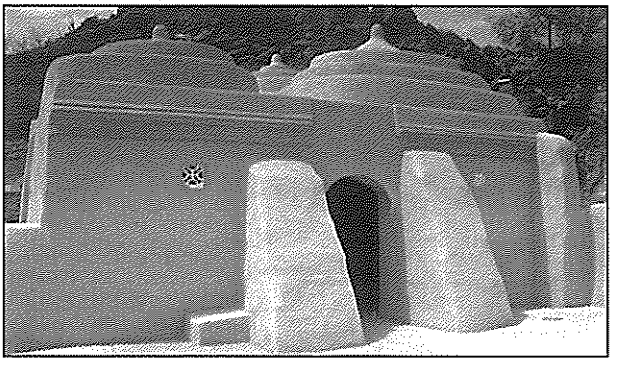

Fig. 4: Mosque entrance, post-restoration.

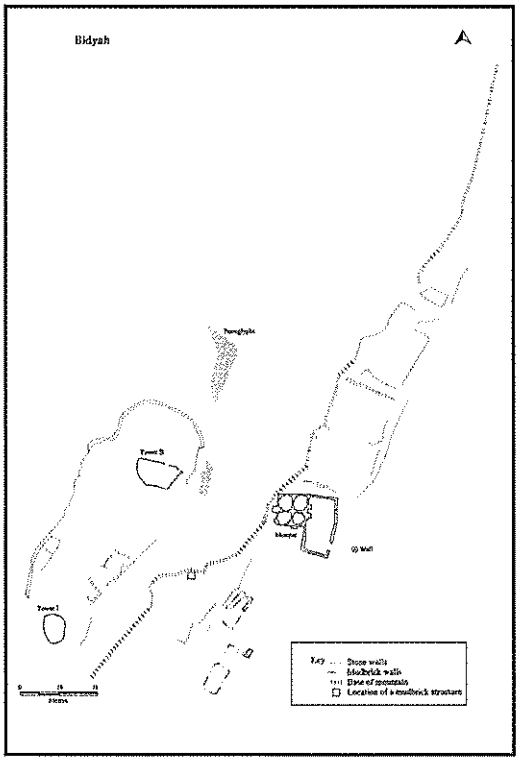

Fig. 3: Site plan.

Fig. 5: Central pillar.

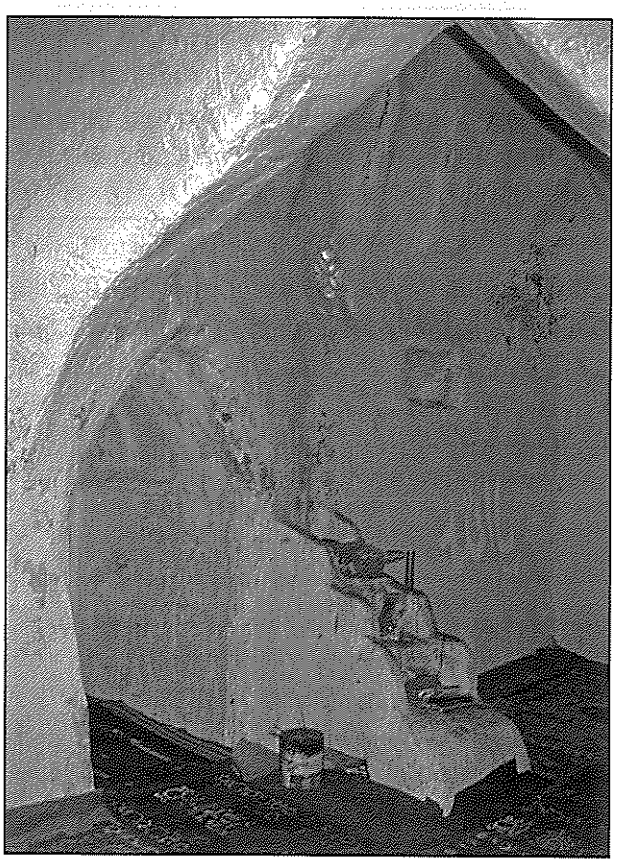

Fig. 6: Mihrab & Minbar.

Fig. 7: Interior decoration.

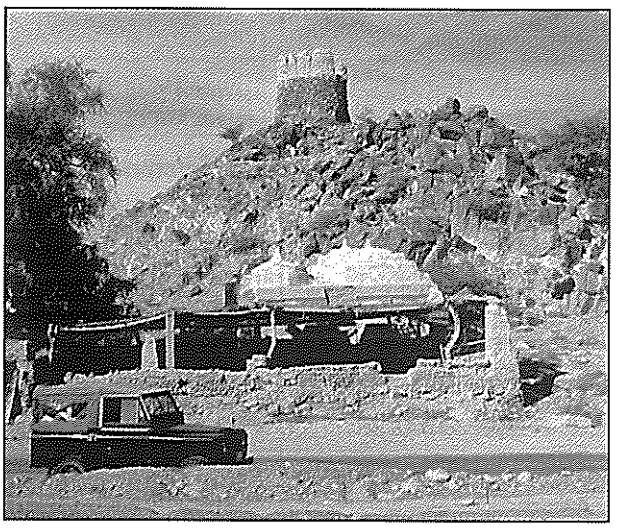

Fig. 8: Bidyah mosque, ca 1976 (photo: W.G. Van de Weg).

Table 1: Adjacent features (including village remains) (Fig. 3):6

Feature:	General description:
Tower I (Fig. 9).	Tower I is ovoid in shape and constructed with a base of large mountain rocks followed by several layers of smaller mountain rocks and farush, topped with mud bricks, bound together with a soft mud-based mortar which contains shells, small stones and vegetal matter. The circumference of this tower is 21.5m. The maximum height is 5m and the wall width varies between 70 and 80cm. The upper storey was built with date palm trunks and woven date palm fronds covered with a mud plaster. The entrance is located on the northeastern side and contains a plank of wood over the threshold. The entrance measures 60cm in width. Tower I contains 14, square-shaped firing slots.
Tower II (Fig. 10).	Tower II is irregular in shape and built with large mountain rocks and farush bound by mud-based mortar and rubble. The circumference of this tower is 30.5m. The maximum height is 4.5m and the wall width is 60cm. The eastern end of the tower contains a wall of mudbricks and mud mortar placed atop the mountain rocks. The mudbrick and mortar wall has eroded quite substantially and the defensive slots have collapsed. Two of these defensive slots are still visible. They are square in shape and are oriented in a downward direction. There are nine defensive slots within the stone constructed lower portion of the tower. The entrance to the tower is on the northern side and measures 70cm in width.
Tower III (Fig. 11).	Tower III is round but irregular in shape and constructed with a double wall of mountain rocks bound with mud-based mortar and gravel fill. The circumference of this tower is 16.6m. The maximum wall height is 1.4m and the wall width is 80cm. Substantial collapse is evident from the surrounding tumble. There is one remaining rectangular firing slot. There is no visible entrance.
Tower IV (Fig. 12).	Tower IV is rectilinear in shape and constructed in a similar manner to Tower III. This tower is located at a considerable distance north of towers I-III. The circumference of this tower measures 18m. The maximum wall height is 1.5m and the wall width varies between 50-60cm at the southern end and 70-80cm at the northern end. Substantial collapse is evident from the surrounding rubble. There is no visible entrance.
Rock built walls.	The site is covered with stone walls and alignments and various garden terraces. The stone built perimeter wall surrounding Tower II consists of a double wall and reaches a maximum height of 1.1m and a width of 90cm. Numerous stone alignments and perimeter walls are located between Towers I and II. Many of these have collapsed considerably and are difficult to define clearly. Stone walls and alignments to the north of the mosque: Various terrace and structural walls are present. These are constructed with mountain rocks in either a single or double row. They range from 50cm to 2m in height and 30cm in width for a single row to 60cm for a double row of rocks.

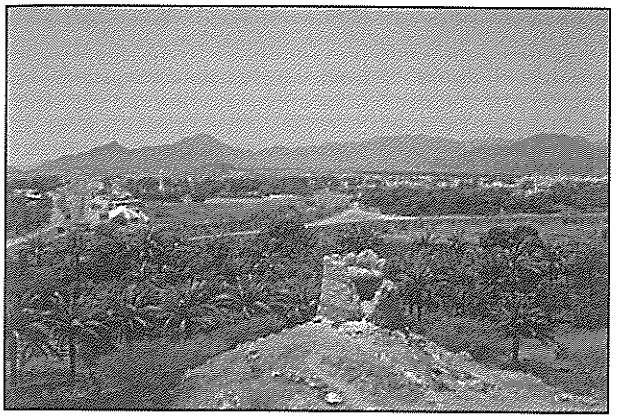

Fig. 9: Tower I.

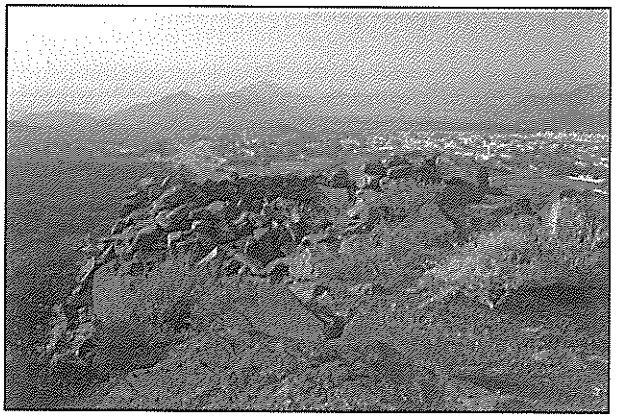

Fig. 11: Tower III.

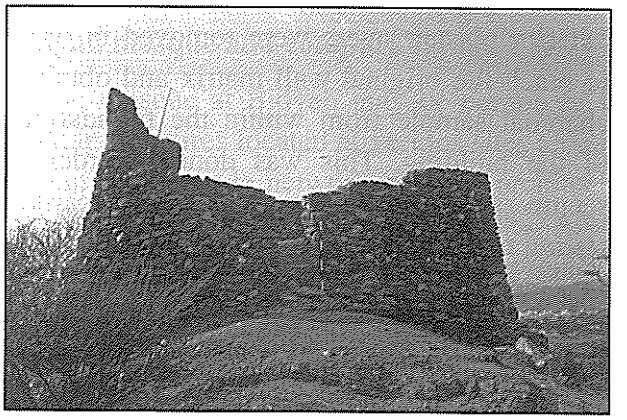

Fig. 10: Tower II.

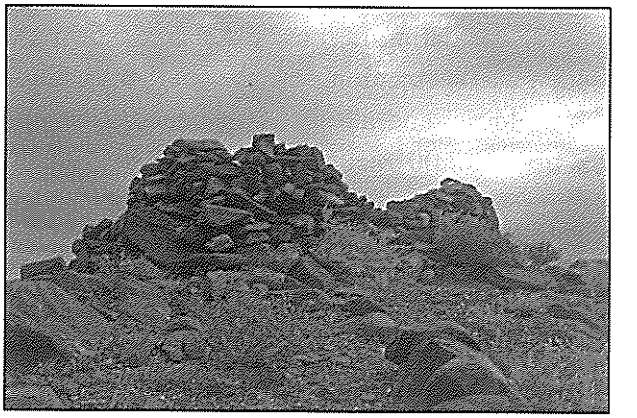

Fig. 12: Tower IV.

Mudbrick structures.	The remains of two partially complete, rectangular shaped mud brick structures are visible. Both were constructed with a stone and mud mortar foundation upon which a wall of mudbricks was placed. The structure closest to the mosque contains walls standing to a height of 2.2m (Fig. 13). The wall width measures: 60cm. This example contains two interior niches measuring: WxHxD: 50x40x30cm and 50x40x40cm. This building also contains a madbasa,7 which was revealed during restoration work. This was used for the production of date syrup (Ar., dibbs). Only the foundations of the second structure remained at the time of recording.
Burial cairns.	Four pre-Islamic burial cairns are located to the north of Tower III, whilst eight examples have been noted on the ridge near Tower IV.
Petroglyphs	Originally an unspecified number of petroglyphs were noted by a Swiss survey team (Corboud et al. 1991: 21). During the winter of 1995/96 the author recorded 11 petroglyphs at this site (Ziolkowski 1998: 54). Recent investigations by the author have noted a total of 17 petroglyphs at the site (Ziolkowski: in press).8

Excavation at the mosque[9]:

A limited amount of excavation was carried out at the site of the mosque in order to obtain a charcoal

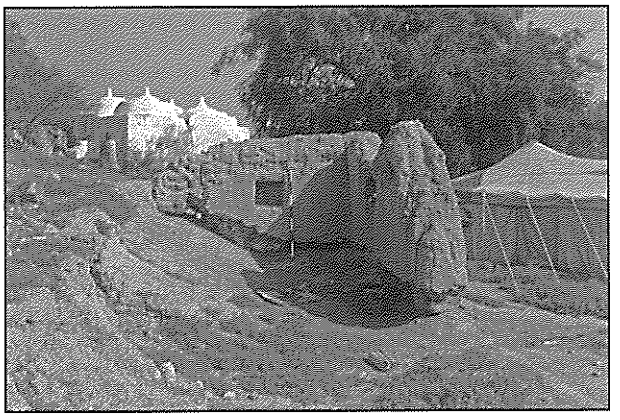

Fig. 13: Mudbrick building.

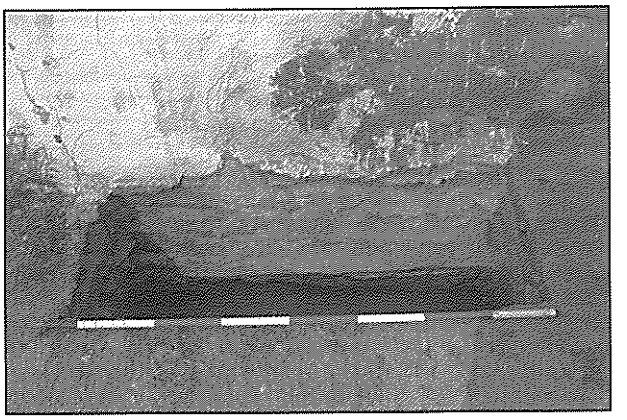

Fig. 14: Test trench, post-excavation.

sample for dating purposes. A 1.5 x 0.5 metre trench was set up alongside the southern wall of the building, and a temporary benchmark was set up at 10.00 metres (Fig. 14). The surface layer (9.62m) was photographed. The trench contained various fragments of plaster (9.37m), which had probably fallen from the mosque or had been deposited there during a re-plastering of the exterior surface. Various ceramic and porcelain finds were also recovered from the test trench, see Table 2.10.

Samples of each successive layer of exterior wall render/plaster were recovered, plus a sample from the original wall matrix. These exterior plaster layers were removed in order to reach the original wall matrix and obtain a charcoal sample from within the foundations of the building. This was done in order to secure a charcoal sample for radiocarbon testing to determine a construction date for the mosque. The original wall matrix was located at the foundation level of the mosque and small fragments of charcoal were present within the matrix (level 8.97m). Sample BM29 (NZA 8975) was sent to the Rafter Radiocarbon Laboratory in New Zealand for AMS dating. The radiocarbon results are as follows:

Table 2

Ceramic/ porcelain11:	Level:	Description:
P9	9.20m	Porcelain body sherd. White; no visible decoration. European? Circa 19th to 20th centuries (Ziolkowski 2002:I: 237).
FWIII-A	9.15m	Fine ware (orange-red). Body sherd. No visible decoration. Date unclear.
RCWII-A	9.15m	Red coarse ware. Body sherd. No visible decoration. Date unclear.
GWIII-A	9.07m	Glazed ware (buff coloured fabric). Two rim sherds. Underglazed painted ware. Late Islamic12.
P27	9.02m	Porcelain body sherd. White plain interior. Exterior: white with a fragment of dark grey coloured decoration. Asian origin suggested. Date unclear13.

Table 3

Lab code:	Sample No.:	Radiocarbon Age:	2 sqqigma range:
NZA 8975	BM 29	329 ± 56 BP	CAL REF: 1450-1670 AD (95%) 1480-1650 AD (68%)
(Bard et al 1993: 191-9; Kromer & Becker 1993: 125-35; Linick et al 1986: 943-53; Pearson & Stuiver 1993: 25-33; Stuiver & Pearson 1993: 1-23).			

Based on the radiocarbon evidence, the most likely date for the construction of the mosque at Bidyah falls within a 220 year range, that is, from the middle of the fifteenth century AD to the second half of the seventeenth century AD.

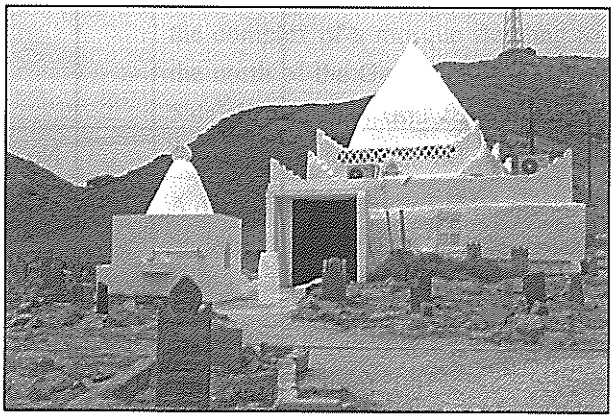

Fig. 15: Mirbat, Dhofar Province, Oman.

Bidyah mosque and comparable sites[14]:

The mosque at Bidyah may be compared with similar structures located at various sites along the Indian Ocean trade network. Several architectural elements may be paralleled from the Arabian Gulf to the East African coast and beyond. The various buildings include mosques, tombs, and water cisterns. The two main architectural features which these buildings have in common are the use of domes and a fluidity of line, as is noted in the mosque at Bidyah (Ziolkowski 2002:I: 172). The comparative material will be reviewed in Table 4.

Table 4:

Site & Location:	Building Type:	Chronology:	Comparable Features:
The mosque over the tomb of Sheikh Muhammed bin 'Ali al-Alawi in Mirbat, Dhofar Province (Costa 1985: 209; 2001: 134 & Figure 195b; Costa & Kite 1985: Plate 36 Harrington 1997: 45).	Mosque / shrine. Plus a domed cistern. (Fig. 15)	According to Costa the inscription on the tombstone of Sheikh Muhammed bin 'Ali notes the date of his death as 556 AH/1160-1 AD (Costa 2001: 134).	The mosque at Mirbat contains two large pointed domes and is also white washed. According to Costa pointed conical domes are common in South Arabia from Shabwa to al-Shihr (Costa 2001: 134). The overall effect is paralleled by the mosque at Bidyah. The fluidity of the lines and shapes are similar. The stepped and layered effect is also comparable. Beside the tomb/ mosque is a small domed cistern, which consists of a square base with a pointed dome and central protrusion.

Salalah, Oman. Located in the Bin 'Afif cemetery (Costa 2001: 134-5 & Figure 196; Costa & Kite 1985: 152).	Shrine / mosque.15	No date given.	The overall effect of this domed shrine is comparable to that of the mosque at Bidyah. The fluidity of the lines and shapes are similar. The stepped and layered effect is also comparable. The top of the dome also contains a central protrusion. For an illustration of this building see Hill & Hill (1977), Costa (2001: Figure 196) and Costa & Kite (1985: Plate 35a). This shrine is basically a domed building on a square plan topped with stepped decorative elements (Costa & Kite 1985: 152).
Bilad Bani Bu 'Ali, Oman (Costa 2001: 187 & Figures 32 & 274-281).	Mosque.	No date given.16	The domes parallel those at Bidyah (Costa 2001: 187), they are stepped (tiered) in design, and contain molded central protrusions. The overall effect of this mosque is strikingly similar to that of the mosque at Bidyah. The mosque of Bilad Bani Bu 'Ali also contains external buttresses along one of its walls which are comparable to the exaggerated door jambs on the mosque at Bidyah (Fig. 16). The mosque at Bilad Bani Bu 'Ali was constructed with similar materials and reveals a comparable fluidity of line and shape with the mosque at Bidyah.
The mosque of al-Husn at Bilad Bani Bu 'Ali, Oman (Costa 2001: 188 & Figures 285, 286).	Mosque.	No date given.	This mosque is situated within a large fortified residence (Costa 2001: 188). The mosque contains two pointed and tiered domes which are comparable to the mosque at Bidyah.
The mosque of Bilad Bani Bu Hasan, Oman (Costa 2001: 188 & Figures 287, 288a,b).	Mosque.	No date given.	This domed mosque is comparable to the mosque at Bilad Bani Bu 'Ali (Costa 2001: 188). The domes on this mosque are also comparable to those at Bidyah.

Mirbat, Oman (Costa & Kite 1985: 139).	Mosque and house.	During the 10th century AD Mirbat existed as a port under the Minjawi family and it benefited from the growing Red Sea and East African and Southern Arabian trade (Costa & Kite 1985: 141).	For a drawing of the mosque see Costa & Kite (1985: Figure 9). The mosque at Mirbat does not contain any domes, however, the fluidity and molded effect of this structure is comparable to the mosque at Bidyah. This type of architecture is also comparable with African architectural design.
Salalah, Oman (Costa & Kite 1985: 149).	Cistern.	No date given.	This domed cistern is located inside the complex of a mosque standing to the north of the Great Maydan of the Salalah quarter (Costa & Kite 1985: Plate 34a).
Zawyiah, northern Salalah, Oman (Costa & Kite 1985: Plates 34b & c).	Cistern.	No date given.	A domed cistern and a public meeting building (Costa & Kite 1985: 152: Plates 34b & c). The cistern has a pointed dome with a central protrusion. It appears to have been built with mountain rocks, mortar and plaster. The overall effect is reminiscent of the mosque at Bidyah.
Cemetery of Mudhay, Wadi Aybut, Salalah, Oman (Costa & Kite 1985: 153).	Shrine.	No date given.	In the cemetery of Mudhay there are two shrines covered with domes, one of these is illustrated in Costa & Kite (1985: Plate 35b). It consists of a square shaped building and a domed superstructure. It was built with mountain rocks and plaster. The top of the dome contains a central protrusion.
The great mosque of the Sa'al Quarter, Nizwa, Oman (Costa 2001: 58-9; Figures 16, 17, 81 & 82).	Mosque.	The date on the mihrab inscription is given as 650 AH/1252 AD (Costa 2001: 58). However, the mosque could either be older or contemporary in date with the mihrab (Costa 2001: 59).	This mosque contains exaggerated door jambs on the front exterior wall (two on either side of the entrance) (See Costa 2001: Figure 81). This feature is comparable to the exaggerated door jambs on the mosque at Bidyah.

Mosque of al-Sunaysil at Sur, Oman (Costa 2001: 184 & Figures 268, 269 & 272).	Mosque.	No date given.	This mosque contains six rounded domes with points, paralleled by the mosque at Bidyah. It was built with coral stone and heavily coated with render (Costa 2001: 184), comparable to Bidyah.
Mosque of Sayyid Bin 'Ali at al-Fulayj, Oman (Costa 2001: 188 & Figure 284).	Mosque.	No date given.	This mosque contains several pointed and tiered domes, and an external wall buttress which are paralleled by the mosque at Bidyah. The overall construction and design are comparable.
Sheikh Masud Shrine, Northern Musandam Coast (Costa 1991: 235; Costa 2001: 136 & Figures 34, 197 & 198).	Shrine.17	No date given.	For an illustration of this building see Costa (1991: 235; 2001: Figures 34, 197 & 198). The shrine is square in shape and contains a dome with central protrusion. The dome shape is tiered and is similar to the mosque at Bidyah.
Bukha, Musandam Peninsula(Costa1994:VII: Plate 7).	Cistern within the hill fort at Bukha (Costa 1991: 107).18	No date given.	For an illustration of the cistern at Bukha, see Costa (1991: 107; 1994:VII: Plate 7: 289). This cistern is beehive shaped with an arched and pointed entrance. It appears to have been built with mountain rocks, mortar and plaster. The shape and treatment of this cistern is comparable to the mosque at Bidyah.
The old mosque of al-Qabib, Doha, Qatar (Costa 2001: 187).	Mosque.	No date given.	This mosque (which was lost due to modern development) once contained 44 domes, and is comparable to the mosques at Bilad Bani Bu 'Ali and Bidyah (Costa 2001: 187).19
The mosque of al-Janad, Yemen (Costa 1994:III: 43-67).	Mosque.	No date given.	The roofing over the ablution rooms and basins consists of a series of domes (Costa 1994:III: Plate 16). These domes are irregular in shape and contain a central pointed protrusion.

The al-Farawi mosque in Yemen (Vassallo 1994: 209).	Mosque.	1412 AD (Vassallo 1994: 211).	This mosque was built with roughly cut stones set in gypsum mortar and covered with a thick white plaster (Vassallo 1994: 209-210). The mosque contains 9 domes and bays with pointed arches (Vassallo 1994: 210-211). The domes are pointed and there is an element of stepped decoration on the exterior of the mosque.
Masjid Kelliya, Yemen (de Maigret et al 1984: Figure 33).	Mosque.	No date given.	This mosque is similar in overall shape and design to the mosque at Bidyah. The central entrance to the mosque also appears to have exaggerated door jambs.
Mosque of Talhah al-Hattar, Zabid, Yemen (Sadek 1998: 241 & Figure 4).	Mosque.	Rasulid period (ca 1229-1454) (Sadek 1998: 240).	This mosque is similar in design to the mosque at Bidyah.
Huwayrib, near Aden, Yemen (Doe 1971: Plate XX; Bandyopadhyay & Sibley 2003: Figure 7:c).	Tomb of a local saint (Bandyopadhyay & Sibley 2003: 108).	No date given.	This tomb is comparable in its basic design and fluidity of line.
Qadub Mosque, Soqotra (Doe 1992: Plate 14).	Mosque.	No date given.	This mosque was constructed with similar materials to the mosque at Bidyah. It also has a comparable molded and fluid appearance. This building is also comparable to African architectural forms.

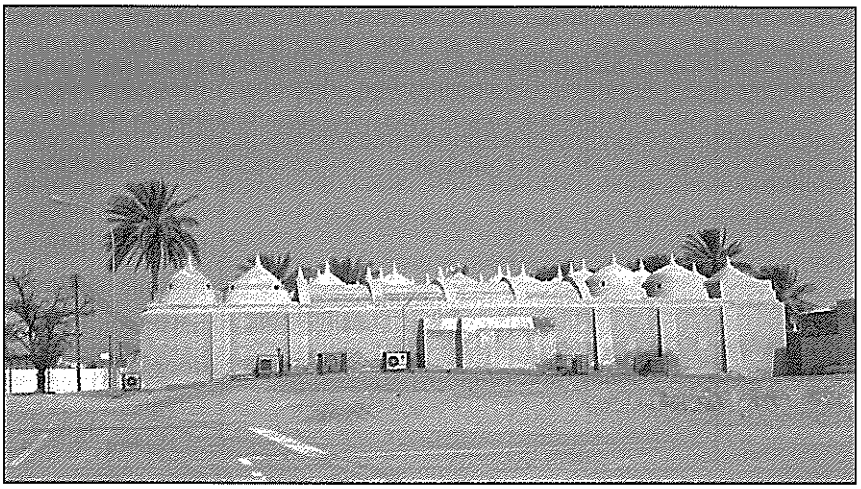

Fig. 16: Bilad Bani Bu 'Ali, Oman.

Hadiboh, Soqotra (Doe 1992: Plate 19).	Mosque.	The Hadiboh mosque (Plate 19) is said to have been built by the middle of the 17th century or later (Doe 1992: 59).	A similar mosque is located at the port of Qalansiyyah, at the western end of the island (Doe 1992: 13). Both mosques were constructed with masonry or coral roughly laid, bound with mud and lime plastered (Doe 1992: 13). Doe has described the mosques as having a 'plastic' form (Doe 1992: 13), which is comparable to the mosque at Bidyah. Both mosques in Soqotra contain a large dome covering the main court (Doe 1992: 13). The mosque at Hadiboh also contains stepped decorative elements which are paralleled by the mosque at Bidyah.
Southwestern Saudi Arabia.	Mosques.	No dates given.	The mosque of Mohammed al-Mansur, Dahdha al-Suqur, Najran; the Mosque at Dahdha al-Suqur, Najran; and the al-Qahaba Mosque on Jebel Beni Malik (King 1994: 26-27), all have a similar fluidity of line and molded form. They contain parallels with mosques in the coastal towns of Yemen (King 1994: 25). They are also comparable in effect to the mosque at Bidyah.
The mosque and shrine of Sheikh Hussein in Ethiopia (Beckwith et al 1990: 175).	Tomb/ mosque.	Sheikh Hussein was a 13th century mystic prophet (Beckwith et al 1990: 181). He was canonised as a Sufi saint (Beckwith et al 1990: 178). The construction date for the tomb/mosque is unclear.	The tomb of Sheikh Hussein is a pilgrimage site, and devotees seek to draw miracles from the walls of his tomb (Beckwith et al 1990: 179-180). The tomb is said to be enshrined with 'baraka' (Beckwith et al 1990: 179-180).20 The tomb and mosque are illustrated in Beckwith et al (1990: 184-5). The tomb/mosque has one dome with a central protrusion and various tiered features. The plastic nature of the tiered dome is comparable to the mosque at Bidyah. The entrance to the mosque/tomb has similar exaggerated door jambs. The overall fluidity in the architecture is strikingly similar to that of the mosque at Bidyah.

Muslim tomb, Somalia. For an illustration see: Insoll 2003: Figure 2.17.	Tomb.	No date given.	This small tomb contains a singular, pointed dome, atop a small square structure. The overall design is reminiscent of Bidyah mosque.
The Great Mosque, Kilwa Island, East Africa.	Mosque.	The mosque was originally built in the 11th century (Chittick 1974:I: 61-99; Sutton 2001: 12), but had an arched and domed extension added to it in the early 14th century (Sutton 2001: 24; Insoll 2003: 184)21. The extensions noted above, collapsed in the 14th century and were rebuilt in the early 15th century (Sutton 2001: 26-7). The mosque remained in use until the 19th century (Sutton 2001: 28)..	The Great Mosque at Kilwa contains alternating domed and barrel-vaulted chambers supported by columns (Petersen 1996: 74). This mosque also contains an exaggerated door jamb similar to those at Bidyah. For an illustration of the Great Mosque at Kilwa, see Lewcock (1978: 279; Sutton 2001: Figure 3; Wynne-Jones 2007: Figure 2).
The small domed mosque, Kilwa Island, East Africa (Horton 1994: 206).	Mosque.	Chittick has dated this structure to the second quarter of the 15th century (Chittick 1974:I: 161)22.	For an illustration of the small domed mosque at Kilwa, see Chittick (1974:I: Plate 50a; Sutton 2001: Figs 19 & 20)23. The western wall of this mosque contains exaggerated door jambs. The tapering shape of the walls and the overall effect is similar to the mosque at Bidyah.
Tomb at Malindi Cemetery adjacent to Malindi Mosque, Kilwa Island, East Africa (Chittick 1974:I: Plate 53b).	Tomb.	According to Chittick, the tomb is of an 18th or early 19th century type (Chittick 1974:I: 171). Sutton has dated the inscription from this tomb to the 18th century (Sutton 2001: 30).	The tomb is illustrated in Chittick (1974:I: Plate 53b). It was roofed with two domes (Chittick 1974:I: 171). According to Chittick, it is, "in imitation of the small domed mosque" on Kilwa (1974:I: 171).

The comparative data in Table 4 reveals distinct similarities in architectural features and construction between mosques, shrines, tombs, and water cisterns in Qatar, Oman (including the Musandam Peninsula), Yemen (including the island of Soqotra), Southwestern Saudi Arabia, Ethiopia and East Africa. The many architectural similarities between these buildings and the mosque at Bidyah are noteworthy. The architectural comparisons to be made are reflected in the general building designs and overall shapes which delineate these structures. The surface rendering and fluidity of line on these buildings reveals a plasticity of form resulting in a molded effect. Similar features such as the use of pointed or stepped domes,24 and exaggerated door jambs are present amongst the examples listed in Table 4. The various construction techniques and materials are also comparable, for example, the use of mountain rocks, coral, farush, and varying types of mortar and plaster. Unfortunately, a clear chronological summary of the buildings listed in Table 4 is difficult to establish since many of the sites are yet to be dated. The radiocarbon date of the mosque at Bidyah of 1450-1670 AD places this building midway between the various examples noted in Table 4, which range in date from the circa 11th to 19th centuries (Ziolkowski 2002:I: 176-178).

Architectural comparisons between the mosque at Bidyah and similar structures in Yemen have been discussed by various authors. Unwin, Cantacuzino and Browne have all noted that the architecture of the mosque at Bidyah is quite possibly Yemeni in origin (Cantacuzino & Browne 1977: 345; Unwin 1982: 7). With regard to Bidyah mosque, Tomkinson has stated that the "domes are of vaguely Yemeni design" (Tomkinson 1975: 185). King has compared the architectural details of the mosque at Bidyah with Yemeni (especially Red Sea coastal) examples and Indian architecture (King 1997: 92). Furthermore, King and Lewcock have commented on various general architectural parallels between Oman and East Africa (King & Lewcock 1978: 209). According to Lewcock, East African mosques exhibit close parallels with early mosques in Southern Arabia (Lewcock 1976: 15; 1978: 278). During the 12th and 13th centuries there was a close relationship between Aden and the East African ports and many architectural elements were adopted (Lewcock 1978: 278). The architecture of Yemen has in turn, been influenced by various regions, including Abysinnia, Egypt, Iran, India, Arabia, and Turkey (Kuban 1994: 98).

In the 11th century, the Seljuk Turks introduced new architectural forms based specifically on the dome and the iwan (Petersen 1996: 197). The dome had been used in the Sasanian period and also in mosque architecture but it had not been incorporated into the basic plan of the mosque (Petersen 1996: 197). The dome was probably introduced into Yemeni architecture during the Ayyubid period (1174-1215 AD) (Bosworth 1967: 60; 1996: 73; Finster 1988: 254 & 260).

The majority of remaining mosques in East Africa from the 12th century AD onwards were constructed with «coral rag», and either mud or lime mortar (Pouwels 1987: 23).25 The introduction of the use of domes and barrel vaults in East Africa is dated to the late 13th century and is noted at Kilwa and Mogadishu (Horton 1994: 200)26, after which domes were used in other mosques, for example, the mosques of Mwana, Kongo, Chwaka, the small domed mosque at Kilwa (Horton 1994: 200), the Ungwana mosque (late 15th century) (Garlake 1966: 37-39), and the Jangwani mosque (15th century) (Sutton 2001: 31-32). Garlake has noted the similarities between the mosques in East Africa and the architecture of the Seljuks

and the Indians (Garlake 1966: 114-115).

Indian architectural influences are noted in the mosque architecture of East Africa, especially in the alterations to the Great Mosque at Kilwa (Lewcock 1976: 15; 1978: 278; Serageldin 1994: 74).27 The developments in dome and vault design, and architectural decoration seen on the East African coast may be seen in the Indian mosques of the 14th century (Lewcock 1976: 15; 1978: 278). Examples include Indian mosques of the Tughluq period, such as Nizam ad-Din's Khan and the tomb of Ghiyath ad-Din Tughluq, both at Delhi (Lewcock 1976: 15; 1978: 278). However, it should be noted that Indian architecture was also influenced by earlier architectural styles in Iran (Lewcock 1976: 15; 1978: 278; Merklinger 1981: 71), notably from the area of Kirman (Merklinger 1981: 71). These influences may be noted in the Masjid-i Jami in Isfahan which was begun in the 8th century and acquired its final form in the 17th century (O'Kane 1994: 130).

Therefore the design of Bidyah mosque may be contextualised architecturally within the wider framework of the Indian Ocean trade network. The architectural features noted on the mosque at Bidyah are directly comparable to various structures located in Qatar, Sultanate of Oman (including the Musandam Peninsula), Yemen (including the island of Soqotra), Southwestern Saudi Arabia, Ethiopia and the East African coast. Architecturally, the creators of these structures were probably influenced by a wider series of interconnections extending throughout the Islamicised regions of Africa, Western Asia and South Asia. It is plausible that building features and ideas were appropriated within and from various regions, which subsequently led to an architectural fusion.28 Chronologically, the construction date for Bidyah mosque (1450-1670 AD) correlates with the period of late Hormuzi and Portuguese-controlled trade in the Gulf. The notion that ideas and/or people (including crafts-people) were traveling along this vast interconnecting network is reflected in the material culture. Architecturally, the design of the mosque at Bidyah should be contextualised within this period of intense trade activity dating from the 15th to 17th centuries AD (Ziolkowski 2002:I: 181).29

Historical references to Bidyah:

There is no mention of a small domed mosque in the Portuguese historical sources encountered by the author.30 The Portuguese description and illustration of Bidyah includes the Portuguese fort (Site 46), 31 the associated settlement, and local environment. The Portuguese describe Bidyah/Libedia/Sibedia as, a fortress, located a league from Corfacam (Khor Fakkan) by the northern coast (Bocarro/de Resende 1646: folio 144-5). In August of 1623 the village had been taken by Mateus de Seabra under orders from Ruy Freyre de Andrade (Bocarro/de Resende 1646: folio 144-5). The Portuguese fort of de Libedia (Bidyah) was constructed in 1623 (Bocarro/de Resende 1646: folio 144-5).32 According to Bocarro, the population at Bidyah was estimated at 200, living in houses covered with coconut and palm tree leaves (Bocarro/de Resende 1646: folio 144-5). The captain of the Portuguese fort at Bidyah was a lascarin, with a force of twenty lascarins to keep watch, who were all paid by the Portuguese (Bocarro/de Resende 1646: folio 144-5)33. The Portuguese illustration (1646: folio 144) of Bidyah depicts an inlet towards the northern end of the fort at the front. An inlet from the coast through the date palm gardens is still present at Bidyah today. This inlet runs under the main coastal road and into a substantial wadi located at the northern end of the site of the fort (Site 46). This inlet may have been larger and more prominent

in the 17th century, and has since silted up to a certain degree (Ziolkowski 2002:I: 302-3). The site of Bidyah mosque, if illustrated, would be situated nearby, to the north of this inlet.

The Portuguese decline in the Arabian Gulf is connected to the loss of the strategic stronghold Hormuz Island and the death of their Captain-Major Ruy Freyre de Andrade.34 With the rise of the Ya'ariba Dynasty in Oman and the final ousting of the Portuguese from Arabian coasts, the Portuguese lost control of their fortresses.35 The final historical document outlining the Portuguese strongholds in Arabia is listed by Cortesão as being produced circa 1650.36 It is intriguing that there is no mention of the small domed mosque at Bidyah considering the detail outlined by the Portuguese in their historical illustrations and descriptions. From such an omission, one may propose that the mosque at Bidyah (Site 45) was established during the post-Portuguese period in Arabia, that is, after 1650.

In 1666 the Dutch ship the Meerkat was sent from Bandar Abbas to explore the coast of Oman (Floor 1982: 297; Slot 1993: 176-177). The Dutch reference to Bidyah contains a brief description of the coastal settlement (Site 44), which is located directly along the shoreline. The Dutch account states, "Lebdia [Bidyah] is a place with about 200 small houses which are all built with branches of date trees and is situated close to the beach" (Floor 1982: 303). There is no mention of an inland settlement or domed mosque. Floor has noted that the Meerkat was, «perfectly fit for making a trip along the Arab littoral of the Gulf,» which was in fact the ship's mission (Floor 1982: 297). The coastal village and inland settlement are divided by a dense coverage of date palm gardens. Therefore, if the Meerkat was limited to a coastal reconnaissance, it may not have sighted a small, low lying inland village. According to the Meerkat's log:

«Behind these houses there is a beautiful valley where one finds a great many date trees and some fig trees. Under these (trees) there are several wells, one of which is situated at a pistol shot's distance from the beach, from which well one may get very good and fresh water. In the said valley there are also growing some melons, water melons, and onions, but very few. Behind this valley there is nothing but stony mountains so that not much trade can be carried on here» (Floor 1982: 303).

Concluding Discussion:

In summary, the mosque at Bidyah was constructed with the use of locally sourced building materials. The use of saruj as mortar and/or render is a common feature on many historical buildings throughout the East Coast of the U.A.E. and in the Sultanate of Oman. The associated towers and remaining structures at the site provide insight into the settlement surrounding the mosque. Unfortunately much of this interior village has been lost over the years due to natural deterioration of building materials such as mudbrick and the rapid pace of modern development.

Spatially, the small domed mosque at Bidyah (Site 45) is reflective of a shared architectural tradition based on contacts developed through the various trading centres within the Indian Ocean trade network. Architecturally, the mosque at Bidyah is directly comparable with structures in Qatar, Sultanate of Oman (including the Musandam Peninsula), Yemen (including Soqotra Isalnd), Southwest Saudi Arabia, Ethiopia and East Africa. Chronologically, Bidyah mosque should be contextualised within the period which coincides with late Hormuzi and Portuguese-controlled trade, that is, circa the 15th to 17th centuries.

Based on the radiocarbon evidence the mosque at Bidyah may be contextualised temporally

between 1450 and 1670 AD.37 This period is reflected by intense trading activities within the Indian Ocean. Historically, the omission of this domed mosque from the Portuguese chronicles detailing their assets within the Indian Ocean is puzzling. It leads one to theorise that the mosque postdates the period of Portuguese presence along this coast, circa post 1650 AD. It is also highly probable that Bidyah mosque was not sighted by the Dutch coastal reconnaissance of 1666. Therefore, the conclusion drawn from the archaeological and historical evidence leads one to propose a construction date between circa 1650 and 1670 AD.

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ملخص: تعنى هذه الدراسة بموقع مسجد البديعة في إمارة الفجيرة في الامارات العربية المتحدة، إذ إن المسجد يحتل منزلة مهمة بالنسبة لتاريخ الامارات، وكذلك فيما يتعلق بالسياحة المعاصرة. وتدرس الورقة المسجد في ضوء الادلة الآثارية التاريخية بما فيها المكتشفات المسحية (البنى المجاورة والمواد المعثور عليها)، والحفريات، والدليل الكربواشعاعي، والمقارنة المعمارية، والمصادر التاريخية المتعلقة بالمنطقة، مشفوعة بدراسة المسجد ومواد بنائه. والهدف العام من الدراسة هو تحديد سياق وجود المسجد الزمني والمكاني.

Notes

(1) The bulk of material included in this paper forms a portion of the authors' Ph.D thesis. Bidyah mosque was one of the coastal survey sites studied by the author in substantial detail. The survey of Fujairah's coast was conducted by the author during the winter of 1997/98 over a period of three months. The survey area was restricted to the coastal plain due to limitations on time and resources. The mountains along Fujairah's coastline were used as a natural barrier to delineate the survey zone. Sites were recorded from Dibba in the north to Fujairah in the south. The main objective of the survey was to develop a more detailed understanding of the historical archaeology of Fujairah's coast from the eve of Islam until the early twentieth century (Ziolkowski 2002:I: 123). For a detailed description of Site 44, see Ziolkowski 2002:I: 148-150. The author published an earlier, shorter version of this paper in the magazine, Fujairah Observer (2003 Volume 3/Issue 2: 30-39). The site plan was produced by the author with help in the field from Ms Melissa Riley and Ms Diane Barker. The author also wishes to acknowledge the help of Dr Stephanie Wynne-Jones, who kindly supplied the author with a number of relevant articles. All photographs are by the author except Figure 8. Figure 8 is reproduced here with kind permission from W.G. (Minie/Muna) Van de Weg, Fujairah Maternity Hospital.

During the 1997/98 survey the author was specifically asked by the directorate of Fujairah Museum to conduct a detailed study of Bidyah Mosque. The author acknowledges the support of Fujairah Museum.

The author is very grateful to HH Sheikh Hamed bin Mohammed al-Sharqi (Ruler of Fujairah, Member of UAE Supreme Council) for his continuing support and encouragement.

The author recorded 15 old/abandoned mosques along the coast of Fujairah during the 1997/98 survey. These buildings were included in an unpublished survey report lodged with the Fujairah Museum and in the author's Ph.D. The historical house of Sheikh Abdullah bin Hamdan al-Sharqi at Wadi al-Hayl, Fujairah and the associated buildings (including the village mosque) were studied in detail during the 1997/98 season by M Riley, University of Sydney, Australia. This contradicts Willems assertion that only 10 mosques have been studied in Fujairah at the time of his 2000 article (Willems 2000: 169).

(2) The majority of information in this section has been extrapolated from: Ziolkowski 2002:I: 169-170.

(3) Bidyah mosque site plan (Ziolkowski 2002:II: Appendix E: 79).

(4) Farush is a coral-like conglomerate comprised of shells, coral and other detritus. It is a type of incipient limestone which forms very quickly in the shallow tidal waters of the Arabian Gulf (Bibby 1969: 324 & 356).

(5) An ethnographic study within the community at Rahab in the Wadi Bani 'Umar al-Gharbi in Oman by C. George (George 1987: 218-22) has highlighted some interesting features regarding traditional village life, including information on the manufacture of 'saruj'. Saruj has been used on various buildings throughout Fujairah, notably at Site 74 (Fujairah fort & village). The process involves the crushing and sieving of clods of reddish soil. The soil is sieved by throwing the crushed soil against the sides of a pyramid structure formed with palm fronds (minshib). This fine soil is then mixed with water, kneaded, shaped into cakes and placed in the sun to dry for between 2-6 days. The dried soil is then taken to a flat place above the wadi bed and fired for 2 days in a kiln. These fired cakes are then crushed and sieved to obtain a fine granular material, which is then mixed with water, kneaded, and then applied to a structure. The local men who were interviewed by George acknowledged that the saruj was stronger and more water-tight than the concrete used today. However, the manufacture of saruj is a difficult and labour intensive process, and the technique has mainly been forgotten (George 1987: 221-2).

The Portuguese traveller, Pedro Teixeira described the making of plaster and saruj on the island of Hormuz in the late 16th century. According to Teixeira, «charú....is made of the oldest and best cured dung collected from the middens. They take the upper stuff off this, and make cakes of it, and dry them in the sun. When they are quite dry, they make a mound of them, and burn them for a while, and keep the remaining ash. Of this they take a certain quantity, and lay it on a hard clean place; and around it stand seven or eight Arabs, men of that trade, every one with a staff in hand, who set to work to thresh it, striking it all together.» He also noted that the saruj manufactured on Hormuz is, «especially proof against water, and resists it for many years» (Teixeira 1902: 167).

(6) The majority of information in this section has been extrapolated from: Ziolkowski 2002:I: 150-151 & 2002:II: Appendix D: 55-57. The exact chronology of this site and its various features are unclear. However, it is obvious from historical photographs and local knowledge that the old interior village of Bidyah was located at this site whilst the coastal settlement was situated along the beach (Site 44). The area around the small domed mosque once contained a number of mudbrick structures now lost due to collapse and erosion. Please note that much of the site has been 'restored' since these descriptions were recorded.

(7) The processing of dates requires that the baskets of dates be piled up at the upper end of the madbasa, and their own weight gradually presses out the juice from the fruit, which then runs down the channels to a tank (Højlund 1990: 77).

(8) Unfortunately, four petroglyphs (P3, P4, P5 & P16) have been damaged and removed from their original locations. This damaged was caused by restoration work undertaken at the site.

(9) The majority of information in this section has been extrapolated from: Ziolkowski 2002:I: 170-171.

(10) A number of sherds were also recovered from the surface of the site at Bidyah mosque. These include red coarse ware fragments ranging in date from circa 17th to 20th centuries (Ziolkowski 2002:I: 241-3 & 245-6). A fine ware sherd, orange to red in colour, with incised decoration (Ziolkowski 2002:I: 240-1). Glazed ware sherds of Khunj/Bahla and 'underglazed painted ware', late Islamic in date (Ziolkowski 2002:I: 247 & 251). Porcelain fragments of European origin and of relatively modern date, circa 19th to 20th centuries (Ziolkowski 2002:I: 237-238). One base sherd labelled 'GWII-G', appears to be an example of Southeast Asian celadon. The underside of the base contains a chocolate coloured wash. The vessel walls are pale green in colour and fluted/rippled. It is comparable with material from Vietnam and Thailand, and may be dated between the 14th and 16th centuries (Ziolkowski 2002:I: 249-250).

(11) The examples recovered from the test trench were small and fragmentary. Definitive dating and comparisons proved quite difficult.

(12) These sherds are comparable to material dated from the 16th/17th centuries onwards.

(13) P27 measures 24x12mm (LxW) and is 4mm thick. A direct comparison is difficult due to the fragmented state of the sherd and the decoration. However, the author believes it is comparable to Chinese material dated from the 17th century

onwards.

(14) The majority of information in this section has been extrapolated from: Ziolkowski 2002:I: 172-181.

(15) Costa has noted that «this type of shrine is very common in the Hadramawt,» Yemen (Costa 2001:134).

(16) Damluji has noted that the mosque is believed to date back 400 years (Damluji 1998: 367). This is based on an Omani document from the Ministry of Justice, Awqaf and Islamic Affairs, Muscat: 252.

(17) The shrine is located beside a funerary mosque in a secluded bay to the east of Ra'as Sheikh Ma'sud, a promontory which separates the towns of Khasab and Bukha (Costa 2001: 136).

(18) Comparable water cisterns have been located on the southern Iranian coast near Bandar Lingeh. These include: 1 Berkeh (Plate II: 4); Berkeh Saflin (Plate V: 9); Berkeh Leshtan (Plate V: 10); Lingeh Plain (Plates VIII: 15, 16 & IX: 17) (Piacentini 1988). According to Piacentini, these circular, domed water cisterns are a recurrent feature along the coast around Hormuz (Piacentini 1988: Plate V: 9).

(19) The author was shown old photographs of the al-Qabib mosque by staff at Fujairah Museum in 1997. This mosque bore a striking resemblance to the mosque at Bidyah.

(20) The tombs of saints and martyrs are thought to exude 'baraka' (Dickie 1978: 44). In Muslim thought baraka is a special quality of luck, charisma and leadership bestowed by God on particular individuals who may then act as channels to the supernatural, and this quality remains with the individual even after they have passed away (Beckwith et al 1990: 179-180).

(21) According to Sutton, the original structure of Kilwa's great mosque may have been built during the reign of Ali bin al-Hasan. This original mosque is the small flat roofed northern part of the building as seen today (Sutton 2001: 12 & 24). The construction of the arched and domed extension may date from circa 1320 (Sutton 2001: 24). It was built to join up with the old mosque and allow direct access (Sutton 2001: 26). However, Horton has dated this extension to the late 13th century (Horton 1994: 200).

(22) Sutton dates the small domed mosque to the 15th century but notes the presence of older foundations, possibly an earlier, plainer mosque (Sutton 2001: 30-31).

(23) According to Sutton, the Jangwani mosque of Kilwa (now badly collapsed) was of a similar design to the small domed mosque, and also dates to the 15th century (Sutton 2001: 31-2). The site of Sanje Majoma (located on the island of Songo Mnara, south of Kilwa), contains a stone town of 15th century date. The two mosques at this site which were domed and vaulted are largely destroyed (Sutton 2001: 46 & 50).

(24) According to Costa's studies in Southeastern Arabia, domes are used in shrines and mosques from Ras Musandam to Salalah in Dhofar (Costa 1985: 209). Examples of these buildings include the mausoleums of Jabru near Matrah, Bibi Mariam of Qalhat, Sheikh Mohammed bin 'Ali near Mirbat and two large tombs in the cemeteries of Bin 'Afif and Ba 'Aluwi at Salalah (Costa 1985: 209). The domed mosques include a small masjid at Sur al-Sahil (Sur) and the Great Mosque of Bilad Bani Bu'Ali with its 49 domes (Costa 1985: 209). Domes are also used in non-religious buildings such as the cistern in the upper fort of Bukha and the sabil of al-Zawiya in Salalah (Costa 1985: 209). The Bibi Mariam once contained a domed superstructure, which is still partially visible (Ward 1987: 144; Costa 2001: 177; Costa 2002: 55). The remains of the dome are clearly visible in the illustrations published by Stevens (1990: Plate 14) and Costa (2001: Figures 259a, 260a,b & 261-262). The exterior of the building is coated in plaster and the interior contains various inscriptions (Ward 1987: 144). The interior of the building was covered in coloured glazed tiles, on which were inscribed, in rilievo, sentences from the Quran (Ward 1987: 144). Tradition states that the successor of Mahmud b. Ahmed al-Qusi al-Qalhati (founder of the Hormuzi empire), Bahauddin Ayaz, retired to Qalhat, where he died around 712 AH/1312 AD and was buried in a splendid mausoleum built by his wife Maryam (Piacentini 1975: 83; Costa 2001: 176). According to Costa, the Bibi Maryam belongs to a well known type of mausoleum attested by several well preserved examples of the 12th to 14th centuries, especially in Iraq and western Iran (Costa 2001: 177). A number of smaller domed tombs are also located near the Bib Maryam (Bhacker & Bhacker 2004: Plates 5 & 6). The mausoleum of Jabru in Matrah (Sultanate of Oman), which was originally covered with a dome, is comparable to the Bibi Maryam

typologically (Costa 2001: 149). These Iraqi-Iranian "imamzade" are known as "darih" in Oman and other parts of the Arabian Peninsula (Costa 2001: 149). The Bibi Maryam may also be compared to the mausoleum of Ahmed b. Said Al Bu Said (d.1783) at al-Rustaq (Costa 2001: 201 & Figures 295-299) and the mausoleum of Imam Saif bin Sultan al-Ya'aribi (d.1711), popularly known as "al-Qa'id al-Ard", located on the outskirts of southern al-Rustaq (Costa 2001: 201). The Bibi Mariam may be compared architecturally in form to the Shah Firuz in southwestern Iran. For illustrations of the Shah Firuz, see Morgan and Leatherby (1987: Plates 8-11: 37-38). The Shah Firuz is located 30 metres above the Sirjan plain, about 2km southeast of the site (Morgan & Leatherby 1987: 36). The function of the building is unclear, it has been suggested that it is a tomb or an imamzadeh (Morgan & Leatherby 1987: 36). The Shah Firuz is built out of baked brick with stucco plaster on the surface (Morgan & Leatherby 1987: 36). The date of the Shah firuz is uncertain, suggested dates range from before the Mongol invasion, the 14th century, the Safavid period, the end of the 18th and beginning of the 19th century (Morgan & Leatherby 1987: 36-7). It appears as though the dating and function of the Shah Firuz is as contentious as that of the Bibi Mariam, however, both structures are clearly comparable.

Imamzadeh: "a descendant of a Shi'i imam; the shrines of sanctified descendants of 'Ali revered by pilgrims, who believe they have miraculous qualities" (Lambton 1971: 1169; Lapidus 1988: 922). The word imamzadeh actually means the son of an imam (Grube 1966: 172). "It is, however, used in Iran to signify the burial place or mausoleum of either a local saint or an actual descendant of an imam"(Grube 1966: 172). "Miracles and special properties are attributed to many imamzadas" (Lambton 1971: 1170).

Note regarding domed mosques in general: King has noted the presence of the 9 bay domed mosque (and the related 6 bay domed mosque) across the Islamic world, from the Early Islamic period up to the 16th century (King 1989: 332). Examples of the 9 bay domed mosque have been recorded from North Africa (the Bu Fatata Mosque, Susa, Tunisia: 838-841 AD), Central Asia (examples dating from the 9th to 11th centuries), Spain, Egypt (Mashhad of the Sarif Tabataba, al Fustat, Egypt: ca 11th century), Sudan, Iraq, Turkey, Iran, Mosque of Ali bin Umar al Shadhili, al Mukha (Mocha, Yemen, dated 1418 AD), East Africa (the small domed mosque of Kilwa), India, Saudi Arabia (al-Ghumama mosque at al-Madinat al-Munuwarra: 14th century), and Bangladesh, (King 1989: 332-381). According to King, the 9 bay domed mosque type probably entered the Islamic architectural repertoire from a central place in the Islamic world and thereafter the building type spread by imitation (King 1989: 390).

(25) The spread of Islam along the East African coast was via a maritime trade favoured by the seasonal monsoons (Horton 1994: 199). According to Insoll, the Islamisation of the East African coast can be dated as early as the mid-8th century AD (Insoll 2003: 136). Evidence for the presence of Muslims and/or participation in Indian Ocean trade dates back to at least the 9th century AD (Insoll 2003: 136). This is indicated by the presence of Sasanian Islamic pottery of Persian/ Arabian Gulf origin at the Chwaka/Tumbe site complex on Pemba (Insoll 2003: 136). This trade increased in importance after 1000 AD, and conversion to Islam on the East African coast proceeded rapidly, with Islam becoming the majority religion in about 1100 AD among the Swahili (Insoll 2003: 172; after Horton and Middleton 2000).

Islam spread across Sub-Saharan Africa along existing trade routes; one extending from the Red Sea Coast, the Benadir Coast and the littoral of the Indian Ocean on the East through Nubia; the other overland from North Africa across the Sahara into West Africa (Prussin 1994: 181). A common feature of the architecture of West Africa is the use of earthen materials including timber and vegetal matter (Prussin 1994: 182). These earthen wall surfaces acquire a singular, plastic, fluid quality as a result of the periodic resurfacing and rendering of the exterior (Prussin 1994: 182). This fluidity in form may be noted on several West African buildings including the Great Mosque at Mopti (built in 1935), the Diabolo mosque in Mali, the Great Mosque of Djenne in Mali built in 1909 on the site of an earlier 14th century mosque, the mosque of Segou in Mali (rebuilt in 1960), the Sankore mosque, Timbuktu, Mali (the original building dates to the 14th-15th centuries), the mosque at Bougouni, Mali (ca. 1890), and the mosque at Diafarabé, Mali (ca 1920) (Prussin 1994: 186-193). It is plausible that this particular design quality influenced the architecture of African coastal settlements, including mosque architecture.

(26) As previously noted in footnote 21, Sutton has dated the domed extension of the Great Mosque of Kilwa to the early 14th century.

(27) The use of domes in mosque architecture can be seen in examples such as the Khirki Mosque in Khirki village near

Delhi and the Mosque of Shah Alam in Wazirabad near Delhi (Desai 1966: 13-14), the Begumpuri Masjid near Malviya Nagar and the Kalan Masjid (Grover 1981: 39-42). These mosques were all built during the Tughluq period, 1320-1413 (Desai 1966: 17; Grover 1981: 40-42), and are reminiscent of mosques in Southern Arabia. The mosque of Bara Sona in Gaur was constructed in 1526 (Desai 1966: 22), and is comparable with mosques in the Yemen. Another two comparable buildings are the Jami Masjid at Mangrol in Gujerat State (Western India), constructed in 1384 during the reign of Firuz Tughluq, and the Jami Masjid in Champaner (Gujerat) (Desai 1966: 29 & 41). The Jami Masjid of Mandu, completed in 1440, contains 158 domes (Desai 1966: 43), and may be paralleled with mosque architecture in Southern Arabia.

South Arabian and Indian parallels may be seen in the Rasulid period mosque (1229-1454 AD) illustrated by Lewcock and Smith, known as the Jami al-Muzaffar, Ta'izz, in Yemen, dated to 1249-1295 AD (Lewcock & Smith 1974: 75-76). The Ashrafiyah mosque (13th or 14th century) and the Mu'tabiyah mosque (late 14th century) in Ta'izz, Yemen (Lewcock & Smith 1974a: 192-202), are both comparable to Islamic architecture in India. According to Lewcock and Smith, their architectural origins are Egyptian and Anatolian (Lewcock & Smith 1974a: 200-203; Lewcock 1988: 209). According to Sadek, the domed mosques of Zabid, Yemen are simplified and smaller versions of the Ta'izz domed plans (Sadek 1998: 242). The similarity between the mosques from Ta'izz and Zabid is worth noting. Mosques recorded in North Yemen such as the Bayt al-Faqih al Gami al Kabir and the Masjid al-Mazgagi are also comparable to Indian Islamic architecture (Scerrato et al 1985: Figures 45 & 49). The architecture of the Dhu Jiblah Jami in Yemen dated to 1088 AD (Lewcock & Smith 1973: 119-121: Plates 6-10), is also comparable to later period mosques in India. Horton has noted the archaeological presence of presumably short-lived communities of Indian craftsmen on the East African Coast from around the 10th century (Horton 1994: 207). Timothy Insoll provides documented evidence for what he describes as, «the extensive relations at various levels which have existed between East Africa and India» (Insoll 2003: 151). However, Insoll does not appear to support the argument for «Indo-Pakistani» immigration to the East African Coast prior to 1700 (Insoll 2003: 150). Wynne-Jones has also noted that the East African coastal towns were influenced from India and the 'Far East' (Wynne-Jones 2007a: 329).

(28) Wynne-Jones has commented on the fact that, ideas travelled the trade networks, which is most obviously visible in the spread of Islam to the East African towns (Wynne-Jones 2007: 368).

(29) Circa Islamic II period for Fujairah (Ziolkowski 2002:I: 413).

(30) Information concerning the Portuguese forts located along the East Coast of the U.A.E. comes from the Portuguese text known as: Livro do Estado da India Oriental Repartido en tres partes a primeira contem todes os retratos dos Vizorreis que tem auido nodi to cftado athe o anno de 634: Com descripfois de feus gouernos. The original text was written by Antonio Bocarro, and dates to 1635. Bocarro was the official chronicler of the Portuguese in India from 1631 to 1643 (Boxer 1935: 51). The text in the British Library (Sloane Manuscript 197,) is a copy by Pedro Barreto de Resende and dates from 1646. This copy includes the fort illustrations made by de Resende (Beckingham 1983: 19). The forts described along the East Coast include, Kalba (Quelba), Khor Fakkan (Corfacam), Bidyah (Libedia), Mada, Dibba (Dubo, Doba & Mocombi).

Note: For a full discussion on the possible location of the Portuguese fort of 'Mada' see: Ziolkowski MC (in press) «Historical References to Fujairah and the East Coast of the United Arab Emirates: from the eve of Islam to the twentieth century». In P Hellyer & M Ziolkowski (eds), Emirates Archaeology, Volume 2: Proceedings of the 2nd Annual Symposium on Recent Palaeontological and Archaeological Discoveries in the Emirates.

The compilation of Portuguese manuscripts published by Cortesão in 1960, in Portugalliae Monumenta Cartographica (6 volumes), lists all the known Portuguese documents dealing with the Portuguese forts and garrisons. The manuscripts detailing the Portuguese forts along the coasts of Arabia, are listed below.

A Bocarro: Manuscript of 1635 in the Biblioteca Pública, Évora, with 48 drawings by PB de Resende (COD.CXV/2-X) (Cortesão 1960: 61).

A Bocarro: Manuscript of 1635, "Fortalez da India Oriental", for sale by the booksellers A Rosenthal Ltd, Oford (Cortesão 1960: 62).

A Bocarro: Manuscript of ca., 1635 in the Biblioteca National, Madrid, with drawings by João Teixeira Albernaz I (Mss.

1190 & R.202) (Cortesão 1960: 63).

Antonio de Maris Carneiro: "Description of the Fortress of Sofala, and other (fortresses) of India", 1639, in the Biblioteca Nacional, Lisbon (Iluminados n. 149) (Cortesão 1960: 64).

Pedro Barreto de Resende: "Book of the State of Oriental India", c., 1636, in the Bibliothéque Nationale, Paris (MSS Fonds Portugais n. 1) (Cortesão 1960: 66).

Manuel Godinho de Erédia: "Book of Plan(s) of the Fortresses of India", ca., 1620, Library of the Fortress of S. Julião da Barra, district of Oeiras (Cortesão 1960: 71-2).

Anon: "Book of the Plans of the Fortresses, Cities and Towns of the State of Oriental India, with delineations of the Sea-Coast of the Kingdoms and Provinces where they are situated and other principal Ports of those parts", ca., 1650 (Cortesão 1960: 73-4).

(31) This site was first surveyed by Walid al-Tikriti and published in: Tikriti 1989: 109 & Plate 84. Dr Walid enabled a joint Australian and UAE excavation to take place at the site in 1999. A brief summary of preliminary work was published by the author: Ziolkowski 1999: 19-21. For a full discussion of this site see: Ziolkowski 2002:I: 284-385.

(32) The 17th century Portuguese record of the fortress at Bidyah describes the building as being a square shape, built in the 'Moorish' style with a low stone wall of two and a half brosas/fathoms in height (Bocarro/de Resende 1646: folio 144-5). One braca (pl brosas/fathoms) is equal to 2.22 metres (Kirkman 1974: 71), thus making the original wall height of Bidyah fort around 5.55 metres. The Portuguese also noted a 'great parapet' and six strongholds (bastions/towers) (Bocarro/de Rsesnde 1646: folio 144-5). The description includes the presence of two separate strongholds (towers) 'protecting the population', and these are depicted on the Portuguese illustration of Bidyah, located southwest of the fort (Bocarro/de Resende 1646: folio 144-5).

(33) Lascarins or Arab mercenaries were commonly employed by the Portuguese commanders (Boxer 1980: 36).

(34) The Portuguese were expelled from Hormuz Island by a joint British and Persian force in 1622 (Belgrave 1935: 630; de Cardi 1970: 291; Piacentini 1988: 126-127; Subrahmanyam 1993: 157). De Andrade died in 1632 (Boxer 1980a:36-37).

(35) In 1633 the Imam Nasir bin Murshid declared war on the Portuguese which eventually resulted in the loss of Portuguese enclaves in Oman between 1633 and 1650 (Boxer 1980a: 38; Ross 1984: 52-55). The final expulsion of the Portuguese from Muscat and Khasab took place under the leadership of the Imam Sultan bin Saif in 1650 (Badger 1871: xxvi-xxvii; Serjeant 1978: 159-160).

(36) See endnote 20 for full details.

(37) The majority of ceramics recovered from the test trench at Bidyah mosque reveal little information concerning the chronology of the structure. Sherd P27, the porcelain fragment of 'Asian' origin may eventually provide further insight. The earliest material recovered from the surface collection at the site, points to a date between the 14th and 16th centuries AD. The remaining material has all been dated between the 17th and 20th centuries AD. Thus, revealing that the site itself was occupied over a long period of time.

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