

File Name: 1192.pdf

UNESCO Region: ARAB STATES

SITE NAME: Qal'at al-Bahrain Archaeological Site

DATE OF INSCRIPTION: 15th July 2005

STATE PARTY: BAHRAIN

CRITERIA: C (ii)(iii)(iv)

DECISION OF THE WORLD HERITAGE COMMITTEE:

Excerpt from the Decisions of the 29th Session of the World Heritage Committee

Criterion (ii): Being an important port city, where people and traditions from different parts of the then known world met, lived and practiced their commercial activities, makes the place a real meeting point of cultures – all reflected in its architecture and development. Being in addition, invaded and occupied for long periods, by most of the great powers and empires, leaved their cultural traces in different strata of the tell.

Criterion (iii): The site was the capital of one of the most important ancient civilizations of the region – the Dilmun civilization. As such this site is the best representative of this culture.

Criterion (iv): The palaces of Dilmun are unique examples of public architecture of this culture, which had an impact on architecture in general in the region. The different fortifications are the best examples of defence works from the 3rd century B.C to the 16th century AD, all on one site. The protected palm groves surrounding the site are an illustration of the typical landscape and agriculture of the region, since the 3rd century BC.

BRIEF DESCRIPTIONS

Qal'at al-Bahrain is a typical tell – an artificial mound created by many successive layers of human occupation. The strata of the 300x600-metre tell testify to continuous human presence from about 2300 B.C. to the 16th century A.D. About 25% of the site have been excavated revealing structures of different types: residential, public, commercial, religious and military. They testify to the importance of the site, a trading port, over the centuries. On the top of the 12m-high mound there is the impressive Portuguese fort, which gave the whole site its name, qal'a, meaning fort. The site was the capital of the Dilmun, one of most important ancient civilizations of the region. It contains the richest remains inventoried of this civilization, which was hitherto only known from written Sumerian references.

1.b State, Province or Region: Northern Region

1.d Exact location: N26 13 59.0 E50 31 20.0

Kingdom of Bahrain
Ministry of Information, Directorate of Culture & National Heritage

QAL'AT AL-BAHRAIN ARCHAEOLOGICAL SITE



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Nomination File

**submitted to
THE WORLD HERITAGE CENTRE, UNESCO**

January 2004

QAL'AT AL-BAHRAIN ARCHAEOLOGICAL SITE

**A Candidature submitted to
THE WORLD HERITAGE CENTRE, UNESCO**

*by
The Ministry of Information, Directorate of Culture & National Heritage
(Kingdom of Bahrain)*

– Volume I –

Nomination File

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NOMINATION FILE FOR THE INSCRIPTION OF QAL'AT AL-BAHRAIN SITE ON THE WORLD HERITAGE LIST

1. Identification of the Property

1.a Country

Kingdom of Bahrain

1.b State, Province or Region

Northern Region

1.c Name of Property

Qal'at al-Bahrain archaeological site

1.d Exact location on map and indication of geographical coordinates to the nearest second

(approx. central spot at the site)

N 26° 13' 59" E 50° 31' 20"

UTM Zone 39 Easting 452²⁵⁰ Northing ²901⁶⁰⁰

1.e Maps and plans showing boundary of area proposed for inscription and of any buffer zone

The following plans are enclosed at the end of this section :

- A — Map of the North Area of Bahrain with position of Qal'at al-Bahrain site (edition : 1977)
- B — Last edition of Survey Directorate map of the northern part of Bahrain (January 2004), with indication of boundaries of nominated site and of surrounding buffer zone.
(the non-reduced, color edition is delivered in annex to the Nomination File, 2 sheets at scale 1 : 10 000)
- C — Last edition of Survey Directorate map of the area surrounding Qal'at al-Bahrain (January 2004), with indication of boundaries of nominated site (archaeological features on the site are not up-dated).
(the non-reduced, color edition is delivered in annex to the Nomination File, 4 :sheets at scale 1 : 1000)
- D — Sketch-map of architectural features exposed at Qal'at al-Bahrain site.

1.f Area of Property proposed for inscription and proposed buffer zone

| | |
|---------------|-----------------------|
| Core area : | 17,5 ha. |
| Buffer zone : | 167,5 ha. |
| Total : | <u>185 ha.</u> |



Figure 1 – General aerial view of Qal'at al-Bahrain towards the East

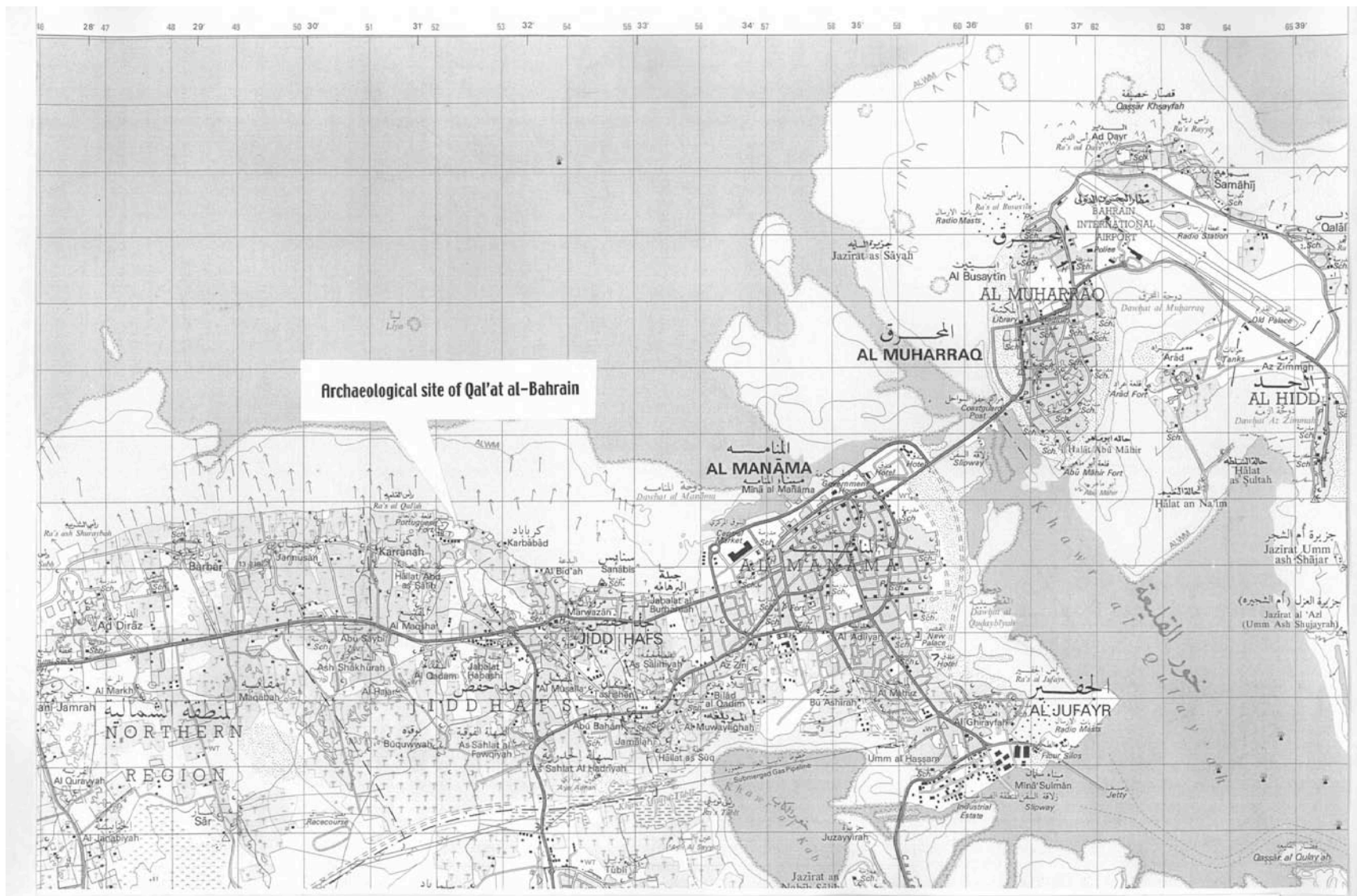


Figure 2 – Qal'at al-Bahrain archaeological site (red line) in its environment. Aerial view towards the northwest.



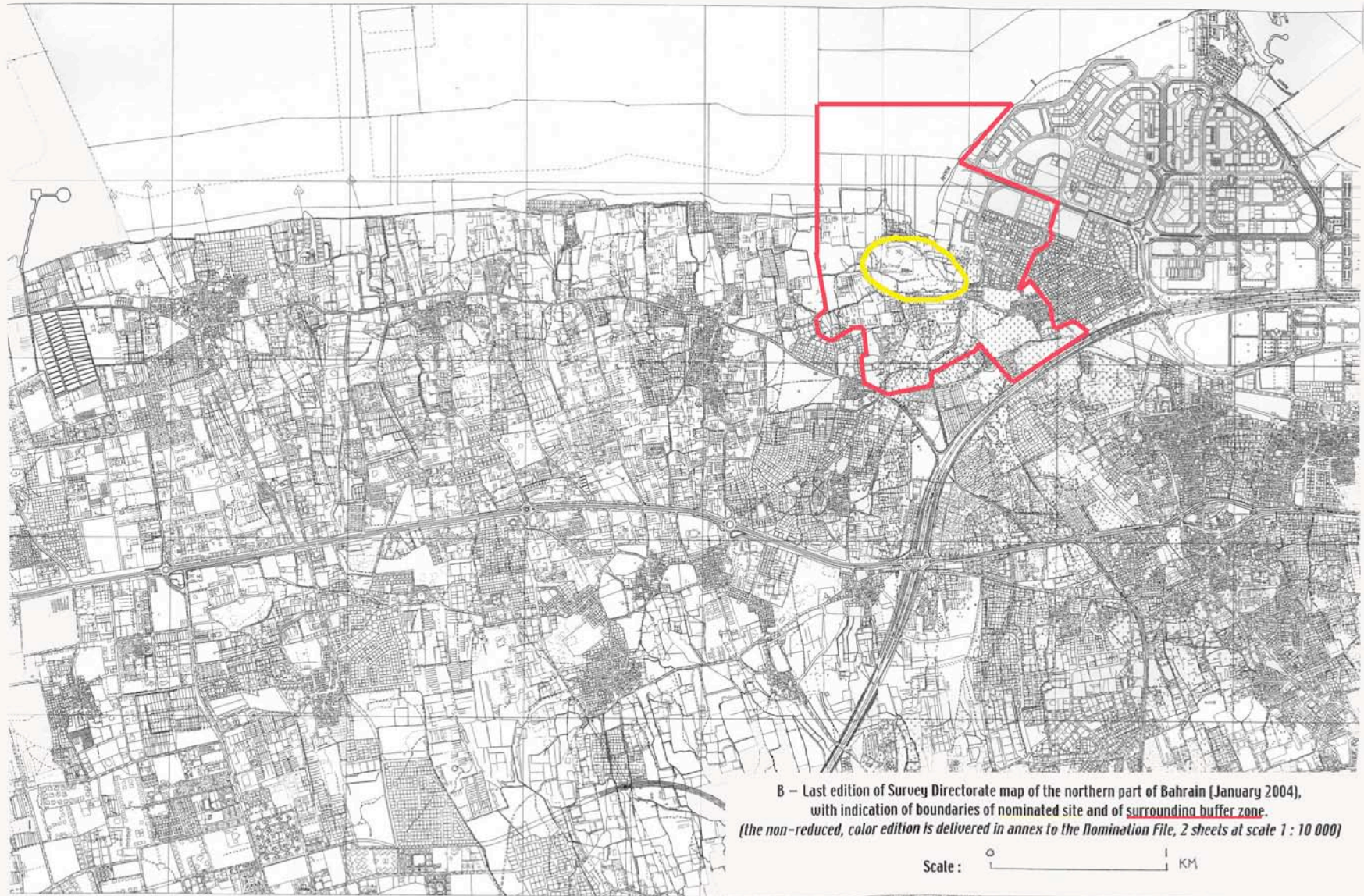
Figure 3 – General view of Qal'at al-Bahrain towards the southwest (march 2003)

MAPS & PLANS



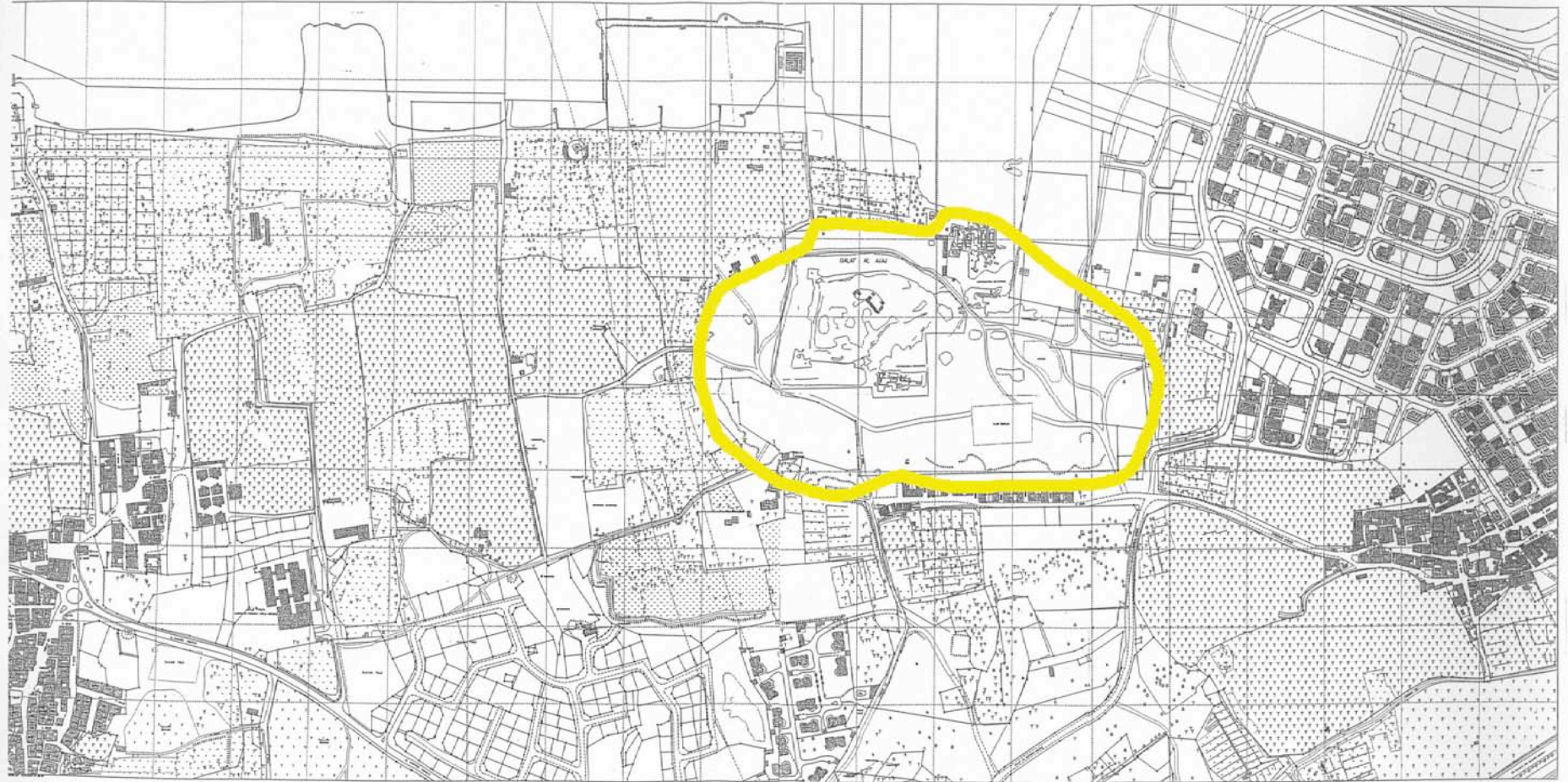
A - Map of the North Area of Bahrain with position of Qal'at al-Bahrain site (edition : 1977)





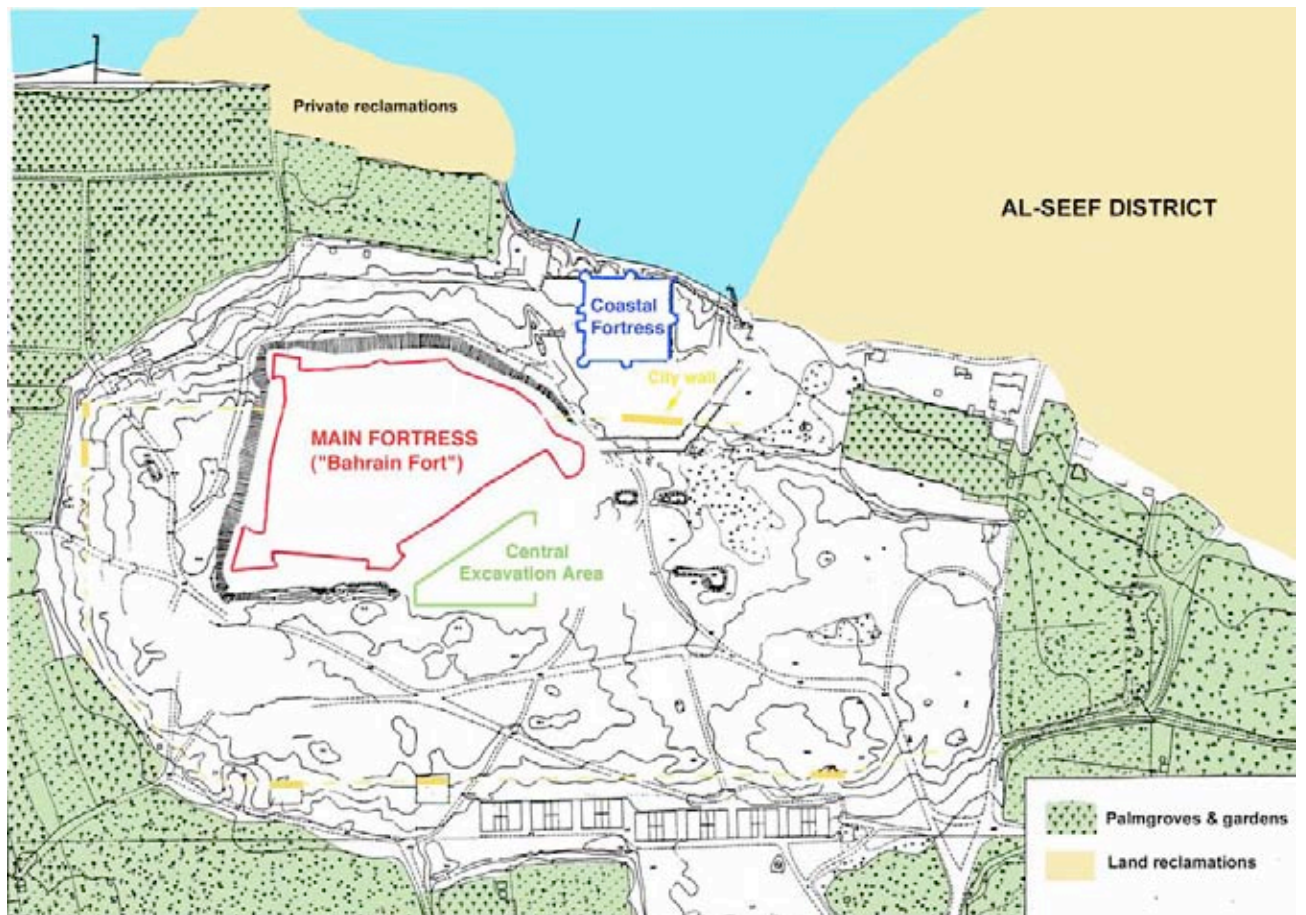
B – Last edition of Survey Directorate map of the northern part of Bahrain (January 2004), with indication of boundaries of nominated site and of surrounding buffer zone.
(the non-reduced, color edition is delivered in annex to the Nomination File, 2 sheets at scale 1 : 10 000)

Scale : 0 1 KM



C – Last edition of Survey Directorate map of the area surrounding Qal'at al-Bahrain (January 2004), with indication of boundaries of nominated site (archaeological features on the site are not up-dated).
(the non-reduced, color edition is delivered in annex to the Nomination File, 4 sheets at scale 1 : 1000)

Scale : 0 100 200 300 M



D – Sketch-map of architectural / archaeological features exposed at Qal'at al-Bahrain site

2. Justification for Inscription

2.a Statement of Significance

Qal'at al-Bahrain is the most important archaeological site of the Bahrain archipelago, and very probably its ancient capital during the Antiquity. Despite its somewhat confusing official name (meaning, in arabic, « the Fort of Bahrain »), Qal'at al-Bahrain is actually much more than a single fortress facing the sea : the late Islamic/Portuguese defensive building (hereafter the « Main Fortress »), which crowns the site and has lent his name to it, only represents the latest architectural testimony of a long history.

Archaeological work conducted at the site during the last fifty years has demonstrated that this artificial hill of 17.5 hectares reveals an almost continuous stratigraphy from ca. 2300 BC. to the 16th century AD, with the exception of some still enigmatic gaps in the Old Babylonian (ca. 1700-1450 BC) and Early Islamic periods (6th to 13th cent. AD.).

During most phases of its development, the city of Qal'at al-Bahrain was marked off, at the heart of the fertile zone of Bahrain, by certain elements: a rampart, which appears today to have stood for almost two millennia; the presence, in the Bronze Age as in the Iron Age, of several public buildings for economic, administrative or religious use; finally, an uncommon military and defensive architectural tradition, apparently dating back from the beginning of the Christian era (**Figures 1, 2, 3**). All these particular features, unique in Bahrain, do provide the image of an outstanding cosmopolitan merchant city, playing an essential role in the staging post and trade center constituted by Bahrain in the past between Mesopotamia, Persia, Arabia, Oman, the Indian subcontinent, and even the Far East during recent periods.

The key role played by Qal'at al-Bahrain during the regional development of the Dilmun civilization adds especially to its universal value. As soon as the first excavations were carried out by a Danish Expedition in 1954, the site yielded some of the most characteristic elements of the Dilmun culture : an impressive stone palatial architecture, distinctive pottery productions, the first specimens of the specific and famous Dilmun stamp-seals. The « discovery » of the ancient settlement of Qal'at al-Bahrain in 1954 coincide in fact with the first, concrete archaeological evidence of the Dilmun civilization which, up to this time, was rather considered as an historical and philological concept.

Beyond Bahrain and its local history, such a long occupation at the same specific location (partly explained by the local geomorphology, *cf. below § 3.b*), renders Qal'at al-Bahrain as one of the rare archaeological and historical reference sites in the whole region of Eastern Arabia. In fact, the remarkable archaeological stratigraphy preserved there (about 4500 years of history accumulated on nearly 8 m), is unique on the Arabian side of the Gulf (*cf. 2.b, Comparative analysis, below*). Acting as a genuine « memory », Qal'at al-Bahrain thus represents a unique opportunity to « read » the ancient and historical past of the Gulf region (**Figure 4**).

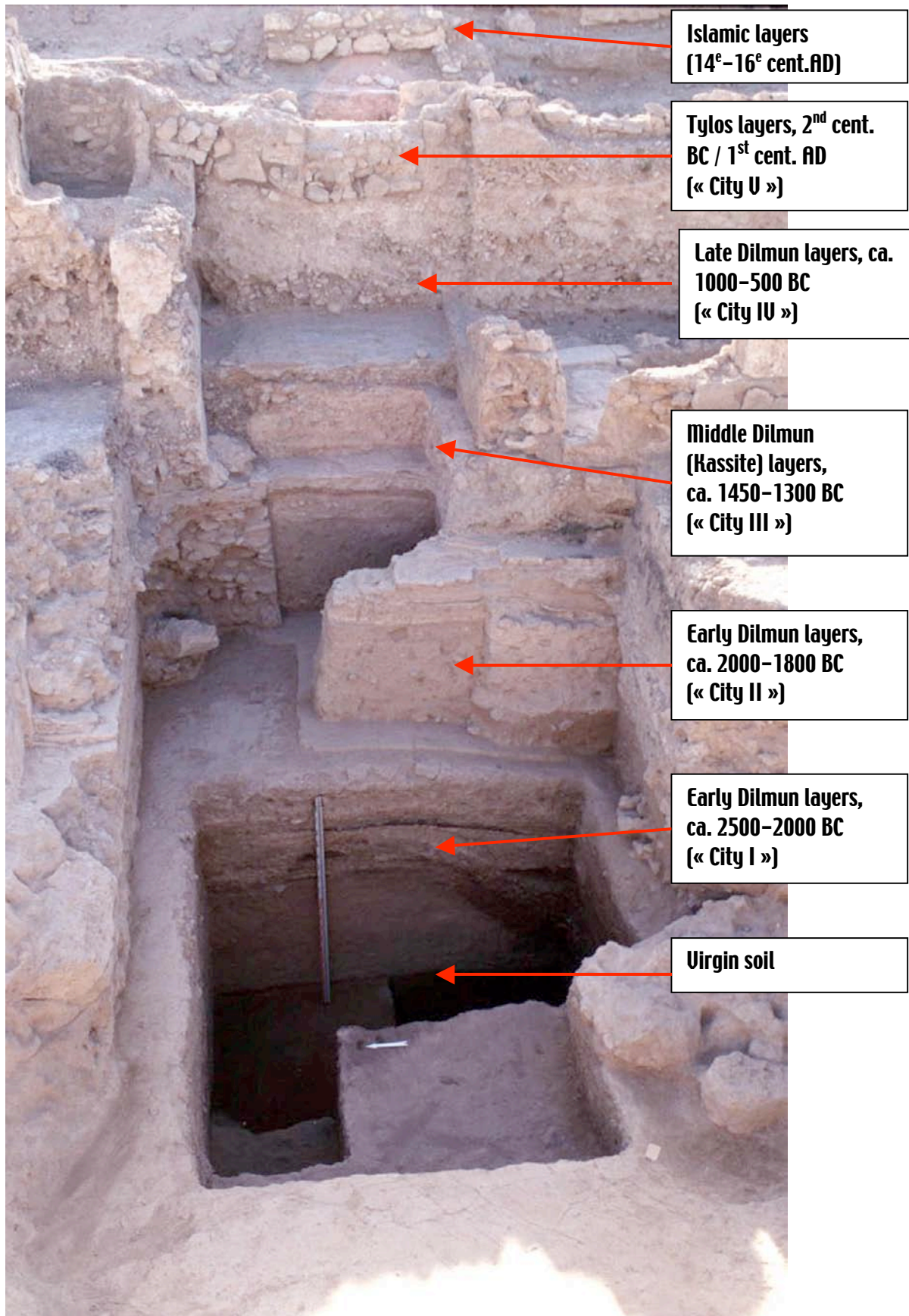


Figure 4 – The stratigraphy of Qal'at al-Bahrain
(Central excavation area)

In addition, the close interaction between the *cultural* components of the site (the ancient Dilmun settlements and rampart, the successive fortresses) and its *natural* components constitutes an important aspect of this outstanding and universal value. These latter elements include the surrounding palmgroves with traditional modes of cultivation or irrigation systems, the ancient natural access channel and moorage area found offshore, the seashore still displaying a rich biodiversity, especially in migrating birds, maritime fauna locally caught using traditional fishtraps (the *hadra*), etc.

Lastly, the potential historical and archaeological richness of such a site (75% is still unexcavated) must also be protected for the future generations : Qal'at al-Bahrain is also an important symbol for the nation of Bahrain and for building national identity.

2.b Comparative analysis (including state of significance or conservation of similar properties)

Within Bahrain :

First and foremost, Qal'at al-Bahrain is unique in Bahrain, as it displays the only archaeological stratigraphy of the island, covering nearly 3600 years. The other archaeological sites recognized in Bahrain are mostly single-period installations and, in any case, do not reveal such a long and continuous occupation, as precised below :

1) The settlement site at **Saar**, situated 6 km southwest of Qal'at al-Bahrain appears as an extensive village organized around a temple. The archaeological layers are preserved there at a maximum of about two meters and testify to a single archaeological phase, dated in the Early Dilmun period, between ca. 1900 and 1700 BC. It is not followed by any later occupation, with the exception of an isolated building, perhaps a fire temple, attributed to the later Tylos period, around 400 AD.

2) The religious architectural complex at **Barbar** (4 km west of Qal'at al-Bahrain), indeed reveals here a succession of three layers of temples, but all of which are similarly dated in the Early Dilmun Period, from about 2000 to 1900 BC. The slight elevation which covered these constructions did not exceed a height of about 3 m.

3) The last identified archaeological settlement in Bahrain, **Diraz**, also bears witness to a single phase of occupation during the Early Dilmun period, contemporary to those brought into evidence in Saar and Barbar. With the exception of the remains of a temple, this site was unfortunately totally destroyed some years ago, due to the growing urbanization in this part of Bahrain.

4) Several additional sites in Bahrain were fortified and also possess fortresses, certainly imposing (like Arad Fort, or Rifaa Fort) but not in any way comparable to the main citadel at Qal'at al-Bahrain, in terms of size, architectural quality, dating and historical evidence. The « small » **Arad Fort**, which was built in the 16th century, underwent several changes until ca. 1800 and its surface area is less than 2,000 m². The **Rifaa Fort** displays larger dimensions than Arad, but is of much more recent construction (1812). Moreover, the two above mentioned fortresses are situated on

locations which haven't reveal any anterior occupation, and thus can't be considered as « tells », as Qal'at a-Bahrain.

Within the Arabian Gulf area :

The distinct originality of Qal'at al-Bahrain site is also obvious when compared to the other main archaeological sites located in the neighbouring countries of the Arabian Gulf. Once again, no close archaeological tells can be identified in the whole region.

1) In Kuwait, the numerous archaeological sites of **Failaka** Island certainly testify to various occupational phases covering the Early and Middle Dilmun periods (Tell Sa'ad (F3), Tell Sa'id (F6), locally dated between ca. 2000 and 1200 BC), the Late Dilmun/Achaemenian period (Tell Khazneh, ca. 5th / early 4th cent. BC), the Hellenistic period (The Seleucid Fortress and temples at Tell Sa'id, between ca. 325 BC and 100 AD), the Nestorian period (Al-Qusur Church from the 6th cent. AD) and, lastly, the Early (notably at Al-Qusur village, ca. 7th to 10th cent. AD) and Middle Islamic periods. Such prolonged occupation on this island might appear *a priori* more continuous than the one revealed by the Qal'at al-Bahrain site (which contains some gaps). In fact, it is slightly shorter and, most importantly, it is not at all displayed at a single spot, which evidently confers to the Bahraini site a unique reference status for the regional archaeology.

2) A similar observation can be extended to the Eastern Province of Saudi Arabia, where only the archaeological site of **Tarut** could be eventually compared with Qal'at al-Bahrain. It does possess Early Dilmun levels (and probably older than the Bahrain evidence, due to its position on the mainland) and is similarly crowned by a medieval fortress, although much more modest in size. Nevertheless, no intermediary occupation was brought into evidence there, at least up to now. The total surface area of this settlement is also much smaller.

3) The emirate of **Qatar**, which definitely remains a less richer area in the Arabian Gulf has not yielded any settlement site which could be compared with Qal'at al-Bahrain.

4) The **United Arab Emirates**, on the contrary, has yielded during these last twenty years several archaeological sites of great importance. None of them, however, reveal the same succession of historical levels recognized at the Bahraini site. At the famous settlement of **Tell Abraq**, for instance, a reference stratigraphy was found but which only covers two millennium (ca. 2500-500 BC). No layer later than the late Iron Age was identified on this tell, whose surface area does not exceed 1,76 hectares (instead of ca. 17,5 for Qal'at al-Bahrain). A similar comment can apply to the Bronze Age **Hili 8** settlement in the oasis of Al-Ain (Abu Dhabi) or to the **Al-Khatt tell** (Ras-al Khaimah).

5) In the **Sultanate of Oman**, finally, no settlement site has yielded the same long occupation as is the case at Qal'at al-Bahrain. In this region, the situation can be compared to the archaeological evidence already mentioned for Kuwait or the Emirates. The whole country reveals a very long occupation starting from the Prehistoric periods (Palaeolithic, Epi-Palaeolithic, Neolithic) and covering the Bronze Age, the Iron Age, the Hellenistic and the Islamic phases, but no site has yielded a continuous occupation lasting more than two or and two and half millennia.

This is notably the case from the few archaeological sites of the Sultanate which are registered on the List of World Heritage. The settlement and the graves at **Bat** mainly cover the late third and the early second millennia BC ; some later traces of occupation during the 1st millenium BC were also noticed at this site. The fortress

at **Bahla**, on the other hand, is partly comparable in date to the Main Fortress at Qal'at al-Bahrain but is not situated at the top of an archaeological tell.

2.c Authenticity / Integrity

This essential aspect will be examined here from two angles : the archaeological tell in its totality and the Main Fortress (« Bahrain Fort »).

The archaeological tell

After its main abandonment at the end of the 16th century /beginning of the 17th century, the archaeological site of Qal'at al-Bahrain has not been superseded by any later urban development. Ancient descriptions and photographs testify to the existence, still in the beginning of the 20th century, of a light *barasti* village situated to the south and southeast of the main fortress. This group of poor constructions was replaced in the first half of the 20th century by a new village of traditional Bahraini houses which, in turn, was transferred to the south of the archaeological *tell* in 1976. The remains, largely ruined, of the previous village were definitively removed in 1990/91, with the exception of a small mosque which presently constitutes the only modern (though discrete) building built on the archaeological *tell* itself. In other terms, the physical integrity of the whole Qal'at al-Bahrain site has been preserved up to now ; one will note just a minor garden encroachment on its lower northern slope (on a restricted surface of ca. 3700 m²) which has not heavily damaged the complex of archaeological strata.

Archaeological excavations at the site are presently limited to the areas indicated on map D. With the exception of the main fortress, these archaeological fields (Coastal Fortress, City Wall, Central Excavation Area) have not undergone, up to now, any kind of reconstruction or restitutorial work. The future projects for improving these archaeological structures and for their presentation to the public provide only for their consolidation and protection, use being made of similar materials as those employed for their construction in order for them to remain in their present state of visibility, and finally maintenance work for their regular upkeep.

The Main Fortress (« Bahrain Fort »)

In 1987 the principal fortress had reached such a state of dramatic deterioration as to hinder its architectural interpretation, but most importantly rendered it extremely dangerous to visitors. It had reached such a point of erosion by this time that it was nearly impossible to identify anything other than the three Genoese-style bastions built in the 16th century (**Figure 5a-b**). Several photographs taken during the 1930s and 1940s clearly show that the deterioration of the fortress had accelerated dramatically in the second half of the 20th century due to the combined effects of wind and rain erosion, natural collapse and the constant wear on the ruins from visitors walking on them.

The archaeological survey and soundings conducted at the Fortress by the French Archaeological Mission between 1982 and 1988 and afterwards by the Bahrain Directorate of Archaeology from 1996 until the present time, allowed the recognition of the outlines of the enclosure wall and the determining of the different



Figure 5 – The Main Fortress (« Bahrain Fort ») in the 1980s, before its restoration

phases of its construction, as well as the identification of the inner architectural structures, the precision of their shape, and finally the nature of the building materials and their general state of preservation.

In 1987, considering the potential danger represented by the state of preservation of the fortress, and on the basis of the previous archaeological work, the Bahrain Ministry of Information took the decision to launch and finance an important program of massive clearing-out of the existing remains, followed by a progressive restoration of the defensive building.

This restoration and reconstruction work is nearly completed today (cf. **Figures 12, 13**). Such restoration work has carefully respected the integrity of the structures exposed by the archaeologists (ground plan, elevation, etc.). The materials used for this restoration were carefully chosen : original stones found during the clearing-out of the fortress, local *farush* (beach rock) ; similarly, the mortar used for the restoration was determined after previous sampling and analysis of the original ones.

As we have already noted, important reconstructions were generally founded on the strict results of previous archaeological work or on preliminary reconnaissance. In a few precise cases, however, certain reconstructions may appear excessive or based on conjecture. Naturally, the Directorate of Culture and National Heritage at the Ministry of Information in Bahrain is available for discussions and suggestions concerning improvements or modifications coming from the competent authorities at UNESCO or the ICOMOS.

2.d Criteria under which inscription is proposed (and justification for inscription under these criteria

The Directorate of Culture and National Heritage wishes to propose the inscription of Qal'at al-Bahrain site to the World Heritage on the basis of the following criteria (cf. paragraph 24a of the *Operational Guidelines for the Implementation of the World Heritage Convention*) :

- Criterion (ii), « *to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design* »

This appears most obvious when taking into consideration its strategic position on the northern coast of the Island of Bahrain, itself a land of exchanges and a platform for the economic redistribution during the complete period of Dilmun, but also during the several historical phases which followed: the Tylos period, the « Portuguese » period, etc.

There can be no doubt that the archaeological site of Qal'at al-Bahrain testifies to an occupation on the « *longue durée* » (from the end of the 3rd millennium BC up until the 16th century AD) certainly exceptional in the region of the Gulf and more generally in Eastern Arabia. Thus, through this it takes on a singularly particular significance, in this region of the Middle East.

Each one of the levels of this ancient city (in addition one of the rare harbours in ancient Bahrain) has yielded archaeological material, which testifies to considerable economic and cultural exchanges. This very specific

material culture brings together, next to the typically local production (pottery and Dilmun stamp-seals), numerous objects or imported products from neighboring lands (copper and soft stones from the Oman peninsula, lapis-lazuli from Afghanistan, cornelian beads from Indus, glasswork from Mesopotamia and Egypt, coins and Chinese or Indochinese porcelain). Finally, several of its occupational phases (Early, Middle and Late Dilmun, Tylos and the Middle Islamic) testify to a solid architectural tradition, generally erecting monuments, whether they are defensive (successive forts, ramparts), religious (temples) or secular (tradition of building palaces).

— Criterion (iii), « bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared »

The site at Qal'at al-Bahrain appears as the only real city (and very probably the ancient capital) of the Civilization of Dilmun. Its important superficial area – almost 12 hectares inside of the ramparts – as well as a strong conviction for urbanization evident already from the 3rd millennium BC (*cf.* 3.c.5, *below*), both confirm this urban status of the Early Dilmun phase. The presence of a palace and of a Mesopotamian governor during the middle of the 2nd millennium BC (the Kassite period), mentioned in the cuneiform tablets brought to light on the site, also confirm such an identification during the Middle Dilmun phase; the same is true of the large residential and religious ensembles dating from the Late Dilmun phase.

No other city from the Dilmun period has been discovered elsewhere in Bahrain where the only other known settlement, Saar, is not larger than a simple village, with its 2.5 hectares.

— Criterion (iv), « to be an outstanding example of a type of building or architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history »

The long tradition of fortified constructions at Qal'at al-Bahrain is very uncommon. The successive fortresses of the site (3rd century AD, then 14th, 15th and 16th centuries AD) are all representative of exterior colonization, which have tried above all to protect themselves from the native population of Bahrain, rather than simply assuring the defense of the island.

The most important of these buildings, the Main Fortress (« Bahrain Fort »), which dates from the 15th and 16th centuries, can be considered as a more than remarkable example of the evolution of a military architectural construction and of its successive improvements such as enlargement, the reinforcement of the curtain walls, the creation of interior boulevards designed for circulation and the deployment of artillery, and finally the construction of modern defense bastions based on the European models, all of which were destined to constantly adapt it to the progress of weaponry and defense techniques.

3. Description

3.a Description of Property

The « *tell* » (archaeological hill) of Qal'at al-Bahrain is situated on the northern coast of Bahrain, ca. 5 km to the west of Manama, the present capital of the Kingdom of Bahrain. Rather important in dimensions (about 650 x 300m), the site appears as a wide clearing of 17,5 hectares within the neighbouring palmgrove and gardens which still surround it on its east, south and west sides. The altitude of its ground at the highest point is 11.2 m above sea level.

About 15% of the surface area of the Qal'at al-Bahrain site is occupied by a huge fortress dating from the 14th and 15th centuries A.D., partly restored by the Portuguese occupants in the 16th century. It constitutes today the most spectacular architectural monument on the site, which has lent his name to the *tell*.

In 1985 huge land reclamation (the Al-Seef district) filled the western side of the bay which previously separated the modern capital of the Island of Bahrain from the ancient site. Despite such a modern development, which has modified the original coastal landscape of the site, Qal'at al-Bahrain is today considered as the largest and most important archaeological site in the Kingdom of Bahrain (**Figure 6**).

3.b History and Development

The almost permanent human occupation in this precise location of the northern coast of Bahrain is not typical. It has already been brought to light how unique this situation actually is in Bahrain itself, given that few other sites in Eastern Arabia, from Koweit to Oman (*cf. above, § 2b*), have testified to a comparably long human presence in one same location.

This presence over the « *longue durée* » can be explained by the geomorphological configuration of the northern zone of Bahrain.

Actually, the northern coast of Bahrain is fully encircled by shallows made up of a coral reef, nearly fossilized today, at a distance running as far as two kilometers in some places. Such a situation, which prevents coastal access to boats with an excess draught, is an important element for the ancient pattern of settlement in Bahrain. Since the oldest Antiquity, the inhabitants of the island have always been able to identify the few rare channels naturally cut in this corral reef, and sometimes even enlarged them to allow boat traffic and create moorage areas as close as possible to the coastal line.

Geomorphological and archaeological studies have proved the existence of one such channel, enabling deep-water craft to approach the site of Qal'at al-Bahrain. Within this context, this discovery was of great importance in explaining the emergence of the site.



Figure 6 – General view of Qal'at al-Bahrain, towards the north

Since 1954, several expeditions from Denmark (1954-1970), France (since 1978) and Bahrain (since 1987) have launched various excavation programs at distinct spots of the site, some focusing on specific periods of Qal'at al-Bahrain history.

These almost fifty years of archaeological research were mainly able to :

- fix the chronology of occupation at the site ;
- discover and clear out four major architectural areas or monuments ;
- undertake restoration work on the Main Fortress (« Bahrain Fort »)

3.c Main features or monuments found today at Qal'at al-Bahrain site

With the exception of the main excavation area in progress (where the whole stratigraphy of the *tell* is presently under study), the existing components (architectural or natural) will be presented here following a chronological order :

- The Earliest occupation layers,
- The City Wall,
- The Coastal Fortress,
- The Main Fortress (locally known as « Bahrain Fort »),
- The Central Archaeological Area,
- The other components :
 - . The access channel and its entrance tower,
 - . The surrounding palmgrove.

3.c.1 *The earliest occupation layers*

The earliest remains of human occupation found at Qal'at al-Bahrain date back to ca. 2300 BC and were mainly located close by the northern side of the tell facing the sea. These few architectural remains, the most important having been excavated at the southern side of the rampart, are no more visible at the moment than they were at the time of their discovery, due to the partial natural refilling of this dig. Plans will be eventually launched in the near future to clear out once again the remains of this early settlement, unfortunately preserved at a very reduced height (15 to 20 cm). It was composed of small houses of several rooms with plastered floors. The walls were built of rough stone set in clay or mortar. There are indications that groups of houses were separated by streets. Traces of industrial (copper) activities were also found at this spot. The pottery consisted mostly of local, hand-made cooking pots, supplemented by storage vessels and pots for eating and drinking, imported from Mesopotamia and Oman. A number of other objects also indicate connections with Mesopotamia and Oman as well as the Indus region.

3.c.2 The City Wall

Description

The settlement at Qal'at al-Bahrain was surrounded by a stone wall during the early phases of its history. Archaeological soundings located this rampart in several spots on the northern, western and southern slopes of the tell. Up to now, no excavations have been carried out to locate it on the eastern slope of the hill. These portions of walls follow the cardinal directions and are at right angles to each other; they enclose an area of about 12 hectares but, due to the present state of excavation, nothing proves that this entire enclosed area was built up in the Early Dilmun phase of the site.

The wall has been only closely investigated on the northern side. Due to the refilling of several of the mentioned soundings, this northern portion is actually at the moment the only visible part of this long enclosure ; it is exposed on a length of 46 m, in an area situated ca. 30 m to the South of the Coastal fortress. This visible part is actually the result of successive periods of construction or rebuilding (Figures 7, 8).

History and Development

Two main phases can be distinguished easily in this city wall. *Wall I* is assigned to the Early Dilmun period, while *Wall II* was constructed during the Kassite occupation of Qal'at al-Bahrain (Middle Dilmun Period, around the mid-second millennium BC.).

The erection of a first fortification wall around the Early Dilmun settlement, which took place by the end of the 3rd millennium BC (*Wall I*), represents an important event in the history of Qal'at al-Bahrain. As can still be seen at the site, it was constructed of rough stones mostly laid in clay. The front was built of larger blocks than the rear. Originally, it had a thickness of 2.30 m, but everywhere it has been enclosed in later reinforcements. There was a 1.25 m wide gate through the wall, large enough to allow a loaded donkey or even a camel, but not the entrance of a vehicle

Owing to occupation deposits the building level rose inside the walled city, and this first rampart was therefore rebuilt several times, so that four different successive gates can be distinguished. In the latest one (dated around 1900-1800 BC), the door, probably wooden, was composed of two panels, with a total width of 2.30 m, more usual dimensions for such ancient Near Eastern devices. We know from the information provided by the sounding (now refilled) where the western section was found that certain portions of this rampart were built of large square stones, regular and well laid. Obtaining the stone material for such a monument and its construction obviously entailed a very substantial input of labour that was likely to have been mobilized through some form of public organization.

Wall II, probably constructed around 1450/1400 BC, can be considered as an outside reinforcement of the first structure. It differs technically from *Wall I* in its extensive use of mortar and the systematic use of plaster on both vertical and horizontal surfaces. The plaster used was extremely strong, lasting even today, and it gave *Wall II* an almost concrete-like hardness. This second wall remained in use for an indetermined period of time, possibly until the Late Dilmun occupation phase of Qal'at al-Bahrain (ca. 900-500 BC.) During the Tylos/Hellenistic period, it appears to have been no longer in use, at least as a defensive rampart ; it is most likely that its ruins subsisted in the landscape of the city : confirmation appears to come from the fact that the construction of several dwellings from this Tylos period apparently « reused » them, building against them as supportive structures. One of these habitation yielded in 1970 a coin hoard, contained in a jar, and composed of 310 silver tetradrachmas of Alexander type, probably minted in the second half of the 3rd century BC.



Figure 7 – Current aerial view of the Dilmun rampart



Figure 8– View of the Dilmun rampart in 1970 (Danish Expedition)

Preservation

The state of preservation of *Wall I*, made almost completely of dry-stones (with only rare use of clay), is heavily deteriorated since its excavation in 1957-1959 (cf. **Figure 8**). Restoration to its original aspect at the time of discovery will be launched in the near future. *Wall II*, on the contrary, is rather well preserved due to its particular construction.

Due to a long history of consolidation, rebuilding and the constant elevation of this rampart during its long period of use (approx. 1500 years), this area of the site still remains an architectural complex difficult to understand and therefore to explain coherently to visitors.

A new portion of the wall was recently exposed near the new strip of housing bordering the archaeological tell at the South (works carried out by the Directorate of Archaeology) ; very few information is presently available on this operation.

3.c.3 The Coastal Fortress*Description*

The coastal fortress appears as a stone square building of perfect North-South orientation, with a main enclosure wall measuring 51,5 m on each side. The building is equipped with three-quarter-circular towers in the North-West, North-East and South-West corners (the South-East corner has been destroyed), as well as semi-cylindrical towers in the middle of each facade. On the middle on the East wall are two quarter-circular towers flanking the entrance of the fortress (**Figures 9, 10**).

The interior of the fortress was symmetrically laid out around a central square courtyard of fairly modest dimensions (12,5 x 12,5 m). From the corners of this paved courtyard, walls divide the interior of the building into four architectural quadrants, separated by four circulation areas, shaped as cross-arms, and converging towards the central main central open space. Each of these built quadrants appears as a dwelling ensemble set around an individual small square courtyard. The rigorous symmetry of the building layout is striking. The inner area of the Coastal fortress covers a total surface of *ca.* 2,260 square metres. This surface area is divided into *ca.* 1,900 sq. m. of originally covered areas and *ca.* 360 sq. m. of open spaces (courtyards, cross-arms alleys), representing some 20% of the inner surface.

The building's structure reveals its double defensive and residential function. The *defensive function* is essentially represented by the enclosure of the building. This construction, 2,35 m thick, is transpierced by a line of loop holes with either simple or double embrasures (20 to 25 along each façade). The entrance at the West was defended by two flanking towers ; next, a security postern opening onto the beach, was concealed at the base of the North tower. The fortress was finally protected on the South and Southeast (the inland side) by a dry moat 7 m wide and more than 5 m deep.

Interpreting the *residential function* appears equally obvious. With its narrow entrance (1,5 m) not allowing carts and livestock to enter, its courtyards of reduced dimensions acting primarily as shafts for bringing in daylight and assuring air ventilation, the essential function of the fortress was to lodge a small garrison. With an interior surface around 2200 m² it could accomodate roughly 50 soldiers. Research centered on the construction of the dwellings (small courtyards with porticos, for example) confirms this monument's residential function : undoubtedly the residence of an important person on the island.

History and Development

The original construction of the Coastal Fortress is not easy to date.

Several elements seem to prove that the fortress was not built before the 3rd century AD. : archaeological stratigraphic observations (which demonstrate that it was built on the ruins of the former Tylos settlement), analysis of the ceramics found inside the building, and at last the particular form of the round corner-towers which seem to bear strong Sasanian features.

It is also clear that the edification of such a strong defensive construction is likely associated with some important local historical events. It could coincide with the attack of Bahrain by the Sasanian king Ardashir around the year 240 AD and his victory over the local king Satirun (said to have resisted Ardashir in the « old oppidum of Tylos »), thereafter destroyed by Ardashir. Before returning in Iran, it is likely that the Sasanian king ordered the building (or the rebuilding) of a fortress to station a garrison or even install an administrative centre.

Archaeological evidence also demonstrates that the Coastal Fortress was more or less abandoned from the end of the 5th century to the the period *ca.* 1250/1300 when the Salgharid *atabak* of Fars, Abu Bakr restored the buiding for the purpose of using it as a location for its commercial interests. The defensive function of the fortress was partially maintained, while eight of his rooms were tranformed into workshops for producing date syrup («*madbasa* »). During this 13th century, trade items from China arrived in abundance at Qal'at al-Bahrain. However, by the end of this century or at the beginning of the 14th century, the Coastal Fortress was abandoned again and crumbled naturally, because of tide erosion and due to a slight modification of the shore line. Its location was partially covered by a cemetery belonging to the village that developed in the southern section of the site inland.

Preservation

The present appearance of the Coastal fortress is the result of the excavations conducted by the French / Bahrain Archaeological mission between 1978 and 1986. The total ground plan of the building is presently exposed and well understandable. It displays the last stage of the occupation of the fortress, *i.e.* its 13th century AD. restoration, notably with the *madbasa* (date-juice devices) clearly visible. The preservation in height is highly variable all over the building. The southern, western facades and towers are only preserved up to a height varying from 0.20 to 0.70 m. The northern facade still rises to 2.50 m over the floor surface of the rooms (**Figures 10-11**).

During its excavation, the Coastal fortress was found to have been heavily plundered and was covered by a meter-thick layer of sand. This building, partially constructed of material recovered from older constructions from the site (including a stone bearing a Middle Dilmun cuneiform inscription), was intensely pillaged each time it was abandoned. The southern and western facades, most accessible to the inhabitants of the later settlements, were thus destroyed almost completely. As a general rule, only the inside base of their walls remained. Moreover, subsequent fort construction on the site (cf. the Main Fortress) provides a ready explanation for the robbery of the best cut stones.

The Coastal fortress is regularly cleaned by the Directorate of Archaeology ; some minor restoration work was carried out in 1980, in 1982 (quarter-towers flanking the gate and gate itself) and in 1983 (northwestern sector and some *madbasa*) (cf. UNESCO technical reports 1980, 1983). Further restorations planned in the future will be mainly aimed at the existing structures and will be limited to clearing out, consolidation and above all avoiding any new *reconstruction*.

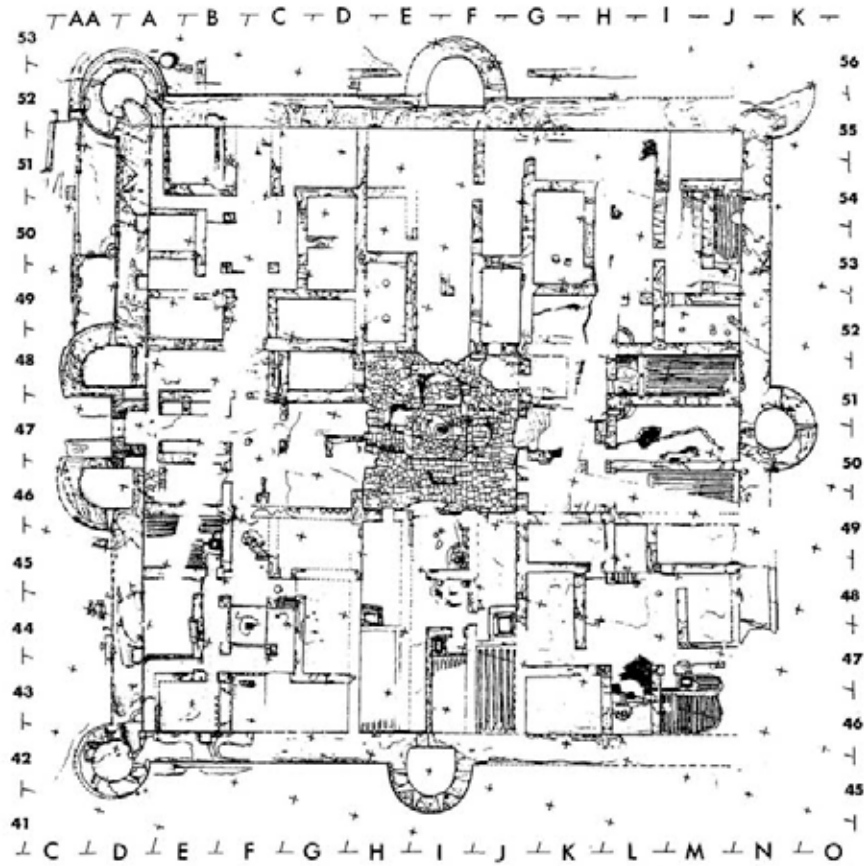


Figure 9 – The Coastal fortress. Groundplan



Figure 10 – Current aerial view of the Coastal Fortress, towards the northwest.



Figure 11 – Current aerial view of the Coastal Fortress, towards the northeast.

3.c.4 The Main Fortress (« Bahrain Fort »)

Incorrectly called for years in Bahrain « the Portuguese fort », the most impressive building from the site by its massiveness alone, will be qualified here as « the Main Fortress », by opposition to the « Coastal Fortress » previously described.

Generally, this building is often locally known under the popular name of « Bahrain Fort ». Unfortunately in fact, this does not help the visitors to clearly establish the distinction between this defensive building and the whole archaeological surrounding site : the Bahraini or expatriate residents who frequently hear or read about the pre-Islamic levels excavated at « Qal'at al-Bahrain » are often convinced that they only represent early architectural stages of the Main Fortress...

This huge architectural complex, surrounded by a wide and deep moat, occupies 2,6 hectares of the whole surface of Qal'at al-Bahrain archaeological tell. Its present aspect is the result of a long architectural development between the 15th and the early 17th century AD., which now clearly appears to the visitors, due the long and heavy restoration work carried out by the administration of the Kingdom of Bahrain between 1988 and 2004 (**Figures 12, 13, 14**).

History and Development

The historical and architectural survey previously and parallelly conducted by Dr. Monik Kervran (the founder and former Head of the French Archaeological Mission in Bahrain) as well as the research of current missions have shown that this building displays three main stages of construction (the description of each will be outlined in the next section) (**Figure 15 a, b, c**) :

- a simple fortified enclosure built at the beginning of the 15th century, under the inspiration of the Princes of Hormuz, a new dynasty from the South of Iran ;

- a first enlargement in 1529 under the governorship of Badr el-Din (nephew of the vizir of Hormuz and in rebellion against the later's sovereignty), which adapted the first building to modern artillery action, mostly by the addition of a new surrounding enclosure and boulevards, and the probable enlargement of the moat ;

- a last reinforcement of this enlarged fortress dating from 1561 and ordered by the Portuguese administration (which several years earlier had already taken control of the Hormuzi) in order to withstand the assault of the Ottoman Turks. The architect Inofre de Carvalho built at that time several corner-bastions in the Genoese style and enlarged again the surrounding moat.

All these developments took place during an essential period in the history of Bahrain island. Notably during these 15th and 16th centuries, the fortified site of Qal'at al-Bahrain became a crucial strategic location along the trade routes leading to India and China. The architectural history of the Main Fortress perfectly reflects the complex local rivalries of this period between the Principality of Hormuz, the Portuguese, the Safavid Persians and the Ottoman Turks. Each stage of its construction or rebuilding is actually closely linked with precise events of this regional history.

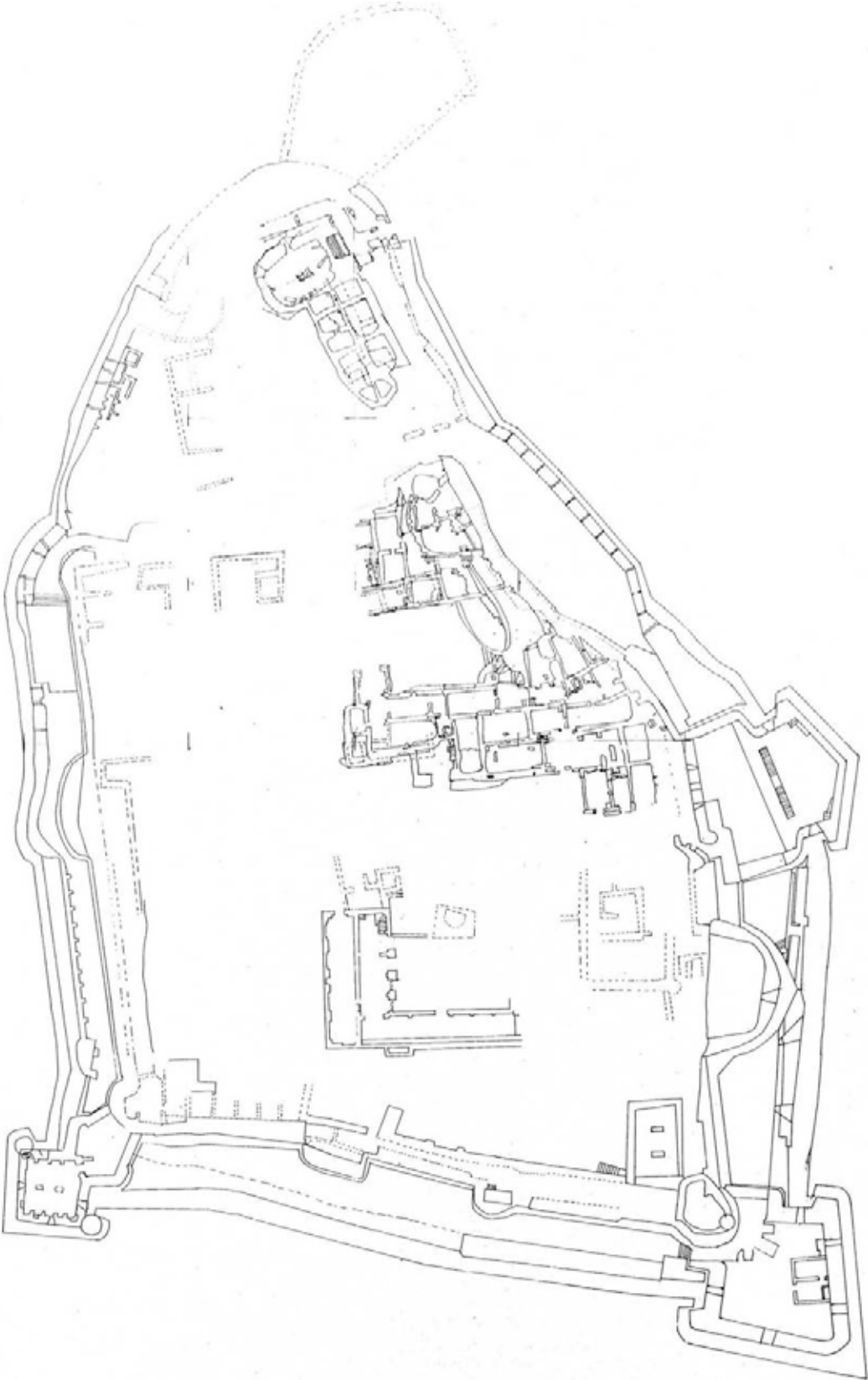
In essence, the narrative or more rare iconographical sources available revealed the importance of the fortress in the 16th and early 17th centuries. As far as we know presently, no documentation prior to 1520 mentions the existence of such a defensive building in Bahrain. The single reference is a brief allusion by the Cairoite chronicler Ibn Iyas, who speaks about « *Europeans (= Portuguese) (who) took over the island and occupied its fortress...* » It is likely that this same building was some years later described by the Hormuzi to their Portuguese allies as a « *fortified enclosure mostly made of coral* ». Both descriptions correspond, admittedly, to the first architectural stage of the Main Fortress. (cf. **Figure 15a**)



Figure 12 – The Main Fortress (« Bahrain Fort ») under restoration in 2002, towards the west



Figure 13 – Current aerial view (2004) of the Main Fortress (« Bahrain Fort »), towards the south



**Figure 14 – The Main Fortress (« Bahrain fort »)
Current groundplan**

The Qal'at al-Bahrain building appears again in a chronicle of 1529. It is rather precisely described by the Portuguese historiographer Joao de Barros who clearly refers to Badr ed-Din's first enlargement of the construction (cf. **Figure 15b**) : « (...) *On the perimeter (circuito) of this fortress there were seventeen towers (cubellos) built of stones and lime, an a barbican (barbacane). All these constructions had crenellations and loopholes. There was a very beautiful keep and in one of its towers was the gate of the fortress, very well fortified. The barbican was surrounded by a large moat with its drawbridge (...)* »

We know through the same chronicle that Badr ed-Din barricaded himself in this building with 800 men (mostly riflemen) joined by some 600 Persian crossbowmen to sustain the siege organized by the Portuguese captain Simao de Cunha. The same stage of Qal'at fortress, finally, is rather accurately portrayed, with its five-sided outside wall, in a miniature of the Island of « Barem » (Bahrain) drawn in 1538 by an anonymous Portuguese during a visit to the Gulf (**Figure 16**).

No available narrative or iconographical historical documentation seems to be directly associated with the last architectural stage of the Main Fortress (cf. **Figure 15c**). Several Portuguese sources clearly mention that Inofre de Carvalho had been, since from 1551 onwards, the « Master of Royal works » in India under King John III of Portugal. They also confirm that this brilliant architect (but also a reputed siege engineer) accompanied in September 1559 the Portuguese Captain of Hurmuz to Bahrain, in order to provide his professional experience during a new siege of Qal'at al-Bahrain conducted by the Ottoman Turks from Al-Qatif.

It is very probably at this occasion that he finalized the plans for the restoration of the local fortress, which lead to the construction of the impressive corner-bastions (**Figures 17, 18**). The only written testimony of this important addition is the order of Governor Murad of Bahrain for the delivery of 100,000 stones extracted from the quarries at Jidda, a small island located some kilometers to the West of Qal'at al-Bahrain. This order, preserved as an arabic inscription carved at the quarry itself is dated in the year 968 of the Hijra (= 1561) ; such a precise date indicates the beginning of the Portuguese restoration of the fortress. This particular restoration phase probably lasted for several years.

As will be seen below, the huge restoration of the fortress undertaken by Inofre de Carvalho revealed useless. Although this outstanding architect mastered the art of military construction, he definitely ignored the island's particularly difficult navigational conditions, especially in its northern area. With the almost completed silting-up process of the access channel during this second part of the 16th century, and the subsequent impossibility for the Portuguese vessels, with their important draught, to moor less than two kilometres away from the site, Qal'at al-Bahrain quickly lost its strategic position and importance. A letter from the King of Spain and Portugal to Ruy de Tavora, the Vice-Roy of India, represents the latest historical document directly connected with the Main Fortress. Dating from 1610, it quotes a report by a certain A. Pinto de Fonseca, which perfectly describes this situation : « *The fort is totally useless because it is far from the sea of a shot gun and it is surrounded by reefs which make it impossible for ships to land there. It is accessible, and only at high tide, to small crafts which fish and ferry goods to the main town, Benamar (Manama, the present capital of Bahrain), half a league away from the fort which is nothing but an armoury (case forte). It is only strong for its foundation and for its wall. Since, in the channels which surround it, only small crafts can sail and not the ships which could represent a real help (...). If a landing were to be made in Bahrain, this fort should be overlooked...* ».

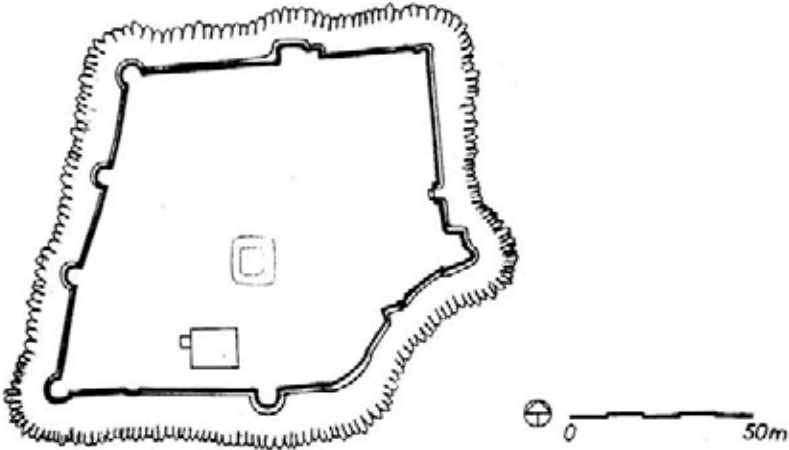


Figure 15 a – The Main Fortress (« Bahrain Fort »). Plan of phase I

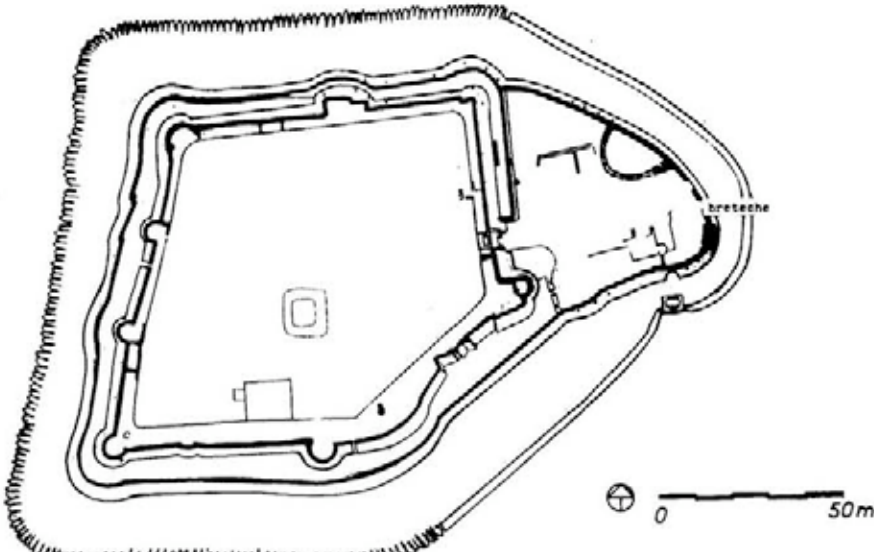


Figure 15 a – The Main Fortress (« Bahrain Fort »). Plan of phase II

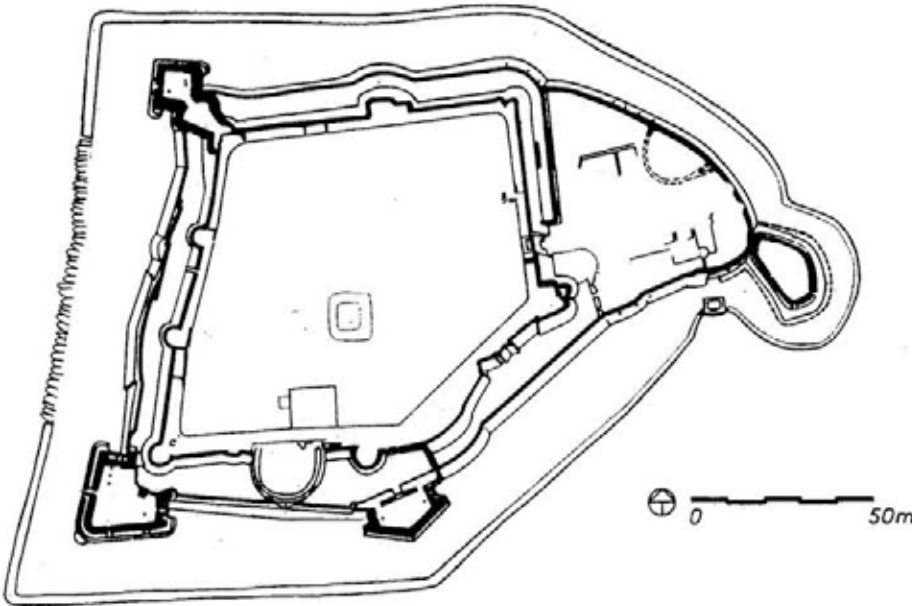


Figure 15 a – The Main Fortress (« Bahrain Fort »). Plan of phase III

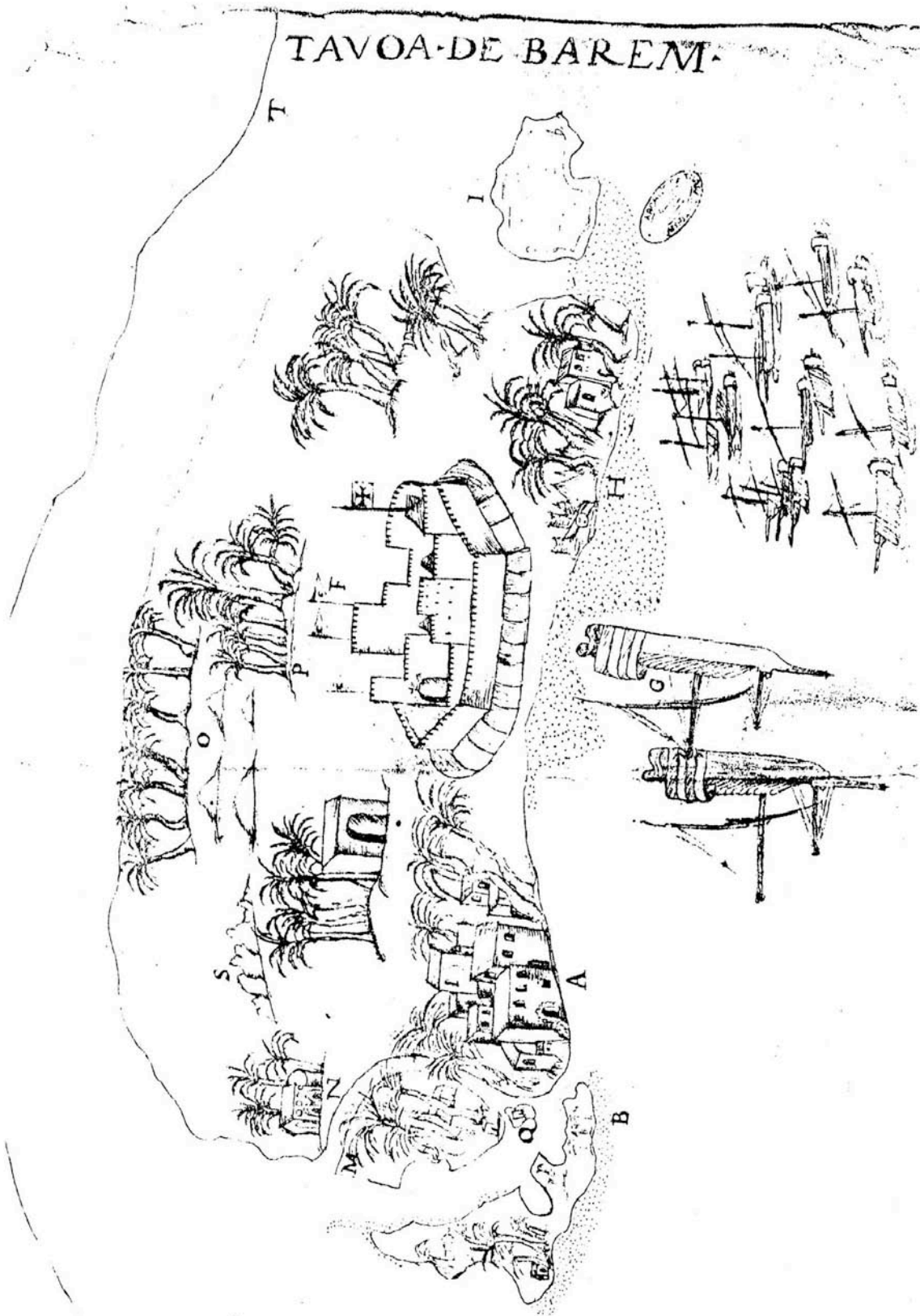


Figure 16 – Ancient Portuguese map from 1538 featuring the Island of Bahrain and showing a representation of Stage II of the Main fortress (« Bahrain fort »). The access channel (with boats inside) is clearly marked, offshore the site.

Description of the main visible structures

—Remains of the first fort

This first fort has an irregular pentagonal outline, enclosing a surface of 8,500 square meters (**Figure 15 a**). Its two most exposed sides, on the West and on the South are flanked by almost perfect semi-circular towers, while on the North side facing the sea, there is only an oblong tower. The gate opens on to the East side, defended by an irregular-shaped construction. One of the best preserved towers, the South-West one, is completely restored today with its partially crenelated parapet and its watch-tower, the base of which appeared clearly at the time of the excavation of this sector. The walls of the towers and the curtains (later reinforced during the second stage, cf. below) were made of diverse roughstones taken from the coral plate and set into a thick mortar. In several places, the original layers of plaster are still visible.

The complete disappearance of the whole lower part of this first architectural stage, obliterated by the enlargements of the second phase, does not allow a reconstruction of the plan of the first fort below the level of the parapets. It is therefore impossible to evaluate precisely the thickness of the enclosure wall (presently varying, from the top to the preserved bottom, between 2 to and 4 m) nor to prove the definite existence of a moat ; such a device, nevertheless probably existed ever since this first architectural stage.

At last, it is difficult to describe the inside organisation of the fortress at this stage, since all the constructions presently visible within the enclosure are not easy to date accurately : most of them (stables, casemates etc.) seem to belong to the second stage. This first fort, however, did have a cistern, as well as a keep, probably located at the same place as the present one, which actually is likely to be a reconstruction or perhaps an extension of the original one.

— Constructions associated with the second fort

This important and careful restoration undertaken by the Hormuzi governor Badr ed-Din in 1529 gave the fortress its definitive outlines and equipped it with defense works adapted to artillery. The total surface of the building was considerably enlarged up to 12,000 square meters, notably by the addition of a new enclosure (curtain) wall, completely surrounding the previous one (at a distance varying from 3 to 6 m) and by the addition of a wide, roughly triangular courtyard at the East (**Figures 12, 13 and 15 b**). These structures, 4 to 5 meters lower than the original fort, form a ring counterbutting it, and transforming it into a authentic security enclosure. The newly created circulation boulevards around the first fort (South, West and North sides) allowed the use of heavy artillery, and the low courtyard acted as a shield protecting the East front of the new citadel. A gate placed at the south end of the courtyard constituted the new and unique access to the building, opening onto the moat which was also considerably enlarged at this period.

During this phase, the earlier fort, transformed into a security enclosure, underwent some modifications : the walls, too weak and certainly ruined after the neglect into which the fort had fallen before the 1529 restoration, were doubled outwards by a second masonry, up to 3,30 m thick in the South front. This second masonry is the one which can be observed today when walking along the circulation boulevards of this newly enlarged fort : it includes most importantly several distinctive square dressed stones, plundered from the ruins of the Coastal fortress at this time.

It is during this second stage of construction/occupation of the Main Fortress that most of the inner structures, presently visible inside the enclosure, were edified. In the low courtyard, an imposing defensive bastion is situated immediately behind the access gate, protecting it efficiently ; in the security enclosure (the original fort) several massive buildings are preserved today at various heights (from 1 to 4 m, approx.), as well as a wide quadrangular complex of stables, measuring 22,50 m from East to West, and 10,50 from North to South. This latter architectural device is still

well preserved today at a height of ca. 1.5 to 2 m ; it had been pillared and at the time was equipped with rows of mangers and a stairway probably giving access to a terraced roof. Finally, the cistern, as well as the keep of the previous fort were still present in this second stage, the keep having probably been heavily restored and enlarged : like the rebuilt walls of the first fort, it clearly shows the reutilisation of the typical square ashlar plundered at this period in the ruins of the Coastal fortress.

— *Constructions associated with the last stage of the Fortress : The Portuguese bastions and other defensive structures.*

This last restoration is the best known historically (date and context of the works, name of the architect, cf. above) and the most easily recognizable in the Main Fortress (« Bahrain Fort »). With the difference of the previous works of 1529, this restoration does not appear as a deep restructuration of the fortified perimeter. Inofre de Carvalho mainly added new elements to the most exposed fronts : a slight enlargement and elevation of the boulevards as well as reinforcement of their outer walls ; the construction of the four massive corner-bastions and of the « spur tower » in the middle of the South curtain wall ; finally the reconstruction and enlargement of the keep (**Figure 15 c**). In addition, the moat reached at this time its present aspect and proportions, and its natural counterscarp was reinforced by a continuous plastered wall, still visible today along its whole length.

The corner-bastions (Figures 15 a, b, c and 16)

The East, Southwest and Northwest bastions are of a fine architectural quality. They made possible a coherent defense of the whole site by their two levels of defensive power or fire power. On the one hand, *cross-fire* from the inner casemates allowed the elimination of any blind spot inside the moat ; on the other hand, the upper guns placed on the terraces of these bastions, efficiently covered by *grazing fire*, the entire surface of the Qal'at al-Bahrain tell. This last technique and its military advantage are notably evident when one looks at the upper platform of the Southwest bastion (the most important in size and volume, as well as the lowest in the moat), the altitude of which is just some meters higher than the site area facing it. These three corner-bastions possess a system of two inner casemates, with gun ports strictly oriented according to the axis of the moat section they are protecting. These lowly placed casemates are accessible by rather steep stairways and generally covered with cupolas on squinches or on pendentives, provided with a vent at the keystone to evacuate the firing smoke. In the particular case of the Southwest bastion, its western casemate displays, instead of a cupola, a semi-circular vault borne by two ceiling-beam arches. All these bastions, at last, are equipped with « ears », a jutting-out masonry protecting the gun ports from the famous « embrasure shot » (an oblique shot in which the attacker's projectile can ricochet off the cheek of the gun port and thus enter the casemate).

According to the specialists who studied them, these three massive buildings, although designed and edified by a great Portuguese architect, also reflect the traditional Italian (and more particularly Genoese) influence of that time. They actually represent a remarkable adaptation of the theoretical principles outlined in the Italian treatises of the mid-16th century as applied to the complex fortress which crowned the Qal'at al-Bahrain site at this period.

A fourth bastion, placed in the prolongation of Southeast salient of the eastern courtyard is of lesser architectural quality. Its shape is roughly elliptic (cf. **Figures 12, 13, 14**) and this construction rather appears as a massive gun platform, without any inner casemates. It is slightly higher than the courtyard ground level, to which it was connected by a ramp. Such irregular construction appears obviously very different from the other finely designed quadrangular bastions, and one generally considers that it was not the production of Inofre de Carvalho. Such a device could have been hastily realized before the first Turkish siege of 1559, as an urgent addition to better defend the eastern courtyard of the fortress.

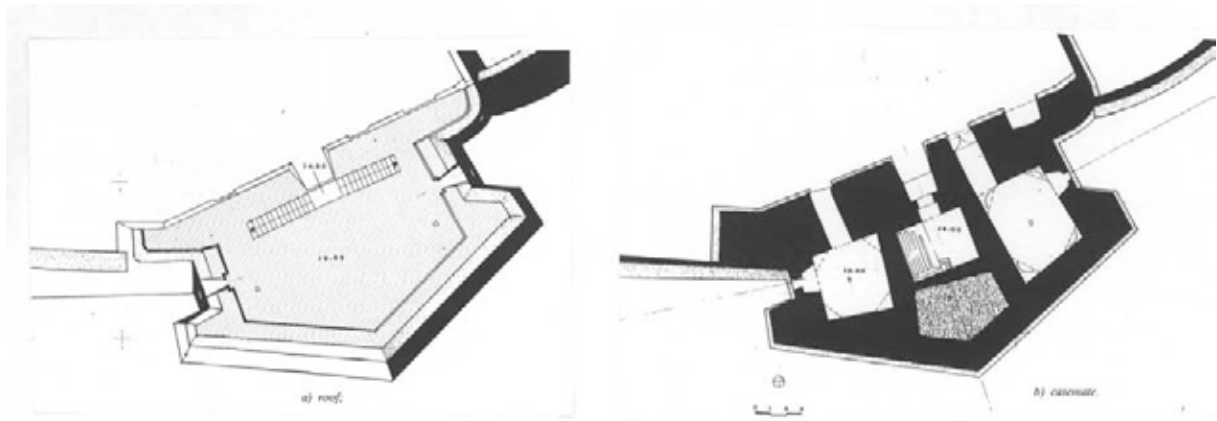


Figure 17a – Plan of South Bastion

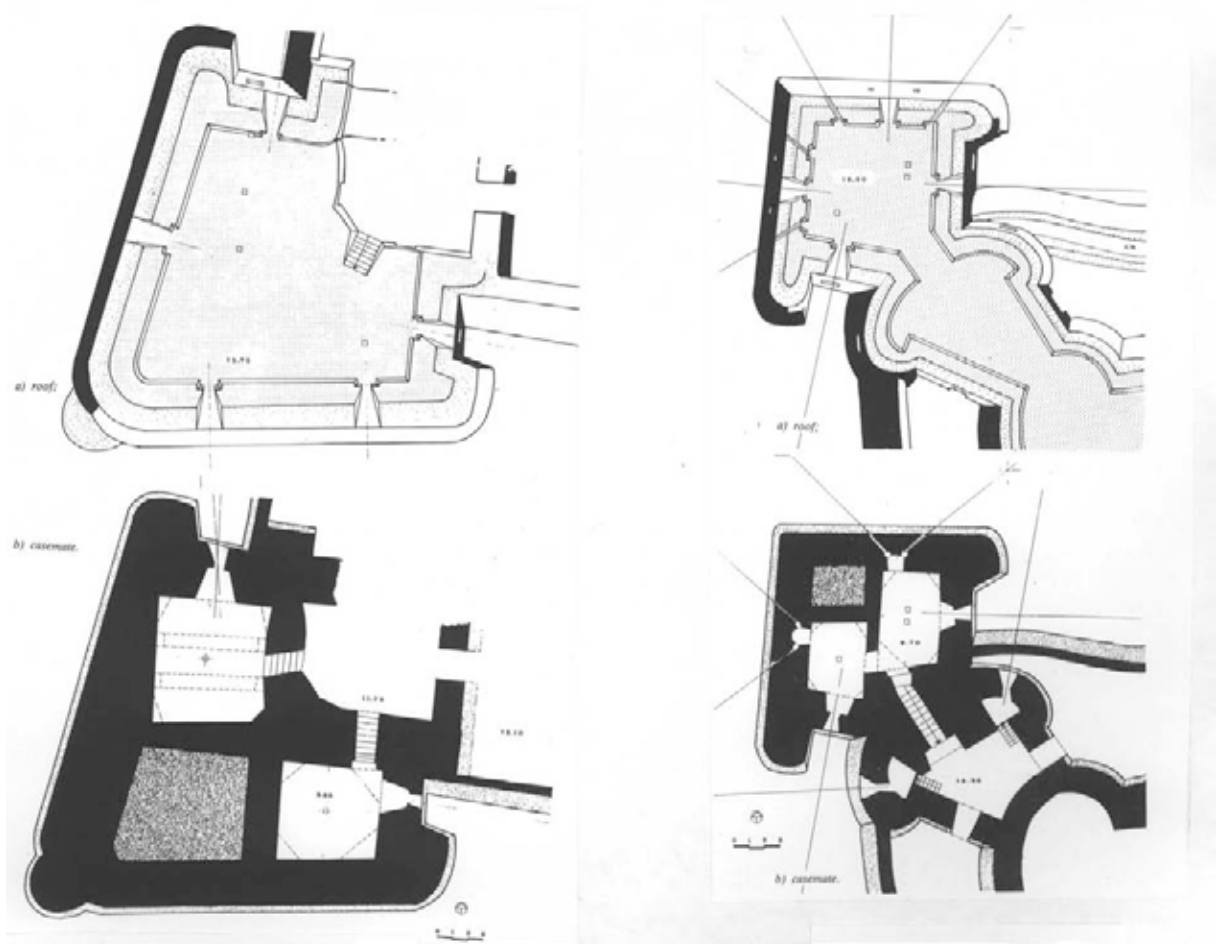


Figure 17a – Plan of Southwest Bastion

Figure 17a – Plan of Northwest Bastion

**Figure 17 – Phase III of the Main fortress (« Bahrain Fort »):
The defensive bastions built in the Genoese style
by the Portuguese Architect Inofre de Carvalho**



A – Aerial view of northwestern Portuguese bastion



B – The southeastern bastion, towards East

Figure 18 – Portuguese bastions of Stage III of the Main Fortress

The spur tower (Figure 19)

At the center of the South front of the Main Fortress is a very original and massive tower, the upper terrace of which constitutes the highest level of the entire fortified building, at nearly 24m. It curiously occupies the entire width of the southern boulevard and thus possesses a corridor at its base to allow circulation between the South and Southwest bastions. Such a construction, whose jutting spur looks like the beak of a parrot, mainly aims at the protection of the fortress keep, acting as a shield for it). Its elevated upper platform was also an excellent look-out post, with an excellent overview toward the interior of the island.

The keep (Figure 20)

The ancient keep of the fortress, already enlarged during the previous restoration conducted by Badr ed-Din from 1529, was apparently transformed again during this third architectural phase. Up to now, this structure remains the lesser known of the fortress as no real archaeological excavation nor modern restoration work was undertaken there (cf. below, *Preservation*). It has an almost perfect irregular quadrilateral shape and is approx. 20 x 20,50 m. It is presently preserved at a level corresponding to the middle of the second floor, at a total height of ca. 11.50 m. In this second half of the 16th century, the keep was therefore a little bit higher. Nevertheless its maximal height in all probably did not exceed the surrounding defensive constructions (Southwest Bastion, Spur Tower) which dominated, and thus protected it.

The moat and its counterscarp (Figure 21)

The present aspect of the dry moat surrounding the Main Fortress (« Bahrain Fort ») is the result of the work which accompanied the Portuguese rebuilding of the citadel which took place starting in 1561. The width of the moat was enlarged eventually reaching more than 10 m in its southeastern portion, between the South and East bastions. It is also apparently during this phase that the counterscarp (the side of the moat facing the fortress) was faced with a wall of varied thicknesses, materials and quality according to its location, very often bonded with the archaeological structures cut during the digging of this ditch.

Preservation

The dramatic state of deterioration of the fortress during the last years of the 1980s (cf. **Figure 5a**) as well as the need for a complete restoration have already been mentioned at length in paragraph 2.C. (*Authenticity/Integrity - cf. pages 14, 16*).

As of January 2004, the totality of the surrounding dry moat has been cleared out down to its original base level which, in most locations, coincides with the bed-rock level ; the counterscarp wall was restored and reconstructed in the few sections where it has almost completely disappeared (due to the permanent local stone plundering after the abandonment of the fortress in the 17th century).

In addition, the enclosure of the first fort with its flanking towers, the enlarged curtain walls of the second stage, as well as the bastions and the Spur Tower of the third stage, have all been restored or reconstructed in their totality. The inner structures (stables, the fortified bastion behind the gate, the group of dwellings alongside the inner southeast and northern curtain walls, the *madbasa* (date press) devices laterly built in the central courtyard, etc.), were partly restored but not reconstructed and are thus preserved at the height of the time of their discovery.

One must recall that such restoration work has carefully respected the integrity of the ground plan and structures surveyed or exposed by the archaeologists. Similarly the restoration materials (stones, mortars and plaster coatings) were carefully chosen (cf. § 2.c.).



Figure 19 – The « Spur Tower » on the south side of the Main Fortress (« Bahrain Fort »)



Figure 20 – Remains of the still unexcavated keep of the Main Fortress (« Bahrain Fort »)



Figure 21 – Western section of the dry moat of the Main Fortress (« Bahrain Fort »), towards the north.

3.c.5 The Central Excavation Area

Description

With the remains of the ancient enclosure wall of the city (cf. above) and the Coastal Fortress, the Central Excavation Area (sometimes called « Palace of Uperi » area) represents today the only visible part of the archeological levels forming the Qal'at al-Bahrain tell (**Figures 22, 23, 24**). Located at the southeast of the Main Fortress (« Bahrain Fort »), directly touching its moat, the work site, still actively exploited today, extends over approximately 3900 m². The south bastion of the fortress makes up an excellent observation point for this architectural group, which is certainly impressive ; however, once it is completely uncovered it will need at least partial restoration and more importantly it will need proper arranging so as to become comprehensible and educational for the visitors to the site.

The excavation conducted by the Danes between 1954 and 1966, as well as the current digs carried out by the Franco-Bahraini archeological mission don't yet permit, for the time being, the finishing touches needed to enhance public viewing. Meanwhile, this last stage of work has been programmed to begin in the next few years and this particularly representative grouping of the tell's stratigraphy will make up, with the successive fortresses of the site, a major viewing point for the visitors at Qal'at al-Bahrain. The architectural structures presently visible are from ca. 2000 B.C. to the 15th/16th centuries.

History and development

The Early Bronze Age buildings (Early Dilmun phase, ca. 2200-1800 BC.)

The same organization which ordered the construction of the first rampart by the end of the 3rd millennium BC. may have been responsible for the lower (and oldest) complex of monumental buildings that were edified here, at the centre of the city. The later restoration and likely slight modification of them (cf. *Middle Dilmun phase, below*) render the original plan still not very clear. In addition, these imposing ruins were even reused in the first millennium BC, which result, in some places in a preservation of the walls up to 4.5 m.

According to the present state of interpretation, several buildings of apparently identical ground plan and construction were erected on both sides of a 12 m wide, north-south oriented street. The ground plan of one building has been established in its entirety : its entrance faced the street, and it had eight rooms arranged on both sides of a central hall. Another one is presently in the process of digging by the French/Bahraini archaeological team. The walls are about 1.1 m thick, generally built of limestone ashlar. All these apparently separated warehouses (?), seem to have been laid out according to an overall plan and could have constituted a single entity, which is presently interpreted as part of a palace, representing probably the centre of the economic organization of the kingdom of Dilmun.

A large part of this major complex disappeared when the surrounding moat of the neighbouring Main Fortress was dug in the 15th and 16th centuries AD.



Figure 22 – General view of the Central Excavation Area, towards the south



Figure 23 – Current aerial view of the Late and Middle Dilmun constructions in the Central Excavation Area

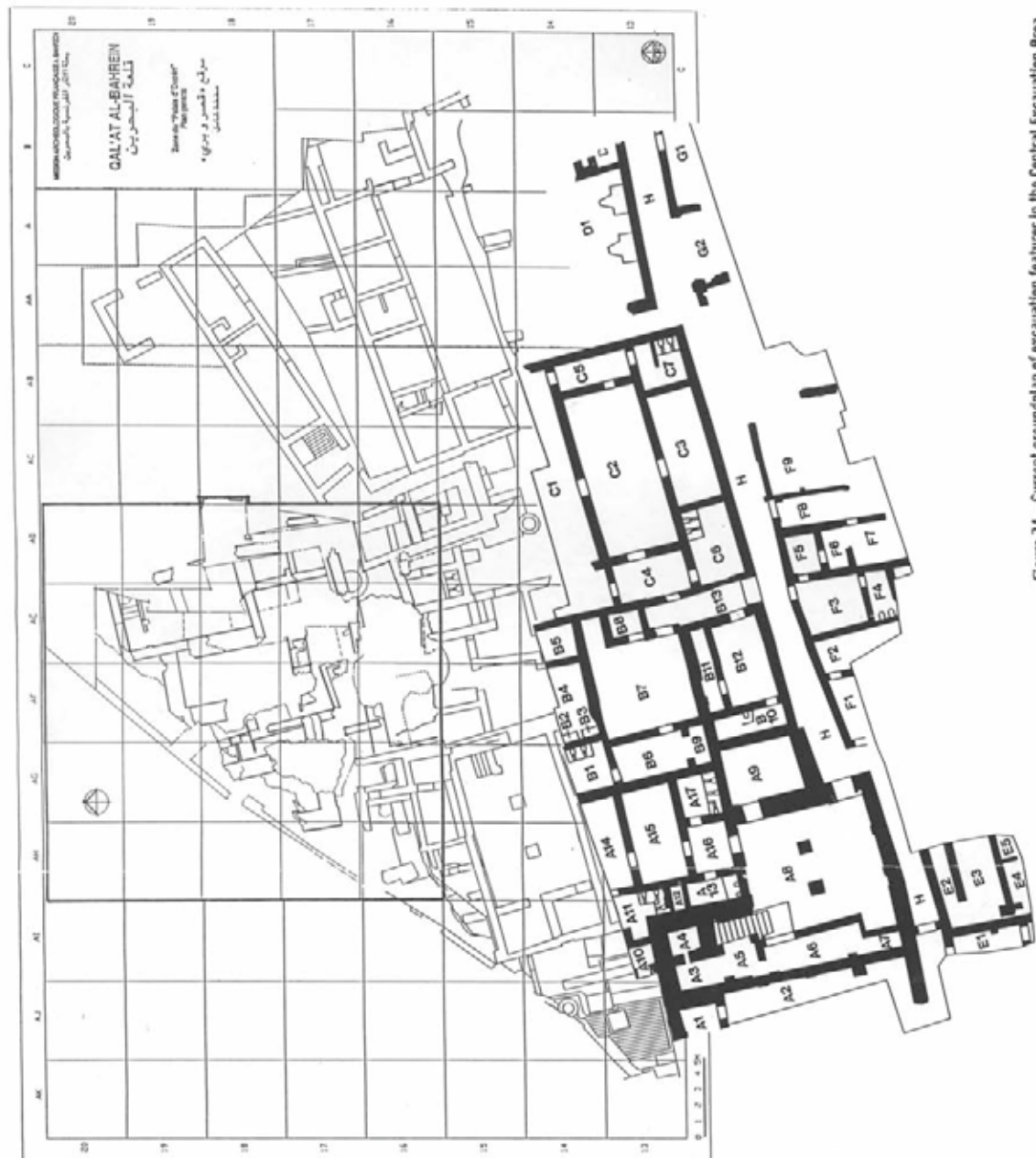


Figure 24— Current groundplan of excavation features in the Central Excavation Area. (In black : Danish excavations, 1954-1965 ; in white, French excavations, 1989-2002)

The Middle Bronze Age buildings (Middle Dilmun phase, ca. 1450-1300 BC.)

Due to the main epigraphic discovery made at this spot, at first in 1995, it is now demonstrated that the Kassite colonisers from Mesopotamia chose the city of Qal'at al-Bahrain to establish their administration and, undoubtedly, their governor's residence. A major building programme began, which consisted of the restoration of the Early Dilmun Palace mentioned above. The choice of this precise location and edifice by the Kassites is a likely confirmation of the interpretation of this ancient Early Dilmun construction as a palatial structure. The old complex was repaired and probably enlarged. The main gate of this new architectural device was located and still possess its large threshold measuring 3.60 x 1.30 (one of the largest ancient monolithic stone slabs on the island, made from conchiferous limestone).

As previously mentioned, the discovery between 1995 and 2002 of about 100 cuneiform tablets in several rooms of this building confirmed that this new « palace » (this designation —« E-GAL » in Sumerian language— being clearly quoted on several documents) was used for administrative purposes. It housed, in particular, a series of *madbasa*, a sort of date-press designed to accelerate the maturation of the fruit and recover its juice (**Figure 25**). So this typical local equipment, still used in Bahrain not long ago, made its earliest appearance in the Kassite Palace at Qal'at al-Bahrain.

At last, evidence has been found in this monumental building of a violent fire that destroyed it, at the beginning of the 13th century BC, according to a radiocarbon datation. Largely in ruins, it was visibly re-occupied by « squatters » for a short time, but was never rebuilt.

The Iron Age buildings (Late Dilmun phase, ca. 1000-450 BC.)

The levels of this phase (labelled « City IV » in the Danish chronology) illustrates several stages of occupation that cannot always be dated with accuracy.

The oldest (which could correspond to the era of the famous king Uperi of Dilmun, mentioned in 709 BC on the bas-reliefs from the palace of the Neo-Assyrian king Sargon II, in Khorsabad, Iraq), shows here an impressive monumental architecture, possibly a restoration of a partly preserved section of the previous « palaces » (**Figures 26-27**). This new architectural structure, notably composed of two large pillared halls (**Figures 28-29**) could be interpreted as a place of worship, due to several particular discoveries found there: particular ceramic stand identical to specimens found in numerous temples in the Ancient Near East, numerous male votive figurines as well as snake sacrifices.

Under the later influence of the Achaemenids from Persia, a new and wide residence was built on the top of the ruins of the previous Kassite Palace (which were used as foundations for this new building). Nothing indicates up to now that it was used as an administrative place, or for the residence of a leading elite. Its eastern ground plan is, however, characteristic of the luxurious residences found in numerous regions of the Near East at this period. In the same way as examples from Ur or Babylon in Mesopotamia, it is divided into public and private areas, organized around a central courtyard, and disposed of a very elaborate sanitation system.

During this same phase, several graves, notably containing earthenware sarcophagi, have been discovered under the floors of dwellings: such a practice is totally alien to Bahraini burial traditions in the Late Dilmun period. This was, however, common practice in Mesopotamia around the middle of the 1st millennium BC, and could give therefore another indication that a Babylonian colony was probably living in Qal'at al-Bahrain at this period.



**Figure 25 – Central Excavation Area.
Madbasa belonging to the Middle Dilmun (Kassite) palace**



Figure 26– Central Excavation Area. Monumental walls of the Late Dilmun residence, towards the west



Figure 27 – Central Excavation Area. Monumental walls of the Late Dilmun residence, towards the north



Figure 28 – Central Excavation Area. Southern pillared hall of the Late Dilmun residence, towards the south



Figure 29 – Central Excavation Area. Northern pillared hall of the Late Dilmun residence, towards the south

The Tylos phase building (ca. 250 BC. –250 AD.)

The archaeological levels dated to the so-called "Tylos" (sometimes qualified as « Hellenistic » or « Seleucid-Parthian ») period have no direct relation with the previous structures from the Early to Late Dilmun phases. Nevertheless, these levels cover and seal these older architectural remains at an altitude comprised between 8.5 and 11 m.

The poorly preserved walls and disturbed floors associated with this phase at this spot of Qal'at al-Bahrain probably testify of a heavy destruction and likely plundering of the Tylos city which extended there between the third century BC. to, apparently, the 2nd century AD., as indicated by two silver coins found in the area. (cf. 3.c.2, above, about the discovery of a hoard of silver coins from the Tylos period in the City Wall area).

The Middle Islamic phase (13th to 16th centuries AD.)

The last remains visible at this spot of the site are associated with the agglomeration that developed all over Qal'at al-Bahrain after the occupation of the site by the Salgharids of Persia and their restoration of the Coastal fortress. These constructions, generally situated immediately below the surface of the site, represent the latest occupation in the history of Qal'at al-Bahrain. At the current excavation spot, the French/Bahraini team notably found distinctive layers of buildings (**Figure 30**).

The earliest one is apparently set in a dense urbanization. The presently visible construction, excavated in 1989-1993 appears to be the northern prolongation of the group of buildings excavated by the Danish team in 1962. It can be interpreted as a little souq or caravanserail, where most of the rooms opening onto a circulation space contained very distinct activities (copper working, pottery vessels storage and likely sale, fish-scaling, etc.). Local pottery found in this building, as well as imported categories so far identified (Julfar pottery, Iranian frit, crockery from northwest India, Chinese celadon from Longquan and other Indochinese productions) have allowed to establish a quite refined dating from the 13th to the beginning of the 15th centuries.

The second, upper layer is represented by a long narrow domestic construction, surrounded by mainly uncovered spaces, which have produced numerous hearths. Very little preserved in elevation (0.20 to 0.40 m), the walls of this house reveal an architecture of mediocre quality; the materials employed are very heterogeneous (limestone or sandstone, rounded pebbles, slabs of *farush*, fragments of render or re-used mortar, blocks of coral, little worked blocks coming from the ruins of the Coastal Fortress). This very modest construction is evidence of the very last "concrete" occupation of this zone of the tell.

Preservation

Constructed from generally solid materials (local limestone and highly resistant gypseous mortars or plasters) and assembled with dexterity of an evident quality, the totality of the structures anterior to the Tylos and Islamic phases shows an overall remarkable preservation. The structures of the Late Dilmun phase (themselves rebuilt from older structures) of the southern portion of the work site are often conserved at a height of 4,50 m, which is considered to be very exceptional in the Middle-East region (cf. **Figures 26-27**). Certain remains have been uncovered for over 50 years, and none have needed restoration, having undergone no major deterioration. One will note that meanwhile it has been considered necessary in the near future to apply a protective treatment to the summit of certain walls and pillars in order to avoid too much absorption of the winter rains or more generally the ambient humidity.

(



Figure 30 – Central Excavation Area. Middle Islamic buildings from the 14th to 16th cent. AD

The rare constructions from the Tylos period are less well preserved, even if the original quality of their edification was undoubtedly of a high level. This is mainly due to the important destruction and certain plundering of the city of Qal'at al-Bahrain after the probable raid by Ardashir in 250 A.D.

The constructions corresponding to the various stages of the Islamic period agglomeration are certainly the least well preserved. Beyond the simple fact that they were generally built with materials of lesser quality (small stones and previously used fragments of mortar, coral, etc...) we know that they suffered considerable damage from military improvements linked to the second and third stages of the Main Fortress in the 15th and 16th centuries. The development of new artillery techniques during this period actually forced the military to completely destroy part of these constructions in order to clear out large virgin zones and create glacis from the surface of the archeological tell. The site was also the scene, at the time, of several sieges or combat actions.

Besides, one can generally consider that all the builders, at each period of important architectural activity on the site, abundantly « dug into » the former layers in order to extract the construction materials of the best quality, most importantly the ashlar which characterize the oldest phases. It is thus that the area of the palatial zone from the Early and Middle Dilmun excavated at the south by the Danish expedition has remained intact ; the area, farther north, excavated by the Franco-Bahraini mission has been greatly damaged by this plundering : several sections of walls were entirely dismantled and large areas of floors, broken up by the pits from this plundering, have totally disappeared.

Finally, one must not lose sight of the fact that this zone of the Qal'at al-Bahrain site is still under excavation and will be for numerous years to come. That which has been described here represents the state of the architectural structures uncovered and visible at the date of the presentation of the Nomination File. This situation will naturally evolve in the very near future with the expansion of the archeological work (the removing of certain structures or the clearing out of new buildings).

3.c.6 The other components of Qal'at al-Bahrain site

The access channel to the site and the Sea Tower

The intertidal space extending North of Qal'at al-Bahrain, an old coral plate nearly 1,5 km long, is cut out of the North-West of the site by a large notch that lengthens into a natural channel running NorthWest/Southeast, today erased by centuries of silting, partially due to its abandonment and, more recently to the effect of neighbouring land reclamation work.

This channel was revealed at first by aerial photographs and by air survey of the zone. Its opening to high sea is still very clear (**Figure 31**). The North section of its oblique outline (covered by sea at high tide) was still well marked in 1980. Its complete outline is also partly visible from the coast, since fishermen set their traps (*hadra*) right out to the edge of the channel on the solid section of the coral plate.

On the western edge of the rather large entrance of this sea corridor (a deep indentation creating a basin of some 50 m wide), are the remains, visible and accessible at low tide, of the lower portion of a rectangular building constructed of two courses of large ashlar stones set directly on the uneven surface of the coral (**Figure 32**). This construction is 9.10 m from east to west and 10.70 m from North to

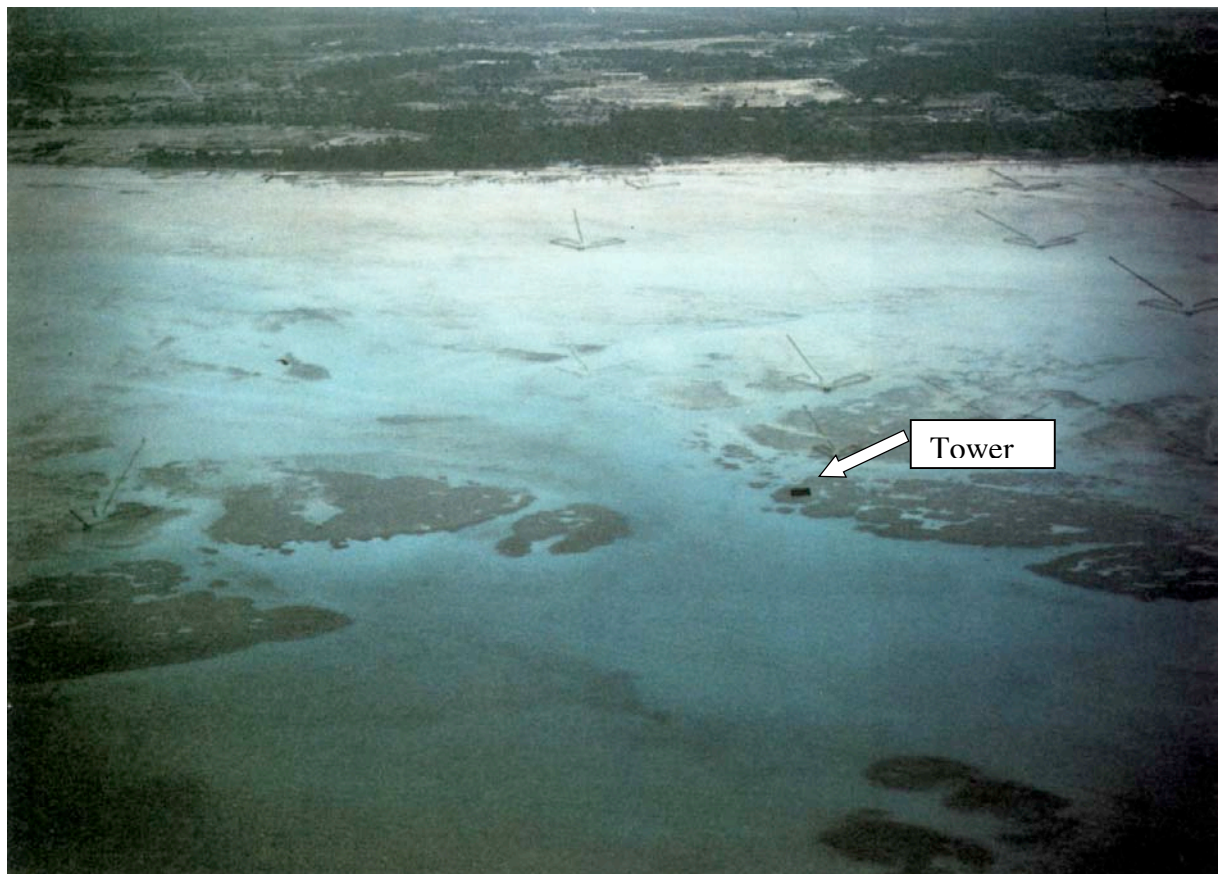


Figure 31 – Entrance of the channel leading to Qal'at al-Bahrain site, with position of tower



Figure 32 – Base of the tower (ancient lighthouse ?) at the entrance of the access channel to the site

South, and is preserved for about 2 m. Its inner fill is made of various kinds of stones embedded in a mortar to which highly concreted potsherds are attached. Marine concreting has thoroughly bonded the coral base and the lower part of the building, as well as its individual blocks to one another.

Such a construction is interpreted as the base of a tower, possibly used in the past as a lighthouse (or even a simpler landmark) for indicating the entrance of the access channel. It could have also used as a guard tower, aiming at the surveillance of immediate maritime traffic and control of the access to the channel.

It is probable that this construction was previously higher. It is difficult to date accurately, but some of potsherds trapped in the mortar could date back at least to the Tylos/Hellenistic phase of the site, which could establish a connection with the building of the Coastal Fortress. It could also date back to much more ancient periods, as the size and way of cutting of the construction stone blocks is close to those observed on the Early and Middle Dilmun buildings of the site.

Due to the gradual silting-up process since at least the beginning of the 16th century A.D., the exact shape of this channel is not easy to fix with accuracy. It is nevertheless clear that its southern limit has constituted the main harbour of Qal'at al-Bahrain, a moorage which guaranteed the continuing success of the site since its earliest history. The channel itself is first mentioned during the Hellenistic period, by Pliny the Eldest, who described it as the « unique » and « narrow » access to the « oppidum of Tylos »¹, this last name evidently pointing to the Qal'at al-Bahrain site. The recurrent mention of a « Portuguese harbour », which appears on some Bahrain maps from the 19th century could indicate, at first sight, that such a facility was used until a relatively recent time. In reality, as previously mentioned (cf. 3.c.4., *Historical development*), this channel and its associated « harbour » had become totally useless at least from the very end of the 16th century, as mentioned in Portuguese sources.

The surrounding palmgrove

As distinctive as its coastal façade and its opening towards the high sea, the neighboring palmgrove is an indissociable element of the Qal'at al-Bahrain site, whether it be concerning the actual landscape or its ancient economy. With the same importance as the maritime component, the palmgrove, directly linked to the archeological tell, contributes to its specific cultural identity and is definitely an important element of its cultural landscape (**Figures 33 to 38**). This is the principal reason that a portion of this individualized agricultural zone, currently in the hands of private owners, has been placed in a *buffer zone* delimited around the site. It cannot be excluded that in the future this *buffer zone* could be expanded towards the west in order to guarantee with even better results not only the integrity of the immediate area bordering the site but also the protection of its particularly strong economic link.

The archeological studies, and more particularly the archeo-botanic analyses, easily show that this palmgrove has more likely than not evolved very little since the Antiquity, especially in its agricultural characteristics (the surface area of the northern palmgrove of Bahrain has, however, been reduced from 746 ha in 1977 to less than 350 ha today).

The presence of wood from the date-palm tree (*Phoenix dactylifera*) or the pits from the dates themselves in practically all the samples collected in the archeological work sites at Qal'at al-Bahrain, regardless of the period in consideration, testifies to the importance of this species in the local economy. In the past, as well as today, the date-palm tree makes up the principal element of the palmgrove or the neighboring

¹ Pliny, Natural History, VI, 148.



Figure 33– The palmgrove at the west of Qal'at al-Bahrain site



Figure 34– The palmgrove at the northwest of Qal'at al-Bahrain site



Figure 35– *Bustan* (gardens) at the west of Qal'at al-Bahrain site

bustan, traditional agro-systems which allow the cultivation of an important number of plants in a relatively confined space while at the same time saving water. The archeological site has rendered as well numerous other fruit, vegetable, cereal or fodder species cultivated in the Antiquity (notably, pomegranate (*Punica granatum*), jujube (*Ziziphus spina-christi*), grape (*Vitis vinifera*), coriander (*Coriandrum sativum*), barley (*Hordeum vulgare*), wheat (*Triticum durum/aestivum*), sesame (*Sesamum indicum*), lucern (*Medicago cf. sativa*), etc.). These species, which made up the basis of the local economy, show how well the ancient palmgrove was organized, just as it still is today, according to a multi-level system where the date-palm trees, thanks to their foliage, gave enough shade to the other cultures. Similarly, the cultivation of lower plants took place in smaller plots, separated one from another in order to better regulate the irrigation. The same techniques are still employed today.

This shows, on the one hand the authentic character of the current palmgrove and on the other hand its evident complementary link to the site of Qal'at al-Bahrain, which these studies are trying to underline.

From the strictly archaeological point of view, finally, one cannot exclude that a late Tylos necropole (ca. 2nd / 3rd century AD.), connected with the settlement of this phase at Qal'at al-Bahrain, could have been located in the neighbouring palmgrove at the northwest of the *tell*. An exceptional series of fifteen figured steles discovered there in June 1991 seem to corroborate this hypothesis. In the light of other discoveries on the island of Bahrain, they appear to be funerary steles, obviously of the same Parthian iconographical tradition known from Syria to Iran between the end of the 1st and the end of the 3rd century.



Figure 36 – *Bustan* (Gardens) at the west of Qal'at al-Bahrain site.



Figure 37 – *Bustan* (Gardens) and palmgrove at the west of Qal'at al-Bahrain site.



**Figure 38– *Bustan* (gardens) at the west of Qal'at al-Bahrain site.
The Main Fortress is seen in the background**

3.d Form and date of most recent records of property

The property of Qal'at al-Bahrain site to the government of the Kingdom of Bahrain (Ministry of Information) is attested in the records of the *Directorate of Real Estate Registration*, under the following references :

- Year : 1993
- N° of Muqademah : 6061/1984
- N° of document : 78263

Cf. annexed Management Plan for copy (and translation) of the official ownership document.

3.e Present state of conservation

The state of preservation of the main features of the site has already been discussed in each specific description (cf. above, 3.c.6).

As far as the whole site of Qal'at al-Bahrain is concerned, one must not lose sight of the fact that the tell is still only slightly excavated, and that about 75% of its surface area is still virgin from the archaeological point of view, as of the present date (cf. Figure 39).

The modern village which was situated in the southwestern corner of the site has been demolished and rebuilt more than twenty five years ago at the bottom of the archaeological tell, to the south of it^{***} ; only the little mosque of the former village is still standing on its original location, and constitutes the only modern building present on the site itself.

With the exception of a narrow strip of private land bordering the site to the north of the Main Fortress (« Bahrain Fort »), which was transformed into a garden some years ago, we can consider that the whole original tell of Qal'at al-Bahrain is more or less intact, and that its historical remains are preserved in the best state possible for the future generations.

3.f Policies and programmes related to the presentation and promotion of the property

There is no specific policies or programmes implemented at the moment, as far as all the actions conducted up to now by the Directorate of Archaeology and National Heritage focussed on the restoration/conservation of the Main Fortress (« Bahrain Fort »), as well as on the archaeological excavations in the Central Area (in collaboration with the French Archaeological Mission to Bahrain).

^{***} In order to totally preserve the integrity of the immediate surrounding landscape of Qal'at al-Bahrain site, the demolition and shifting of this « new » village is in turn planned for 2006/2007 by the authorities of the Northern Governorate of Bahrain.



Figure 39– Qal'at al-Bahrain archaeological tell, towards the northwest

However, the Management Plan annexed to the present Nomination File constitutes a first step regarding the presentation and promotion of Qal'at al-Bahrain site.

Such Management Plan notably includes :

- . Continuous conservation/consolidation works and future excavations ;
- . Project of a Visitor Center / Site Museum ;
- . Project of an Heritage Path inside and outside the site ;
- . Publication of brochures and other promotional materials ;
- . Promotion of traditional crafts and agricultural industries specifically produced in the surrounding buffer zone of Qal'at al-Bahrain site ;
- . Organization of specific events at the site (Main Fortress, notably) ;

Cf. § 4.i of the present document, and section 3.b.viii of the annexed Management Plan.

4. Management

This section will summary the main dispositions exposed in the annexed *Management Plan* in which complete and detailed information is available.

4.a Ownership

The site of Qal'at al-Bahrain together with its immediate surroundings demonstrates three major categories of land ownership :

(1) the land own by the Government of the Kingdom of Bahrain through its agency with the management authority (in this case, the Directorate of Culture & National Heritage at the Ministry of Information) : it represents ca. 70% of the area proposed for inscription (excluding any future buffer zone).

(2) the land that is privately owned : this represents the remaining part of the archaeological site *stricto sensu*, and the majority of the palmgroves around the site (included in the proposed buffer zone).

(3) the land adjacent to the site (mainly at the east of it) in process of acquisition by the Ministry of Information to add to its ownership ; this future land includes the sector where the Visitor Center (Site Museum) is planned for 2004.

4.b Legal status

The Qal'at al-Bahrain archaeological site is presently placed under the protection of Law n° 11 of Year 1995 (« Law for the Protection of Archaeological Sites »).

According to the Article 1 of this law, the supervision, protection, and management of the site is the responsibility of the Ministry of Information. The Ministry of Information and its Directorate of Culture & Heritage is thus the agency responsible not only for general management and protection of the site, but also for archaeological excavations (including the delivery of excavation licences to foreign scientific expeditions) as well as gestion and protection of archaeological findings either on the site itself or in designated museums.

Cf. also section 3.b.ii of the annexed Management Plan.

4.c Protective measures and means of implementing them

The above mentioned law includes protective measures or designation processes for the Qal'at al-Bahrain site, as well as for any other potential archaeological site. Article 5 of the law notably specifies that ownership of land does not give the right to its legal proprietor to own the archaeological remains on the land or underneath it.

The Management Plan prepared at the end of 2003, will now provide the Qal'at al-Bahrain site with an adequate long-term legislative, regulatory and institutional effective management to ensure its continuity into the future.

Cf. sections 3.b.iv, v, vi, vii and viii of the annexed Management Plan.

4.d Agency with management authority

Ministry of Information of the Kingdom of Bahrain (*cf. 4.b, above*).

4.e Level at which management is exercised and name and adress of responsible person(s) for contact purposes

– *Ministry of Information :*

Assistant-Undersecretary for Culture and National Heritage :

Shaikha Mai bint Mohammed bin Ibrahim Al-KHALIFA,
Ministry of Information
P.O. BOX 2199
Manama
Kingdom of Bahrain
[Tel : (973) 290 210 ; Fax : (973) 292678]

– *Directorate of Archaeological Heritage :*

Director of Archaeological Heritage :

Mr. Abdul Wahab AL-KHAJAH
Bahrain National Museum
P.O. BOX 2199
Manama
Kingdom of Bahrain
[Tel : (973) 293300 ; Fax : (973) 292820]

4.f Agreed plans related to property (regional, local plan, conservation plan , tourism development plan)

Only the Qal'at al-Bahrain Management Plan (with its main Statements of Objectives) (*cf. 4.j and document in annex*) exists as of date. Since 2003, the Physical Planning Directorate (Ministry of Housing, Municipalities & Environment) is working on a Development Plan concerning the Northern Area of Bahrain, to the north of Budaiyah Road. (*cf. Map 4o of the annexed Management Plan*).

Moreover, the project for the construction of a new « North City » is notably proposed on reclaimed land areas planned offshore of the northern coastal line of the island. Nevertheless, coordination had already been established between the Ministry of Information and the Ministry of Housing in order to avoid any visual damage to Qal'at al-Bahrain site ; in particular, it was agreed that the eastern borders of the planned city would be at least 5 km west of the archaeological site (*Cf. Map 4m of the annexed Management Plan*).

During the few weeks preceding the delivery of the present Nomination File to the World Heritage Center at UNESCO, a new project of construction of an artificial island, offshore of the northern coast line of Qal'at al-Bahrain, has been brought to the attention of the Directorate of Culture. Such project is definitely planned beyond the limit of the proposed buffer zone but its general extension is worrying as such an island could constitute a new threat for the cultural landscape of the site. (*cf. Map 4r of the annexed Management Plan*). The Bahrain authorities are presently looking for the best solutions in order to reduce at the maximum any potential visual or environmental damage to the whole area submitted for nomination to UNESCO.

Cf. section 3.b.iv of the annexed Management Plan.

4.g Sources and level of finances

Up to the present date, the Ministry of Information only provided budgets for conservation and consolidation works, mainly at the destination of the Main Fortress (« Bahrain Fort »). One must also add the regular co-funding of the archaeological excavations carried out at the site, together with the French Archaeological Mission to Bahrain to which an excavation licence is regularly –and exclusively- delivered by the Ministry since 1978.

Once the Qal'at al-Bahrain Management Plan implemented, funding will be available to the site on an annual basis, still budgeted by the Ministry of Information.

Cf. section 3.b.v. of the annexed Management Plan.

4.h Sources of expertise and training in conservation and management techniques

At the moment, the only local expertises available for the site (and directly in contact with it) are at both technical and professional levels. They essentially include :

- several archaeologists belonging to the Directorate of Archaeological Heritage of Bahrain or to the French Archaeological Mission to Bahrain led by Dr. Pierre Lombard) ;

- a site superintendant (Directorate of Culture & Heritage) ;

- two architects/conservationists (Directorate of Culture & Heritage)

One must add the group of workers engaged in the restoration work, mostly at the Main Fortress (« Bahrain fort ») which includes some traditional builders with knowledge about local materials and traditional building techniques, but with little knowledge about different conservation mechanisms and levels of interventions or issues of authenticity.

The establishment of a more diversified and experimented staff is one of the main objectives of the Management Plan for the site.

Cf. section 3.b.vi of the annexed Management Plan.

4.i Visitor facilities and statistics

The site presently lacks proper access roads, as well as other needed infrastructures : signboards for interpretation and description, a visitor's center (Site Museum), a cafeteria, public toilets, etc... as well as more general information delivered in written form.

The official celebration of the 50th Anniversary of the discovery of Qal'at al-Bahrain site and of the Dilmun civilization, planned at the end of November 2004 will provide a first opportunity to remedy such a situation. All site management efforts together with planned visitor facilities should aim to convey to the public the complex and diverse level of significance of the site concentrating not only on its cultural values but on interconnections with the sites's natural realities as well.

Notably, detailed plans for a site museum («Visitor Center ») have been ready since December 2003, and the building itself is supposed to be edified by the end of 2004 (*cf. annexed Management Plan, § 3.b.vii*). It will be built on an existing reclaimed land area at the north east of the site, at the bottom of the archaeological hill ; such a location will avoid any physical damage to the archaeological layers of the site. With its associated public parking lots, this site museum /visitor center will provide the official entrance to the whole site. The exhibition areas will provide the visitors with full information on the historical development of the Qal'at al-Bahrain site, and will display some of the major archaeological finds from the current excavation areas. It will also include a cafeteria and other facilities for the public.

In addition, a common reflexion is in progress regarding the future use of the Main Fortress, which possesses an evident potential for public gathering and/or cultural events (concerts, theater shows, etc.).

The official table of statistics for Qal'at al-Bahrain visitors (*cf. below for the period 2001-2003*) is largely underestimated and unfortunately reflects the lack of an adequate system of collection of such data up to now. According to other specific sources (e.g. visitor's register book at the entrance of the Main fortress (« Bahrain Fort »), the appropriate average number of visitors ranges in the hundreds weekly, while during some week-ends or special vacation days it can reach up to 500 individuals. The future Management Plan for the site will obviously take into consideration this important question of statistics collection.

*Statistics of Qala'at al-Bahrain Visitors
From January 2001 to August 2003*

| Year | Month | No. of Tourists |
|--------------|--------------|------------------------|
| 2001 | January | 395 |
| 2001 | February | 159 |
| 2001 | March | 98 |
| 2001 | April | 117 |
| 2001 | May | 113 |
| 2001 | June | 97 |
| 2001 | July | 119 |
| 2001 | August | 35 |
| 2001 | September | 112 |
| 2001 | October | 97 |
| 2001 | November | 212 |
| 2001 | December | 195 |
| 2002 | January | 129 |
| 2002 | February | 121 |
| 2002 | March | 112 |
| 2002 | April | 116 |
| 2002 | May | 167 |
| 2002 | June | 193 |
| 2002 | July | 195 |
| 2002 | August | 74 |
| 2002 | September | 119 |
| 2002 | October | 97 |
| 2002 | November | 57 |
| 2002 | December | 57 |
| 2003 | January | 119 |
| 2003 | February | 97 |
| 2003 | March | 397 |
| 2003 | April | 96 |
| 2003 | May | 119 |
| 2003 | June | 115 |
| 2003 | July | 119 |
| 2003 | August | 161 |
| Total | | 4409 |

Cf. sections 3.b.vii. of the annexed Management Plan.

4.j Property management plan and statement of objectives (copy annexed)

Cf. annexed Management Plan.

4.k Staffing levels (professional, technical, maintenance)

Cf. annexed Management Plan, section 3.b.ix, and Chart 4p.

5. Factors Affecting the Property

5.a Development Pressures

The area proposed for nomination to the World Heritage, which coincides with the archaeological limits of the historical tell of Qal'at al-Bahrain, is not directly threatened in itself. The site, with the exception of some minor plots, belongs to the Ministry of Information. Its physical integrity is guaranteed by the protection measures edicted by the Law n°11 of Year 1995.

However, the immediate environment of Qal'at al-Bahrain has largely evolved for about the last twenty years. Until this date, the whole site has almost totally preserved its original environment and was still inscribed in a landscape that has remained almost unchanged since Antiquity. (cf. photographs). From 1986 onwards, irregular but constant development of land reclamations alongside of the northern coast of Bahrain has greatly changed this situation. Notably the huge Al-Seef reclamation, which has partly filled the western side of the wide bay separating the site from Manama, the present capital of the Kingdom, has considerably reduced the access of Qal'at al-Bahrain to the sea (cf. maps and **Figure 40**).



Figure 40 – Land reclamation areas at the east of Qal'at al-Bahrain



Figure 41 – Growing urbanization around the site of Qal'at al-Bahrain

These land reclaiming activities certainly have indirect consequences on the site itself. Some of these can be considered minor. One takes note thus of a slight filling of the water table level in the deepest layers of the site (generally anterior to the first levels of archeological occupation), as a result of a blocking in the natural opening of the flow of water drainage towards the sea.

The most important consequences concern, on the other hand, the progressive transformation of the « cultural landscape » where the archeological tell is located. Its north-oriental border has thus been progressively and densely urbanized (cf. maps and **Figure 41**) ; this situation is particularly disturbing today and the project of a buffer zone is of the utmost importance, as outlined in the World Heritage nomination procedure of the Qal'at al-Bahrain site.

Moreover, the historical link maintained between the site and its maritime counter-part is less obvious today, since its coastal border has been reduced in 1986 to about 130 m. In 2003, the clearing of debris from the intertidal space facing the site, (work undertaken by the Direction of Archeology) has fortunately allowed the flow at high tide to attain once again the level of the natural beach. The future project proposing to dig out the original access channel to the ancient moorage zone should also permit the rediscovery, at least partially, of several elements of the original maritime landscape of Qal'at al-Bahrain.

5.b Environmental Pressures

As opposed to the deep, neighbouring development pressures mentioned above, the area of Qal'at al-Bahrain is free of any particular pollution. No industrial activity is reported near the site and no specific project is planned for the future. In general, the dominance of agricultural activities around the site keeps it away from industrial emissions.

No industrial or sewage outlets exist in its immediate vicinity. Moreover, traffic density in the relevant area is insignificant at the moment, due to the nature of the present road network leading to the site, which is currently used only by farmers and archaeological site or Fort visitors.

Hence, air quality within Qal'at al-Bahrain is thought to be less contaminated compared to other parts of Bahrain, due to the geographical location which faces the prevailing North-Western Wind, known locally as *Shamal*.

The specific sandy character of the soil of this artificial hill (archaeological tell) gives it a rather bare aspect (especially during summertime) which is obviously not connected with any pollution process.

The tell is presently covered by sparse vegetations, comprised of many plant species which usually dominate the vicinity of palm trees farms in Bahrain, such as : Caper Plant (*Capparis spinosa*), Sea Blite (*Suaeda vermiculata*), Egyptian Sea Blite (*Suaeda aegyptiaca*), Camel Thorn (*Alhagi maurorum*), Common Reed (*Phragmites australis*), Sesuvium (*Sesuvium verrucosum*), Saltwort (*Salsola baryosma*), Heliotrope



A – Isolated tree on the top of the archaeological tell



B – Trees at the contact of the coastal lagoon



C – Wild Heliotrope (*Heliotropium ramosissimum*)



D – Camel Thorn plant (*Alhagi maurorum*)



E – Sesuvium plant (*Sesuvium verrucosum*)



F – Capper plant (fruit) (*Capparis spinosa*)

Figure 42 – Qal'at al-Bahrain site environment. Botanical features.

(*Heliotropium ramosissimum*) and Thorn Bush (*Prosopis farcta*) (**Figure 42**). Thus, the plant cover in the concerned area is diverse, but most of the recorded species are common in Bahrain ; some rare annual species might also grow in the area during winter months.

As for the marine habitat, and exception made of the neighbouring al-Seeef reclamation which is in close contact with the archaeological tell at the North-East, the beach adjacent to Qal'at al-Bahrain is still composed of a shallow lagoon, and extended tidal pools situated in the backshore area (**Figure 43**).

The width of the intertidal zone is about 4 m and its substrate is still composed of natural gravel and seashells. The hard substrate gradually changes into coarse sand within the subtidal area. This type of relatively preserved marine habitats must be underlined : it is presently not so common on the northern shoreline of the Kingdom of Bahrain due to the reclamation operations which have modified most parts of the above-mentioned shoreline.

Consequently, and despite the non-appearance of clear evidence of distinguished primary production of the local shore (with the exception of piles of dead sea grasses drafted from the subtidal area), a large number of seabirds can be regularly observed feeding in the lagoon and tidal pools.

This, in turn, shows the remarkably secondary production of the relevant shore, and one may anticipate that small fish shoals may play a critical role in shaping this local faunal community structure. Many bird species were recorded in the area facing the site, *inter alia* : Western Reef Heron (*Egretta gularis*), White-Cheeked Tern (*Sterna repressa*), Redshank (*Tringa totanus*), Curlew (*Numenius arquata*), Sandplover (*Charadrius* sp.) and Gull (*Larus* sp.) (**Figure 44**). More generally, the large number and diversity of waders recorded within the lagoon adjacent to the site shows the significant importance of that precise shore to seabirds, especially if we take into consideration the rarity of migratory birds in Bahrain during the summer period (such observations carried out in 2003).



A – Qal'at al-Bahrain. Intertidal area of the lagoon facing the site, towards the north east.



B – Qal'at al-Bahrain. Intertidal area of the lagoon facing the site, towards the south west.



C – Gravels and sea shells on the intertidal area of the lagoon



D – Traditional fish trap (*hadra*)

Figure 43 – Qal'at al-Bahrain site marine environment.



A – Redshank (*Tringa totanus*) in the intertidal area



B – Curlew (*Numenius arquata*) feeding in the lagoon



C – Western Reef Heron (*Egretta gularis*)



D – Sandplover (*Charadrius* sp.) roosting in the lagoon



E – White-Cheeked Tern (*Sterna repressa*)



F – Various seabirds feeding in the lagoon

Figure 44 – Qal'at al-Bahrain site marine environment. Resident or migrating seabirds

5.c Natural disasters and eventual risk

None

5.d Visitor / tourism pressures

As of date, the site is free to any significant pressures issued from the tourism activity. The Management plan should control any further developments regarding this specific point.

5.e Number of inhabitants within property, buffer zone

Estimate population located within :

Nominated area : **none**

Buffer zone : **3500 to 4000 (estimation)**

Total : **3500 to 4000 (estimation)**

Year : **2004**

6. Monitoring

6.a Key indicators for measuring the state of conservation

The following are key indicators that have been chosen to measure the state of conservation at the site:

— Measuring the State of conservation through the investigation of state of the major ruins and features of the site through the production of measured drawings (documentation of evolution of the site), photographs, and material testing. Such measures will be notably applied on specific spots chosen in the Coastal Fortress (e.g. general state and aspect of the *opus incertum* pavement in the central courtyard) as

well as in the Central Excavation Area (preserved height of the central pillar in the Late Dilmun Northern Pillared Hall).

— Urban growth and encroachment within the Buffer Zone and beyond: to measure the rate at which encroachment of any kind on the property and on the Buffer Zone ; such controls will be achieved by regular cartographical survey and inspection of aerial photographs.

— Tourist and visitor satisfaction: to conduct periodical surveys eliciting tourists and visitors opinion on the level of services and quality of the experience within the site.

— State of the environment reporting: to conduct thematic surveys concentrating on the number and characterization of different species (fauna and flora) with emphasis on the number of Palm Trees within the palmgroves.

It has been agreed that for the first couple of years, the periodicity of the review of these indicators will be every year (once annually).

6.b Administrative arrangement for monitoring property

Cf. annexed Management Plan, section 3.b.x.

7. Documentation

7.a Photographs, slides and other audiovisual materials

| N° | Support | Year | Author / Credit | Caption |
|-----|---------|------|--|--|
| S01 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Aerial view of Qal'at al-Bahrain site in its marine and agricultural (palmgrove) environment, towards the north west. The new Al-Seef district (reclaimed on sea) is on the right. |
| S02 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Id. (top view). |
| S03 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Qal'at al-Bahrain site, at the eastern end of the northern palmgrove of Bahrain Island, towards the east. Al-Seef district (reclaimed on sea) in the background. |
| S04 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Id., lower aerial view. |
| S05 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Coral reef offshore Qal'at al-Bahrain site with entrance channel almost silted up, towards south west. |
| S06 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Aerial (top) view of Qal'at al-Bahrain site with main architectural / archaeological features (Coastal Fortress, City Wall, Main Fortress (« Bahrain Fort »), Central Excavation Area. |
| S07 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Id., lower aerial view. |
| S08 | slide | 1994 | French Archaeological Mission in Bahrain | Aerial view of the Dilmun City Wall at the north of Qal'at al-Bahrain archaeological tell, towards the south east. |
| S09 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Aerial (top) view of the Coastal Fortress. |
| S10 | slide | 2004 | Bahrain Directorate of Culture and National Heritage | Aerial view of the Central Archaeological Area, at the bottom of the southeastern Portuguese bastion of the Main fortress. Towards the south east. |
| S11 | slide | 2001 | French Archaeological Mission in Bahrain | Aerial view of the Middle Dilmun (mid-2 nd . millennium BC) and Late Dilmun (1st millennium BC) architectural remains in the Central Excavation Area, towards the south. |
| S12 | slide | 1994 | French Archaeological Mission in Bahrain | Central Excavation Area. Late Dilmun northern pillared hall, towards the south. |
| S13 | slide | 2001 | French Archaeological Mission in Bahrain | General view of the Central Excavation Area in the process of digging, towards the south east. |
| S14 | slide | 2002 | French Archaeological Mission in Bahrain | Id., towards the east. |
| S15 | slide | 2002 | French Archaeological Mission in Bahrain | Aerial view of the palmgrove bordering Qal'at al- |

| | | | | |
|-----|---------|------|--|--|
| | | | | Bahrain site at the west. Towards the west. |
| S16 | slide | 1997 | French Archaeological Mission in Bahrain | <i>Bustan</i> (gardens) within the palmgrove surrounding Qal'at al-Bahrain site. Towards the south. |
| D01 | digital | 2004 | P. Lombard | Qal'at al-Bahrain site in its palmgrove and marine environment, towards north west. |
| D02 | digital | 2004 | id. | Qal'at al-Bahrain and Seef Distric (reclaimed on sea), towards East. |
| D03 | digital | 2004 | id. | Aerial view of Qal'at al-Bahrain archaeological site, from top. |
| D04 | digital | 2004 | id. | id., from top |
| D05 | digital | 2004 | id. | id., towards the east, with Manama city in the background. |
| D06 | digital | 2003 | id. | Qal'at al-Bahrain towards the west. The Main Fortress is still under restoration. |
| D07 | digital | 2004 | id. | Qal'at al-Bahrain towards the north west, with detail on the Main fortress (« Bahrain Fort ») |
| D08 | digital | 2001 | French Archaeological Mission in Bahrain | General view of Qal'at al-Bahrain site, towards the west. |
| D09 | digital | 1994 | French Archaeological Mission in Bahrain | Aerial view of the Dilmun City Wall at the north of Qal'at al-Bahrain archaeological tell, towards the north east. |
| D10 | digital | 2004 | id. | Aerial view of the Coastal Fortress, towards the north west |
| D11 | digital | 2001 | id. | The Coastal Fortress, towards the north east |
| D12 | digital | 1981 | id. | The Main fortress (« Bahrain Fort ») before any restoration, towards north east |
| D13 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort") and the Central Excavation area |
| D14 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Western exterior side. |
| D15 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Southern exterior side. |
| D16 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Northwestern Portuguese bastion, towards the north. |
| D17 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Northwestern Portuguese bastion, from the top. |
| D18 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Inner casemate of the southwestern bastion. |
| D19 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Arches restored in the Entrance Tower. |
| D20 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Arch restored in the First Enclosure (Stage I of the building). |
| D21 | digital | 2004 | id. | The Main Fortress ("Bahrain Fort"). Inner courtyard (with <i>madbasa</i>) of the First Enclosure (Stage I). |
| D22 | digital | 2004 | id. | The Central Archaeological Area, from top |
| D23 | digital | 1996 | id. | The Central Archaeological Area, towards the south |
| D24 | digital | 1996 | id. | Architectural details of the Central Archaeological area, from top. |
| D25 | digital | 1994 | id. | Middle Dilmun <i>madbasa</i> in the Central Archaeological Area. |
| D2 | digital | 1993 | id. | Late Dilmun monumental buidings in the Central Archaeological Area, towards north. |
| D27 | digital | 1993 | id. | Late Dilmun monumental buidings in the Central Archaeological Area, towards west. |
| D28 | digital | 1993 | id. | Northern pillared hall (Late Dilmun) in the Central Excavation Area, towards south |
| D29 | digital | 1993 | id. | Remains of Islamic houses in the Central Archaeological Area, from top. |
| D30 | digital | 2004 | id. | Palmgrove surrounding Qal'at al-Bahrain site |
| D31 | digital | 2004 | id. | Palmgrove surrounding Qal'at al-Bahrain site |
| D32 | digital | 2004 | id. | Palmgrove surrounding Qal'at al-Bahrain site |
| D33 | digital | 2000 | id. | Tower at the entrance of the access channel to Qal'at al-Bahrain. |

7.b Copies of property management plans or documented management systems and extracts of other plans relevant to the property

— Annexed (Volume II) to the present Nomination File

7.c Bibliography

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7.d Address where inventory, records and archives are held

General :

— Directorate of Culture and National Heritage, Ministry of Information, PO. Box 2199, Manama (Kingdom of Bahrain).

Specifically archaeological :

— Supertintendance of Archaeology, The Bahrain National Museum, PO. Box 2199, Manama (Kingdom of Bahrain).

— Gulf-Danish Archaeological Expedition, Prehistorical Museum, Moesgård, DK-8270 Højbjerg (Denmark).

— French Archaeological Mission in Bahrain, CNRS - Maison de l'Orient et de la Méditerranée-Jean Pouilloux, 7 rue Raulin, F-69007 Lyon (France).

8. Signature on behalf of the State Party

Shaikha Haya bint Rashid Al-KHALIFA
Ambassador of the Kingdom of Bahrain in France
Permanent Delegate of the Kingdom of Bahrain at the UNESCO, Paris

Note :

This document has been prepared with the collaboration of the
FRENCH ARCHAEOLOGICAL MISSION IN BAHRAIN

and is mainly based on the scientific work carried out by this team between 1978
and 2003.

The main scientific works which constitute the scientific argumentation of this
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