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Rougeulle Axelle, Thomas Creissen, H el ene Renel, Juliette Andr e, Virgile Ferbourg. The Qalh at Project. Preliminary report on the ninth season (20/11-17/12//2016). [Research Report] CNRS/MHC. 2016. halshs-03335534

HAL Id: halshs-03335534

<https://shs.hal.science/halshs-03335534>

Submitted on 6 Sep 2021

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The Qalhât Project

Ministry of Heritage and Culture
General Directorate of Archaeology
Sultanate of Oman

Preliminary report on the ninth season
(20/11 – 17/12/2016)



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Mrs Hélène RENEL (CNRS - lab *Orient & Méditerranée*)
Ms Juliette ANDRE, Mr Virgile FERBOURG



Sultanate of Oman
Ministry of Heritage & Culture



مِنَاطَنَةُ عُومَانِ
وَقَارَةُ التَّيَّافَةِ وَالثَّقَافَةِ



Introduction

The ninth season of the Qalhât Project took place from November 20th to December 17th 2016. The expedition was held under the authority of the Ministry of Heritage and Culture of the Sultanate of Oman, with the joint financial support of the MHC on the Omani side and of the National Centre for Scientific Research (CNRS – UMR8167 *Orient & Méditerranée*), the Archaeological Committee of the Ministry of Foreign Affairs and the French Embassy in Oman on the French side.

Brief history of the Qalhât Project

The Qalhât Project started in 2008 when the Ministry of Heritage and Culture of Oman decided to launch a large project of archaeological study at the site of Qalhât, in collaboration with a team from the French National Centre for Scientific Research (CNRS), directed by Dr Axelle Rougeulle. During the first five year plan (2008-2012) many information were collected about the site. A GIS was established, preliminary maps of the medieval city were drawn, its spatial organization and evolution were studied. The defensive system and water supply system were analysed; the regional and international trade networks of the harbour were brought to light through the study of local and imported material; and main buildings of the town were discovered and tested, several domestic units, a store, a ceramic factory, small mosques, and especially the great Friday Mosque of the city, which had been described by Ibn Battuta in 1320, was eventually destroyed by the Portuguese in 1508, and was then left undiscovered for exactly 500 years, until 2008.

Based on these results, the MHC launched in 2013 a large development project at Qalhât, with the final aim to create an archaeological park at the site. Since 2013 the QP was therefore held in parallel with the Qalhât Development Project (QDP), which is working on the field about 6 months a year with a team of 6 archaeologists/topographers from Eveha International and several CNRS specialists, under the direction of Dr A. Rougeulle (CNRS -UMR8167). When the aim of the QDP is to excavate extensively the most important buildings of the city discovered since 2008 for conservation and display in the future Archaeological Park, the objective of the QP is to continue the study of the city as a whole, making surface survey and test excavations to discover and identify new elements for the understanding of its spatial organisation and evolution.

Now, as the 2016b season of the QDP had to be cancelled due to financial situation in Oman, the ninth season of the QP was held alone this year. It so could not benefit from the help of the QDP as usual, i.e. workers, cooks, and a vehicle. Thanks to a special grant from the Cooperation and Cultural Action Department of the Embassy of France in Muscat, the mission was nevertheless able to hire 4 workers for the excavations.

The team and partners

The members of the team of this season were:

Dr Axelle Rougeulle (CNRS - UMR8167), archaeologist, director of the Project

Dr Thomas Creissen (Eveha International, Paris), archaeologist

Mrs Hélène Renel (CNRS - UMR8167), documentalist, ceramologist

Ms Juliette André, archaeologist

Mr Virgile Ferbourg, assistant archaeologist (from 11th to 18th December)

Our deepest thanks are due to H.H. Sayyid Haitham bin Tariq al-Said, Minister of Heritage and Culture, and to H.E. Salim bin Mohammad Al Mahruqi, Undersecretary for Heritage Affairs, without whom the Qalhât Project would not exist. Our gratitude goes especially to H.E Hassan Mohammad Ali Al Lawati, advisor to the Minister for Heritage Affairs, and to Mr Sultan Saif Nasser al Bakri, Director General of Archaeology, and to Mr Khamis al-Asmi, Director of the Department of Excavations and Archaeological Studies, for their deep involvement in the Project. We also want to express our warmest appreciation to Mr Mohamed Al Waili, coordinator of the Qalhât Project in the Ministry in Muscat, and to Mr Khamis Nasser Al 'Amri, local project coordinator of the Department in the Sur region, for their very efficient and friendly help and support.

This year, the mission was made especially possible thanks to the support of the French National Centre for Scientific Research (research lab UMR8167, *Orient & Méditerranée*) and of the Archaeological Committee of the French Ministry of Foreign Affairs, that provide most of the funds. A special grant was also granted from the Cooperation and Cultural Action Department of the Embassy of France in Muscat, which allowed the hiring of workers. The French archaeological consulting agency Eveha, which is part of the Qalhât Project since the first year and now realizes the QDP excavations, kindly put again at the disposal of the mission Dr Thomas Creissen, Head of Eveha International.

Objectives of the 2016 season of the QP

Given the limited resources of the mission, the main objects of the 2016 season were as follows

A. Excavation of stratigraphical soundings in the high courtyard of the great mosque to check the foundation date and early occupation of the city

B. Completion of the surface survey of the central ancient quartier of the city

C. Registration and study of the ceramic material from the current stratigraphical excavations at the great mosque. Detailed study of the small objects from previous excavations of the QP and QDP, especially at the great store B21. And final conditioning and storing of all material in the new store at the site.

A - Stratigraphical Soundings at the Great Mosque

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Five soundings have been opened during this campaign : S . 30, S.31, S. 32, S.33 and S. 34. Three inside the western court, two other ones in the passage leading from this upper court to the lower northern one, between B 12 and B 13 (*fig. A1*).

Their purposes were:

- To better understanding the general shape of the bedrock in this area (S. 30 to S. 32).
- To get some more precise informations regarding the pre-mosque phases (S. 30).
- To verify the accuracy of the hypothesis formulated regarding the mosque's construction (S. 31, S.33).
- To ensure the dating of the southern wall of the courtyard (S. 31 and S.32).
- To obtain more informations about a huge pit partly excavated in this area in 2008 (S.30)
- To reconstitute the shape of the access connecting the higher court to the lower one (S.33 and S.34).

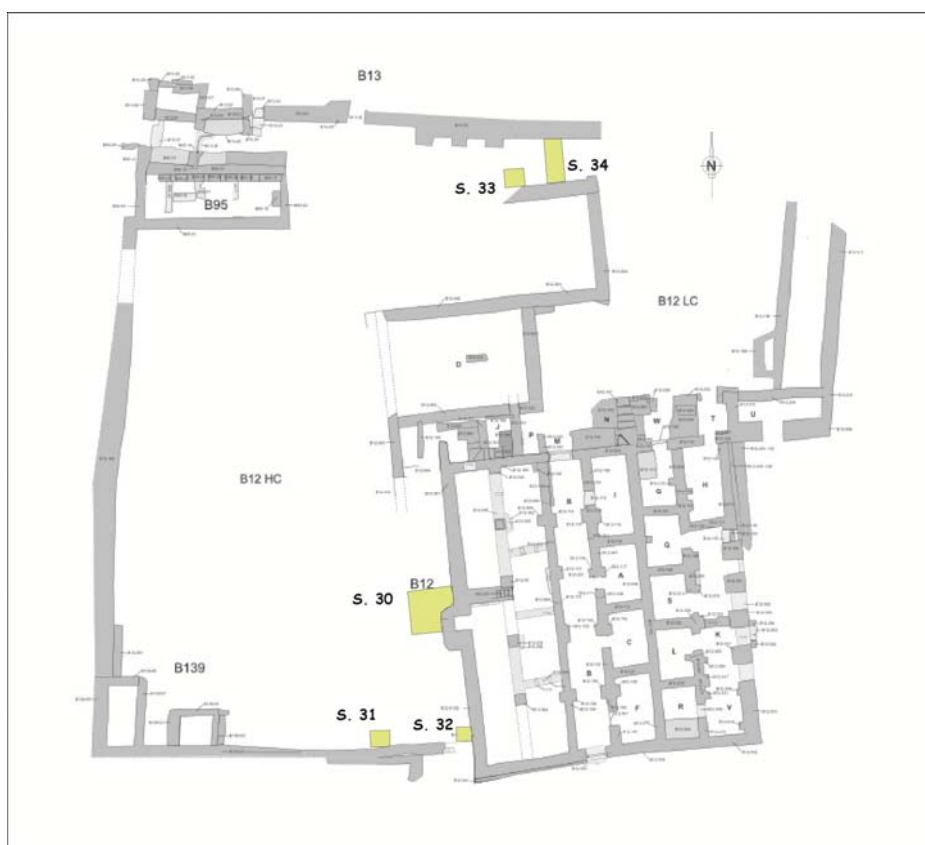


Fig. A1 : Location of the soundings

The bedrock : an irregular surface.

During this campaign, the bedrock has been reached in soundings S. 30, S. 32 and S. 31. In this later, its altitude is about Δ 13,89 m, whereas it is *ca.* Δ 12,53 in S. 31 and only *ca.* Δ 12, 00 in S. 30.

During previous excavations, the bedrock could have been observed in many places inside the mosque's complex and its immediate surroundings. Just few meters westwards the upper court, it is culminating at *ca.* Δ 19 m and even higher further west of B 197. It is less than Δ 11,00 m in the eastern part of the mosque's basement.

It is therefore clear that the original shape of the bedrock in this area is highly irregular, becoming lower and lower towards the sea through ridges and slight slopes that progressively lead to the sea level (which is approximately at Δ 6 m in Qalhât).

Along the south-west corner of the mosque the bedrock is at about Δ 11,00 m, *i. e.* about 1,50 m lower than in S. 32, only few meters further north. This part of the complex was therefore occupied by a kind of natural wadi.

Results of the soundings :

Sounding B12-S. 30 (fig. A9):

This is the main sounding. Located along the Qibla wall and part of the Mihrab, it is about 4,50 m long and 4 m large. Due to the lack of time, it has not been completely excavated (*fig. A2*).



Fig. A2 : Sounding S. 30 from the East at the end of excavations



Fig. A3 : The bedrock

The bedrock have been reached in its eastern end. It is made of small to medium pebbles bounded in a hard sediment. The surface is quite irregular (*ca.* Δ 12,00 to 12,15 m), with a small depression at the centre of the excavated area (*fig. A3*).

Just above this bedrock, many layers including sand, small pebbles and few gravels have been dug (Uf 7124, 7125, 7126 and 7127). Some of them are natural deposits, other contains traces of human occupation : sediment, ashes, charcoal, but also fish or other bones, few pieces of glass and many ceramic shards. The assemblage is made of many indian potteries, sometimes painted, and sgraffiatos. No remains of yemeni mustard ware are included. These layers could belong to the end of the 12th century or very beginning of the 13th. At that time, the area was inhabited, but neither wall nor internal or external floor could be documented.

Uf 7023 might be a first external “floor”, as it is quite flat and covered all the excavated area (*ca.* Δ 12,50 m). Just above, Uf 7122 is an heterogeneous layer. Its eastern part seems to have been disturbed by an undefined pit.

At *ca.* Δ 12,70 m, Uf 1109/1120 is the first to have delivered pieces of mustard ware, which seems to emerge not until the 13th century.

It is covered by a very hard cemented floor (Uf 7103), which could be linked with a wall, St 13. Only one course of this wall is preserved (*fig. A4*). Stones are bounded in an earthy hard orange mortar. This wall is at least 40 cm large, and it is running south-north. It has been observed for only one meter long, but one might assume that the stones discovered in the 2008 deep sounding about two meters northwards belong to the same construction, as they have both the same alignment and the same altitude (*ca.* Δ 13,80 m at the bottom). Due to the scarcity of the remains, it is yet not clear if the excavated part was inside or outside that building. According to the pottery assemblage, it dates from the 13th century.



Fig. A4 : The wall St 13

Up to this cemented floor, many thin layers of silt, clay, sand or small pebbles might be related to the same phase (Uf 7086, 7088, 7093, 7095-7099, 7102, 7110, 7119, 7121 and 7128, *fig. A8 & fig. A10*). They contain pockets of ashes as well as bones, shells, glass, few bronze elements and many ceramic shards. Most of these latter are Indian, but few pieces belong to Yemeni (mustard ware) or Iranian (sgraffiato) production. Among them are also pieces of white porcelain and green/grey celadon from the far east.

The highest of this layer (Uf 7086, ca. Δ 13,45 m) is cut by an undefined pit filled with greenish soil and sand.

This filling is in turn topped by a succession of occupation layers and floors from ca. Δ 13,60 m to 14,00 m (Uf 7078-7080, 7083 and 7090). They can only be observed in the western part of the soundings. Further east, these layers seem to have been cut. They are topped by a huge backfill (about 40 cm thick) including Uf 7060, 7062, 7077 and 7085. Among the ceramic yielded in this backfill are many mustard ware pieces, as well as sgraffiato and Indian pottery.

According to the ceramic yielded in the layers located between this backfill and the "floor" 7009/7020, they might belong to the first half of the 13th century.

Above that backfill Uf 7060/7062/7077/7085 and 7088, Uf 7052 and 7040 are heterogeneous and gathered different layers. In fact, part of Uf 7040 consists of two gravel floors (?) including a thin silt layer in between. All are located on the western part of the sounding, where they are abutting a wall (St 07, *fig. A1*). This wall is running south-north. Southwards, it has been cut by a latter pit (St 04, *see infra*), whereas its running out of the sounding toward North. The observed part is 2m long, and 40 to 20 cm thick. Its western face is missing as it has been cut by a huge pit (St 01). Its original width remains unknown. The eastern part is regular and consists of stones bounded in a hard orange earthy mortar. Two courses maximum are preserved, from Δ 14,10 till Δ 14,40.

On the eastern part, Uf 7040 mostly consists in an ashy layer containing many charcoals, some bones, some shells and a lot of pottery shards.

Between Uf 7052 and Uf 7040, the pottery assemblage dates most probably of the second half of the 13th century. Not a single piece of local production has been found in all the above mentioned layers.

From the ashy part of Uf 7040, at Δ 14, 15, a huge digging has been done through all the previous layer (St 08, *fig. A5*). It is partly abutting the oldest wall St 13 and then continues even deeper. Its bottom could not be observed as it is located below the Qibla wall. In fact, this digging is clearly linked to the construction of this wall and its foundation. But, if the inner face of the Qibla wall



Fig. A5 : Filling of St 08 as seen in the North section

have been observed until ca Δ 12,90 in the sounding S. 2 opened inside the mosque in 2009, no face could be observed outside for this lower part. Yet, we have decided to open a small trench about 35 cm deep below the coated upper part of the Qibla wall to reach this inner face, but unsuccessfully (this western lower face is also missing in the 2008 deep sounding as in S. 32 opened in 2016, *see below*). The trench or digging St 08 is first filled by Uf 7089, consisting of brown silt including few corals blocks and ceramic. Just above, Uf 7089 is quite similar, but including more pebbles and small elements. It is topped by Uf 7047, a very homogeneous layer containing many pebbles, few corals blocks and big shells and no ceramic : this backfill most probably come from the surrounding beach. Just above, Uf 7041 consist of loose and beige soil, few shells and ceramics. Among the pottery yielded in this pit filling are pieces of celadon and white porcelain. According to the ceramic study, this filling most probably belong to the second half of the 13th century.

Just above the ultimate filling, the upper part of the Qibla wall, about 1,60 thick, have been built. The foundation itself, mostly made of mortar, is in fact moulded in Uf 7041. The situation is quite different for the Mihrab : the digging St 08 is missing, and the protruding Mihrab have been built almost directly above pre-mosque layers (Uf 7057) : it has no foundations.

Uf 7040 is topped by a huge backfill, Uf 7031/7033/7037 about 40 cm thick culminating at Δ 14,60 m. In the north-east corner of the sounding, this backfill is disrupted by several fittings : a brown layer with a strong West-East slope, a pocket of small pebbles and a flat red-brown layer topped by a small hip of grey sediment. Just above the red-brown layer, St 05 consist of a big pebble bended in a sort of clay cover that has burn. The function of all these fittings remain unclear. Further south, part of Uf 7057 and 7058 belong to the same backfill.

It is topped by a layer including many pebbles (Uf 7018/7027) which should be considered as a floor (in between, Uf 7026 is a thin silt layer most probably belonging to the same phase). It is quite irregular : ca. Δ 14,40 m in front of the Mihrab ; from Δ 14, 60 to 14, 75 in the northern part, where it has a slight East-West slope.

This irregular floor most probably belong to the early phase of the western court.



Fig. A6 : Floor Uf 7018 and the trench St06 along the Mihrab

Uf 7018 is cut by a circular pit about 1 m large and 80 cm deep (St 09, *fig. A9 & A10*) that have been later cut by St 02. The upper part is filled by Uf 7042, including pebbles, stones and ceramic ; the lower one by Uf 7070, made of pebbles mixed with soil and pebbles where few shards have been yielded. Along the Qibla wall and the Mihrab, Uf 7018 is cut by a trench (St 06, *fig. A6*). It is much more deeper in the northern part – about 60 cm – than in the southern one – only 20 cm. This is due to the fact that Uf 7018 itself is quite irregular. The bottom of the trench match exactly with the interruption of the Qibla Wall and mihrab's strong beige coating. In its lower part, this coating has a little step that partly covered the lowest backfill of this trench, Uf 7032. It is a very loose silt layer containing ceramic shards and few bones. Above, the Uf 7030 is very heterogeneous, containing few bones and shells as well as pottery shards, including many pieces of light green celadon. Uf 7021, consisting in a loose grey sediment might be the last filling of trench St 06. It is yet unclear if Uf 7021 is also part of the trench, which mean that it might have been even deeper in the northern part. According to the ceramic study and the presence of local production, the filling might be dated to the end of the 13th century or the first half of the 14th.

Just above the floor Uf 7018, Uf 7016 is a thin layer of pure soil. It should be associated with the huge backfill Uf 7015 that partly covered the trench St 06. Among the orange beige soil of this backfill are many coral blocks, some of them very big. Few bones and ceramic shards were also yielded. The surface of this backfill, very hard, has been considered as a floor level (Uf 7007) at *ca.* Δ 15,10 m. Two post-holes (St 02 & 03, *fig. A7*) are dug through this floor. Both are circular. One is about 25 cm large and 20 cm deep, the other one 35 cm large and 20 cm deep.



Fig. A7 : The post-holes St 02 & 03, backfill Uf 7015 and the filling Uf 7004

This floor is topped by a very thin layer of sand (Uf 7009) that is in turn covered by Uf 7002, containing many fragments of broken coating (the same layer has probably been excavated in sounding S. 32, Uf 7054).

In the North-West corner of the sounding, this layer has been cut by a huge pit only partly excavated (St 01, *fig. A12*). It was maybe circular, and at least 3 m large. It might be the same pit as the one observed in 2008 (S.1). It has not been excavated until the bottom for security reasons. On the upper part, the backfill mostly consists of some pebbles (Uf 7003), whereas there are more stones and soil in the lower one (Uf 7004 and 7007). At the very bottom of the excavated part, Uf 7024 mostly consists of stones. According to the ceramic assemblage, this pit is from the 15th century.

It has been cut by another very big pit (St 04), just partly located in the sounding and therefore partially excavated. The filling includes many pebbles, soil and stones, as well as a large amount of bones, shells, glass and pottery (Uf 7005, 7006 & 7023). This pit dates from the 16th century and therefore belongs to the very late phase of occupation of the site.

Most of the sounding area was originally covered by collapse layers that have been removed before the 2016 campaign's.

With about 4 meters of stratigraphy (*fig. A8*), this sounding provides a unique opportunity to reconstitute the history of Qalhât.

The first occupation of the mosque complex location dates from the 12th century : if the area was

inhabited before, it was not in that very place.

During the 12th century, this area was visited, but no building is documented.

Wall St 13 and floor Uf 7103 are the first testimonies of an “urbanization” of this quarter. Both belong to a building which function is unclear. It has the same alignment as the Qibla wall but this is obviously not conclusive to ensure that it could have belong to a former mosque.

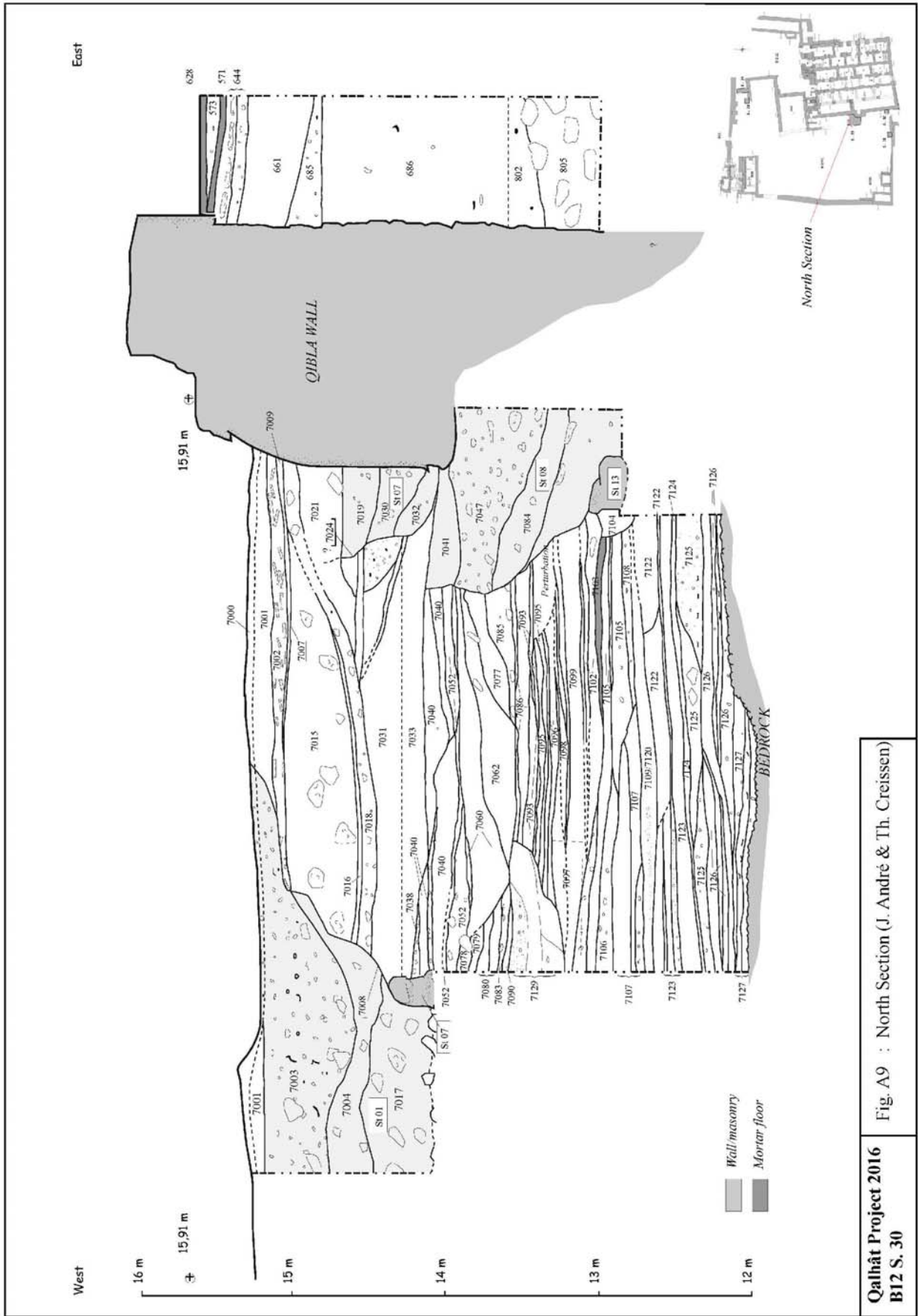
1,30 m above, St 07 belong to the last building erected there before the construction of the mosque. Like the previous one, it dates to the 13th century. The important thickness of the layers separating those walls reveal the rise of the city of Qalhât during this period. Regarding the function of this area during that time, clues are missing : was it a street, a court or an inner space ?

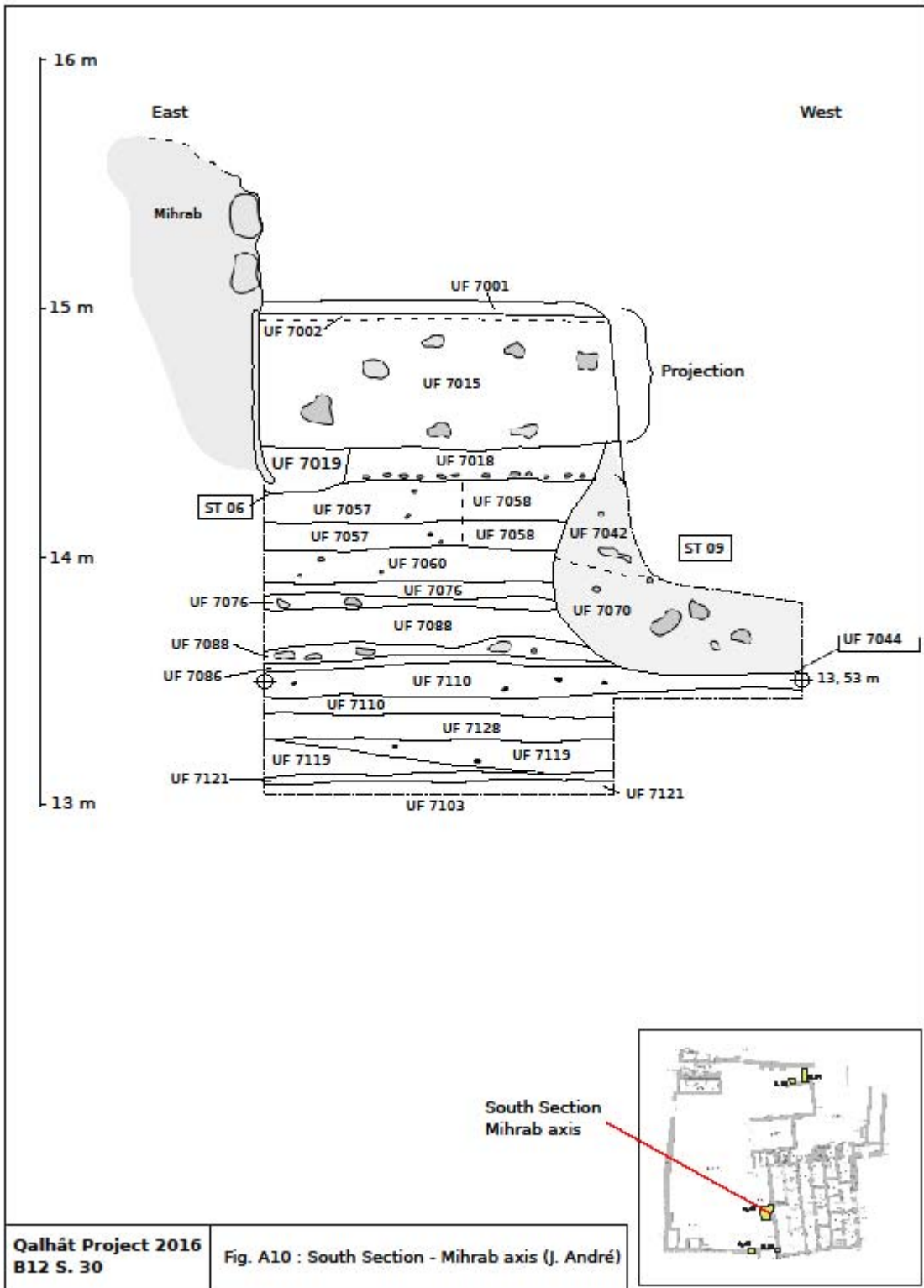
The construction of the Great Mosque mark a great change. The building process seems quite unusual : all the area located East of the Qibla Wall was cleared more and less until the bedrock. Upon it, foundation of the Qibla wall were erected, but only as an eastern terrace wall holding backfills for the lower part. Upon these backfills, the upper part of the Qibla wall have been erected. The outside floor connected with this first stage of the mosque is not clearly ascertain. It could have been the surface of the excavated previous layers (*i. e.* Uf 7040) or, much likely, Uf 7018. In a second time, this first floor have been cut by a trench which purpose is not known : was it dug to check the quality of the coating or to precisely to fix this outside coating ? In the second of these case, one might wonder how this wall was originally covered as no remain of a first coating could have been observed. Another possibility is that this trench belong to the original building phase. This mean that both backfills and floor that have been cut by the trench are related to the same construction work. The real floor would therefore have been Uf 7007 (the two post-holes dug through it may be remains of a scaffolding used for the construction of the upper part of the mosque). If the ceramic yielded in these filling is quite different, both assemblage might date to the end of the 13th century or the first half of the 14th for St 08. Anyway, it seems evident that the mosque have been at least partly restored, but the dating like the nature of this intervention remain uncertain.

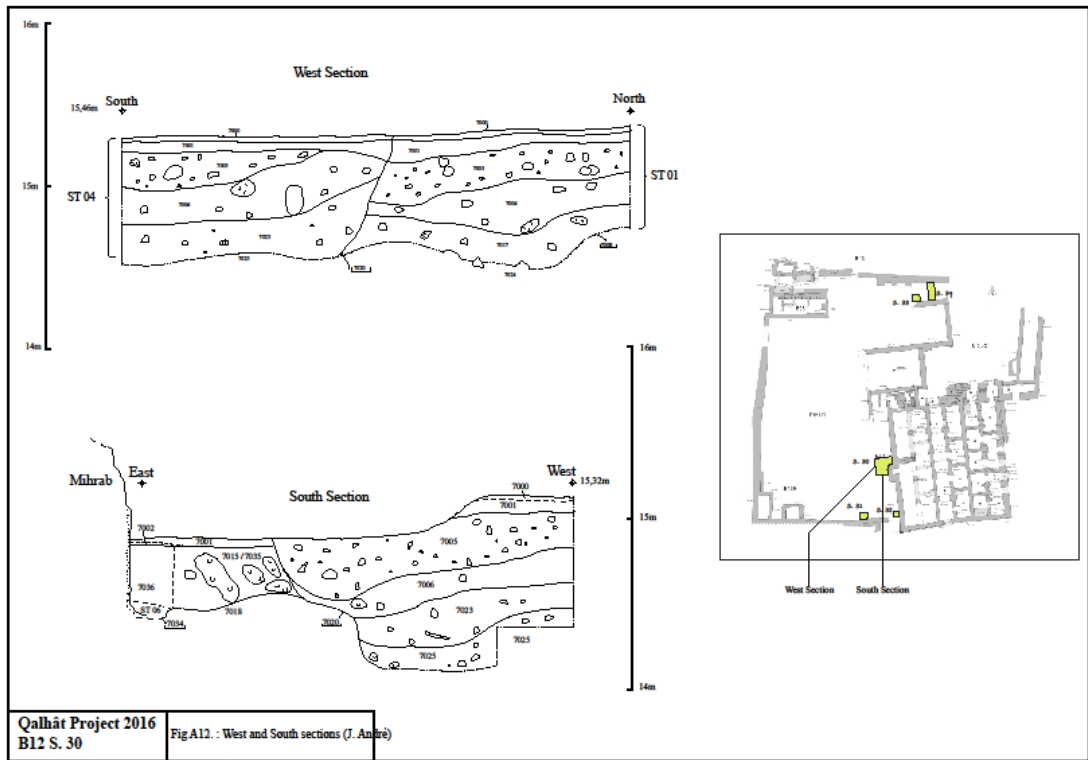
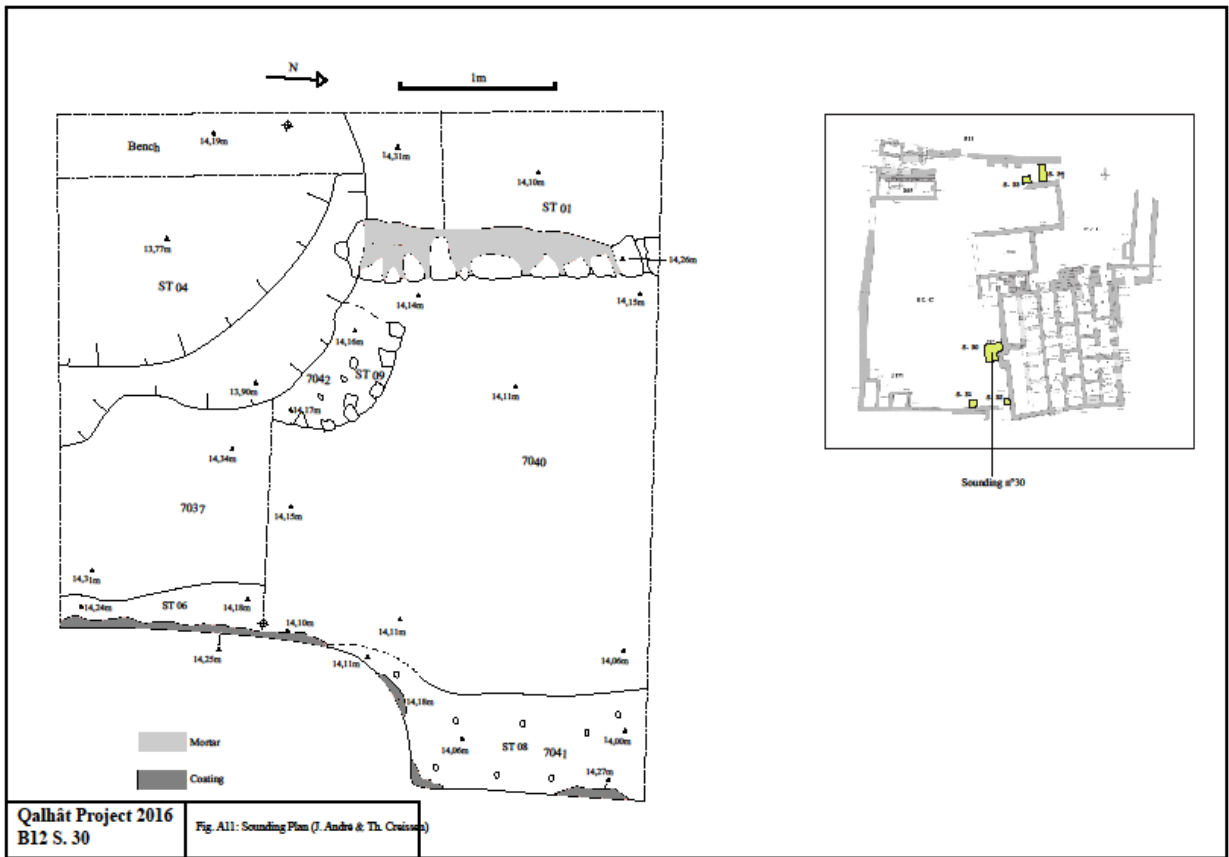
In a latter phase, the western court was disturbed by the digging of two enormous pit. The first one in the 15th century, the second during the 16th. Their function is totally unknown.



Fig. A8 : The north section at the end of the excavations







Sounding B12- S31 (Fig. A13-A15)

The second sounding opened during the campaign is located along the south wall of the high court, 5,70 m west of the Qibla wall. It measures 1,60 m x 1,40 m. The protocol consisted in digging by arbitrary passes of about 30 cm until reaching the bedrock in order to observe the foundation of the wall and its phasing in the functioning of this space related to the mosque and to the western court. The bedrock was reached in the northwest angle, at an altitude of Δ 13, 89 meters, in a surface of approximatively 0,80 m x 0,60 m.

In addition to the south wall of the high court, three other masonries were discovered (Structures 10, 11 and 12). The first wall to have been built is Structure 10. It is oriented East-West and cleared over the entire width of the sounding. It is beautifully built, with large limestone blocks covered by a fairly fine brown mortar containing few inclusions, very compact and quite well preserved. Its maximum high preserved can be observed in the East section, at an altitude of Δ 14, 54 m.

Wall 11 oriented east-west, and wall 12 oriented north-south, were then constructed directly over the bedrock. They are linked to each other, built along wall 10, only leaving a gap of a few centimeters between both facings. These three walls were probably contemporary with one another and functioned together in a same phase of occupation. Wall 11 highest stone appears in the East section, at an altitude of Δ 14, 65 m, and wall 12 highest elevation preserved is Δ 14, 13 m. A level of occupancy appears to be related to this phase (UF 7055) which was observed in plan in the northwest angle of the sounding, just above the level of the bedrock. This level consists in a pulverulent ashy sediment with many inclusions of charcoals and some ceramic sherds associated. Above this level were found different levels of more or less silty backfill, with more or less small stones and pebbles, associated to ceramic sherds (UF 7068, 7067, 7066, 7072).

In a subsequent phase, these three masonries were leveled and the southern wall of the courtyard was erected. It is possible that stones from the three walls mentioned above were reused for the elevation of the south wall which comes to rest on the southern facing of wall St. 10. The connection between these two walls remains unclear because a very compact beige mortar covers both masonries, which seems to be the base of the south wall. Yet it is clear that it is the most recent because a floor level which can be seen in the East section (UF 7065) lies on top of the preserved elevation of walls 10, 11 and 12, and is resting on the beige mortar previously mentioned, thus suggesting that it functioned in a same phase as the south wall. It is therefore a confirmation that this wall belongs to a later phase of construction.

Above the floor level were found different layers of collapse which are represented by loamy and / or sandy sediment, associated with stones and corals as well as some ceramic sherds (UF 7073, 7071, 7064 and 7043).

After having recorded all the information necessary for its study, the survey was backfilled and a homogeneous level of circulation in the west court was restored.

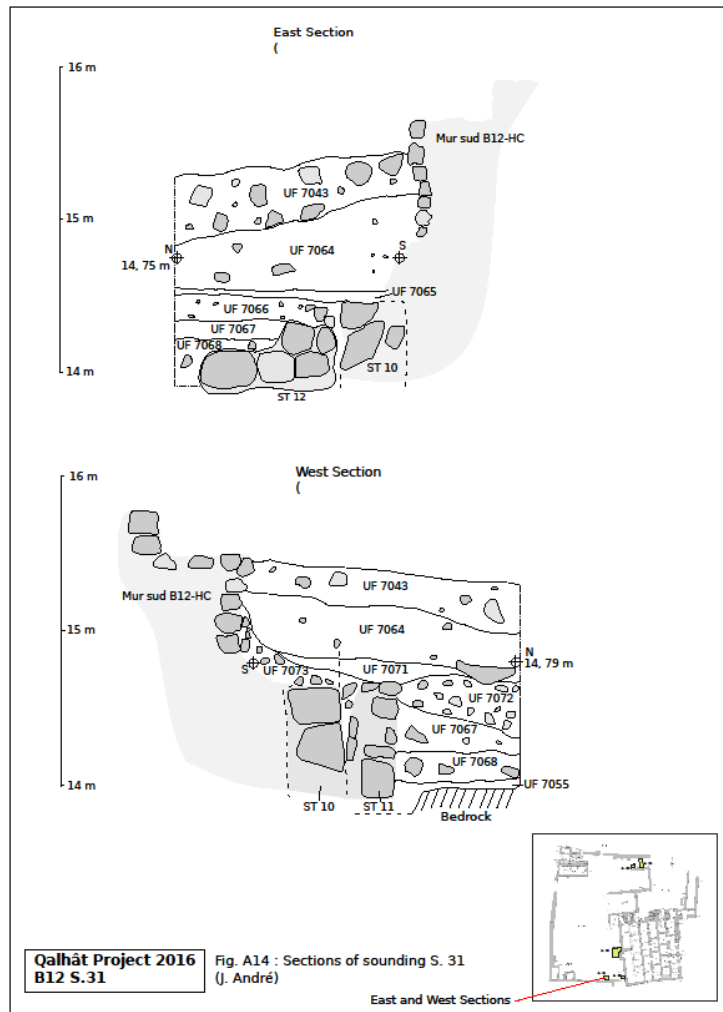
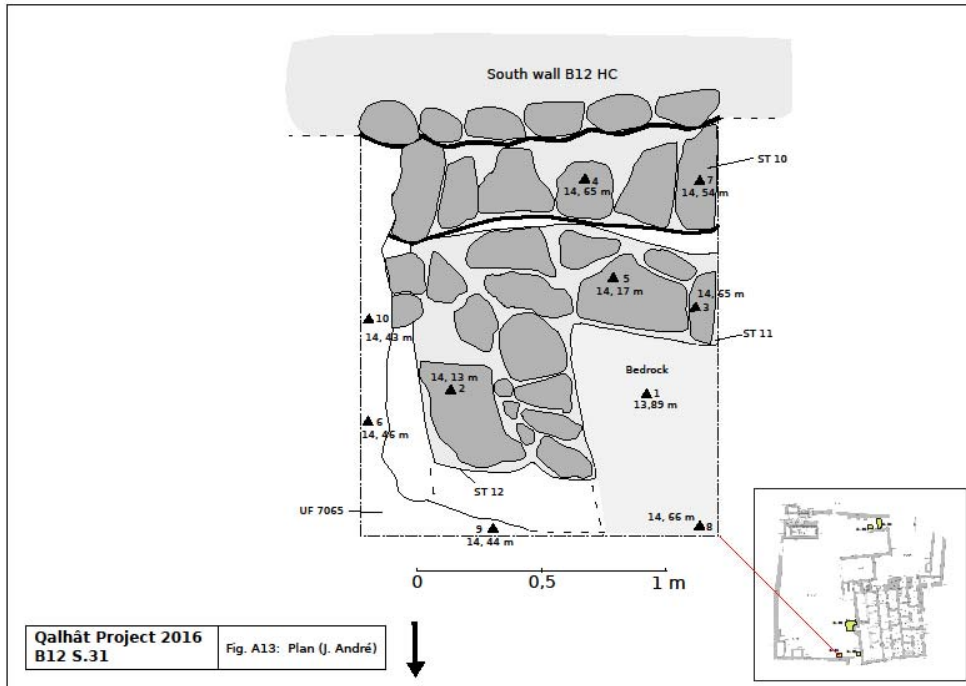




Fig. A15: The sounding S. 31 from the West

Sounding B12-32 (fig. A16-A18)

Sounding S. 32 was opened at the angle of the Qibla wall and the south wall of the high court to observe the foundation of the south wall, since the presence of structure 10 in the previous sounding made it impossible. It measures 1,50 m x 1,30 m, and the bedrock was reached at an altitude of Δ 12, 53 m. The same system of arbitrary passes of about 30 cm was reused to dig this sounding.

Above the bedrock is a level of pebbles caught in a sandy matrix (UF 7082). This level contains no artefact whatsoever, it most likely corresponds to pebbles gullied by the passage of water. On top of it lies a similar level (UF 7081), with the difference that the module of the pebbles is substantially smaller and that it contains some ceramic sherds.

Three different layers of backfill can be observed (UF 7075, 7074 and 7115) which consist in stones and corals mixing with a silty brownish sediment. The proportion of stones and sediment changes from layer to layer but they most likely correspond to a unique phase of backfill on top of which a floor level in a pinkish mortar is laying (UF 7114).

This level of occupation is interrupted by the digging of a trench, presumably the same one that was also observed in sounding 30 and which was dug to lay the foundations of the mosque (St. 08, which was backfilled with different layers, UF 7116, 7112 and 7118). Above it lies a very compact backfill (UF 7113) on which was raised the south wall of the courtyard.



Fig. A16 : The bedrock at the bottom of S. 32

The floor level noticed in the sounding is not visible in the eastern section but at an equivalent altitude has been observed a level of very compact beige mortar which seems to be the basis of the foundation of the qibla wall, as well as the level on which it is raised (UF 7135).

Above it one can see the foundation of the Qibla wall (UF 7117) only visible on a height of 30 cm, below the return of the wall coating that covers its elevation. This level consists of an agglomerate of corals caught in a very compact beige mortar .

Two last layers have been identified (UF 7111 and 7054), both come from the collapse of the various masonry around and covered all the levels previously described. The sounding was also backfilled to the surface at the end of the excavation campaign.

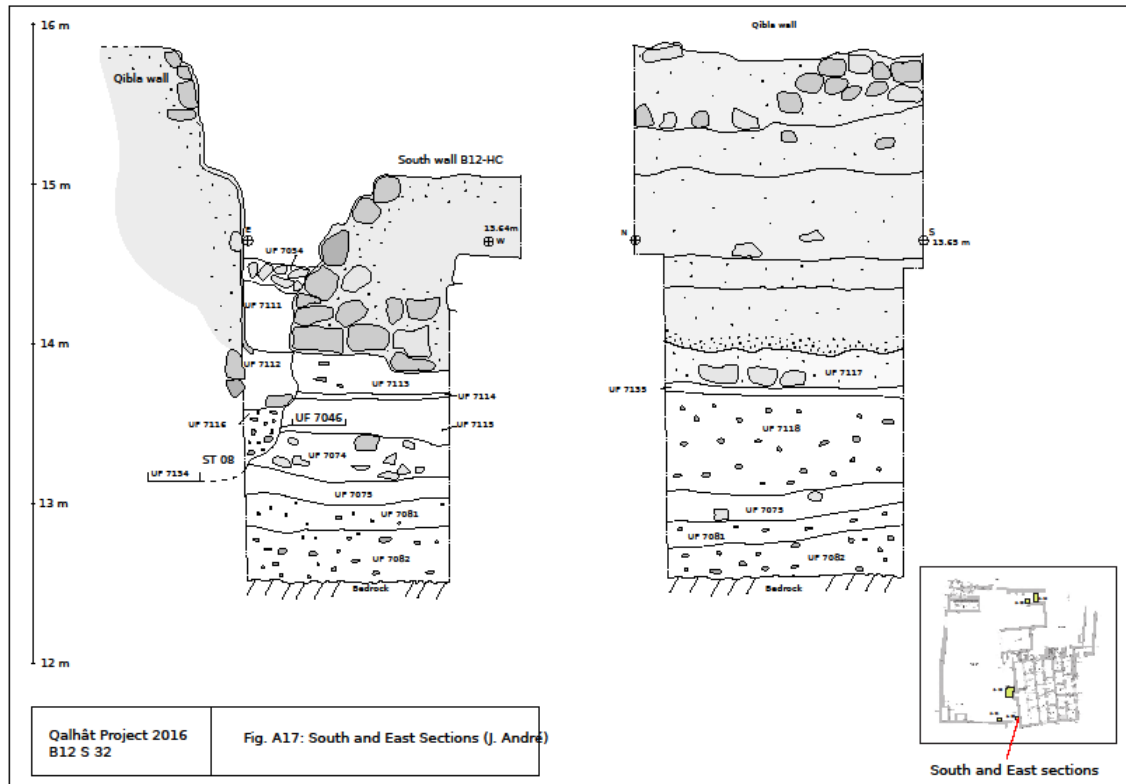


Fig. A18 : South section of sounding S. 32

Soundings B12 S. 33/S.34 (fig. A19-A21)

Between the north wall of the mosque courtyard and the south wall of B13 have been dug two soundings, S.33 and S.34. The two walls are parallel and spaced of 3,80 m. The goal of these two soundings was to find a possible staircase or a ramp leading from the upper mosque courtyard to the lower courtyard.

Sounding S.33 is located next to the north wall of the mosque courtyard. It is 1,40 m long, 1,10 m wide and 90 cm deep. Its top is at an altitude of Δ 13,83m and its bottom at Δ 12,95m. S.33 is composed of UF 7092 at the bottom and UF 7087 at the top. UF 7092 has at its top a horizontal floor level 5/7cm thick. It is much more compact than UF 7087 showing that it is an occupation level. UF 7087 contains demolition elements and shows a slope towards the north indicating a water flow coming from the mountains. It contains big rocks and corals. No trace of stairs or ramp were found in this sounding.



Fig. A19 : General view of S. 34 and S. 33 from the East

Sounding S.34 is located east of S.33. It goes from one wall to another, is 1,40m wide and its bottom is at an altitude of 12,57m. It contains UF 7132 at the bottom, UF 7101, UF 7131, UF 7100 and 7094 at the top. UF 7032 is a floor level. At the north of S.34 the floor level is cut by a fondation trench which was backfilled with movable dirt. This trench was dug to build the south wall of B13. UF 7101 is compact and contains small pebbles. At the south of S.33 can be seen ST14 which is a 90cm wide bench or sidewalk. ST14 is built against the north wall of the courtyard. UF 7094 and UF 7100 are mainly composed of demolition materials and water flowing materials. There are lots of rocks and corals. No trace of stairs or ramp was also found in this sounding.

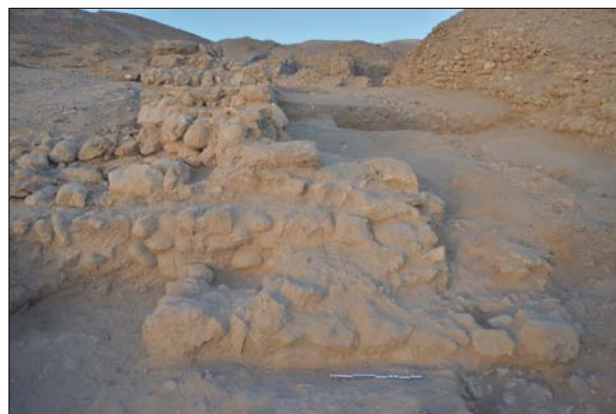
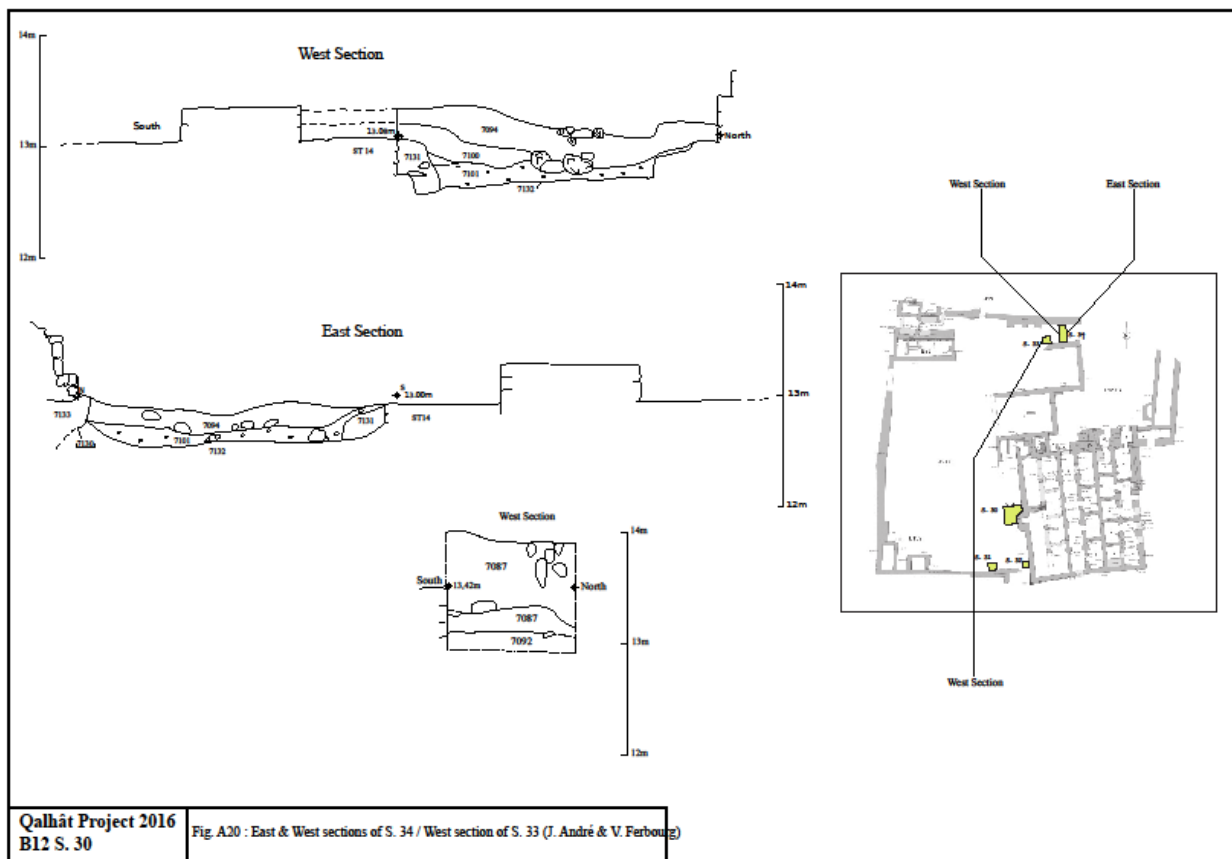


Fig. A21 : Sounding S. 34 and its surroundings

B. Surface survey of the ancient quarter

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Introduction

In 2008-2010, the Qalhât Cartographical Project lead by geographers from the CNRS *Archéorient* lab in Lyon (E. Régagnon and O. Barge) succeeded to draw a preliminary map of the medieval city, thanks to a fund of the Total Company. The plan was based on a GIS built on a surface mapping of the ruins by differential GPS and the study of kite photographs. Although the Cartographical Project succeeded to map the entire surface of the site in the limited time allowed, three two-week missions, the ruins are extremely difficult to interpret in some areas and the plan was more or less accurate. Furthermore it had to be interpreted by an archaeologist.

One of the objectives of the second QP five-year session is therefore to achieve a comprehensive and precise survey of the entire surface of the site, to verify and detail the map of the Cartographical Project. It will provide detailed information on the spatial organization of the city, the different quarters, the various street networks, the boundaries and inside plan of each building. It will thus provide an accurate documentation for the publication and the development of the site, especially for 3D digital restitutions.

The survey started with the central quarter, a wide area (*ca* 8ha) between the sea to the east, a marked ridge dominated by large buildings at the border of the funerary quarter to the west, and two small *intra-muros* wadis north and south. This quarter is the most ancient part of the city, centered on the great mosque, in front of the harbour. It is the most densely built of the site and so is the most difficult to plan. In 2013-2015, the north and south parts were studied, together with some buildings in the middle part (see previous reports).

Results of the 2016 mission

The objective of this year was to complete the study of this quarter, and it was nearly achieved. Altogether about 40 more buildings were registered, studied and planned (*Fig.B1*). . Extracts of the map scale 1/200 were printed on A4 sheets and then redrawn and noted on the field following the detailed study of the surface (*Fig.B2*). The contour lines were roughly indicated, all discernable lines of walls were cleared, the circulation network, limits of buildings and inside spaces were defined, the identification was given when possible (courtyards, rooms, terraces...).

The area of the central suq,

This area north of the great mosque, between the enclosure of the large building B13 to the south and a rocky ridge to the north, was completed. It was partly excavated in 2014 and the central part proved to be a *suq*, with shops (B140-141), north and south of a street connecting the city to the beach. These small structures, only one storey high, are much less discernable on the surface than the usual large and high buildings of Qalhât, as shown during excavations at B140-141. The plan of this area is therefore certainly quite incomplete.

Only on the sea-shore are wide buildings. They are now mainly eroded, nearly down to the level of the beach, but they seem to have been erected on high terraces overlooking the harbor. Their east terracing walls are built on the edge of the outcropping puddingstone bedrock, up the beach. They are nearly aligned and are running all along the shore northwards of the great mosque B12 and B13 complex (B292-293-247-236-233-219), until the point where the coast turns into a rocky cliff, reaching about 10m high. These buildings therefore act as a fortification line on top of the beach, which was only interrupted by the openings of the streets. The retaining walls were based on large limestone blocks and many of them show doubling walls, as reinforcements and/or protections against the sea. Many perpendicular walls running westwards are visible, which are most probably partition containing walls for the filling of the platforms or terraces on which the buildings were erected.

The western fringe

The western border of the central quarter was also surveyed, all the area between the 3rd and 4th streets west of the great mosque, north and south of Main Street. More than 30 structures were identified, which are quite different according to their position, north or south of Main Street.

- To the north, between the street and the north *wadi*, are rather large buildings, similar to the ones already registered in the city. At the north-east corner of the quarter, where the *wadi* makes a curve and near the modern track, is a group of wide enclosures which were reused recently by squatters as shown by the meandering walls in dry stone erected on top of the ancient ones.

- South of Main Street, the area is much more densely built with small buildings (60 to 150m²), separated by narrow lanes and small city squares. Some large enclosures are also visible to the west, along the 4th street. The 3rd and 4th streets meet south of this specific urban islet, south of a large building which could not be studied this year.

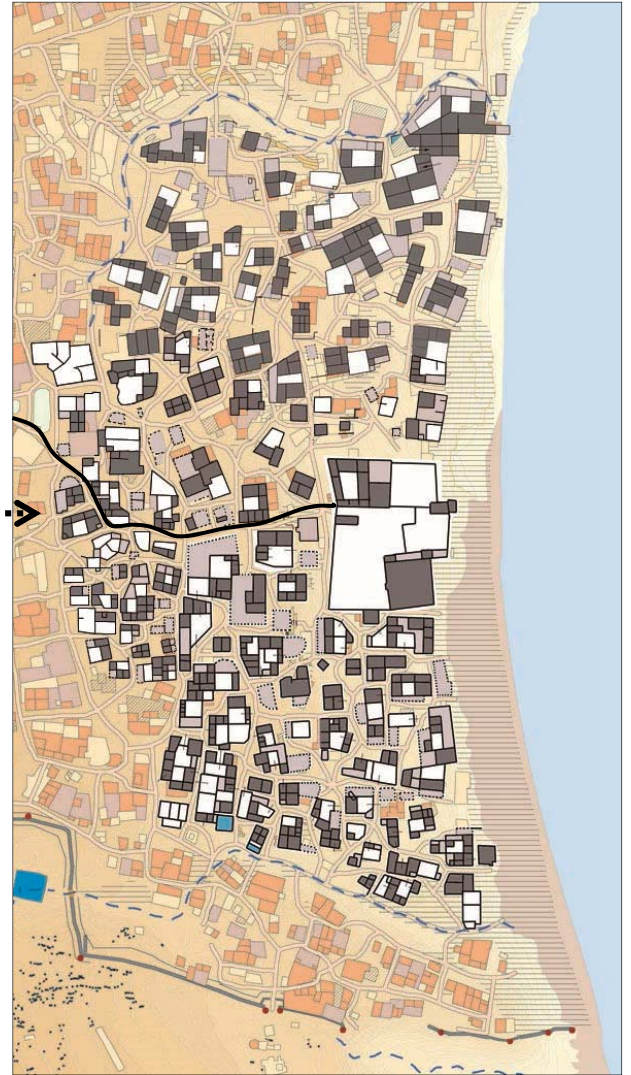
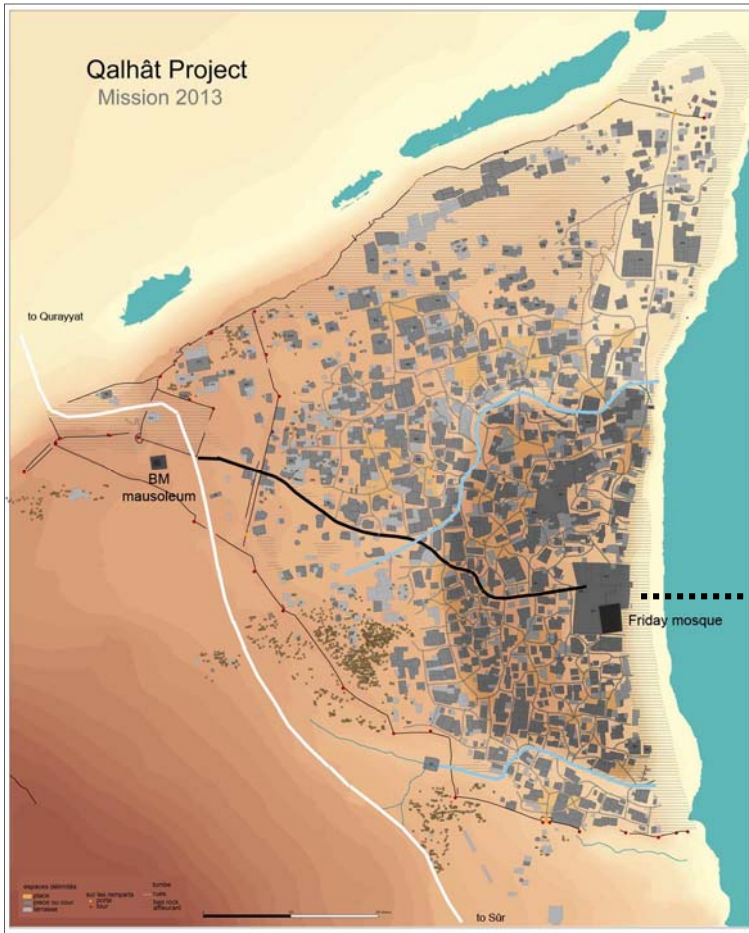


Fig. B1 Map of the medieval city showing the central quarter; and detailed map of the central quarter after the 2013-2016 surveys (dark grey: rooms or roofed areas/light grey: terraces/white: courtyards or enclosures). The black line is the Main Street of the city.

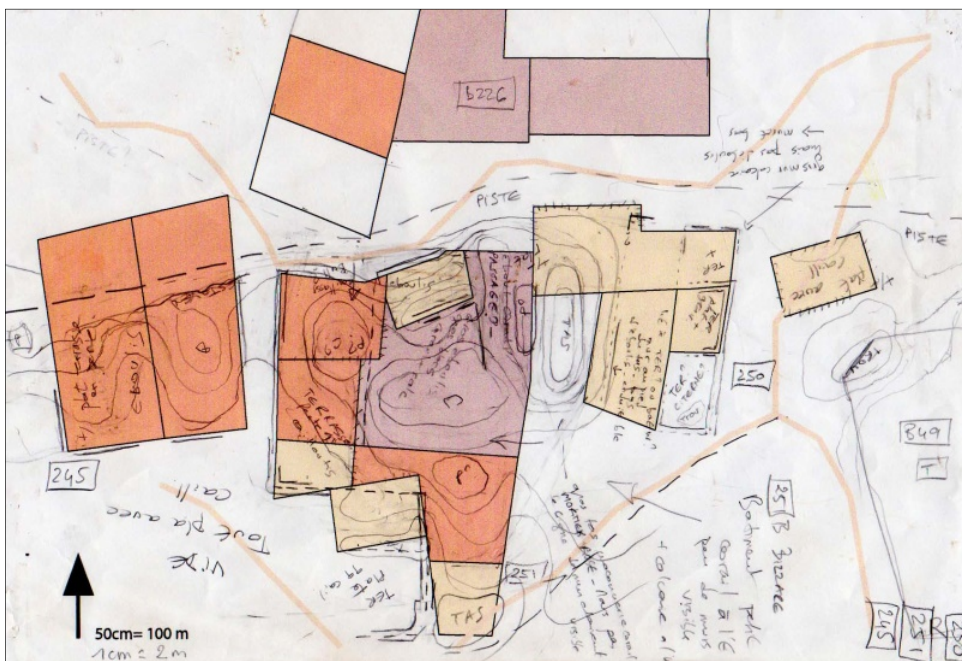


Fig.B2 Example of field-worked map-extract, buildings B245/250/251 south of the modern track, 2016 survey.

C. Material registering and study

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The study of the 2016 ceramic material and the chronology of B12S30

The ceramic material from the excavations of the stratigraphical soundings in the courtyard of the great mosque, especially S30, was studied day by day, to provide information as to the dating of the excavated levels and thus finally support the interpretation of the chronological evolution of the area, the heart of the medieval city, before the construction of the Great Mosque around 1300C.E., and during its occupation time. The results are presented *passim* in chapter A (*supra*).

To sum up, the sounding did not deliver any trace of a pre-Islamic, or even early Islamic occupation, as was also the case in the two soundings already opened in the courtyard in 2008. When the 2008 soundings showed faint traces of a 12th century occupation, possibly going back to ca1100, the earliest occupation levels in S30, on the bedrock, are later and may be dated to the end of the 12th or beginning of the 13th century (Phase 1). It is interesting to note that these levels yielded 4 sherds of Eastern African importations, the only ones ever found at the site. The site of HD4 at Ra's al-Hadd, which spans the 9th-12th centuries period, delivered many African imports and it therefore seems that the trade networks of the area changed completely when Qalh at superseded Ra's al-Hadd as the main Indian Ocean harbour of the region, Africa being no longer an economical partner. The main partner was already India as shown by the many Indian imports in these lower levels, and links were also numerous with the Nabhanids as proved by the presence of glazed Nabhanid sgraffiato sherds. On the contrary, no sherd of Mustard Ware was found, a typical ceramic production from Yemen. Its beginning is commonly dated by specialists to the middle of the 13th century until the mid 14th although it now seems, from the Qalh at excavations, that it started earlier, in the first half of the 13th.

The levels on top, Phase 2, are characterized by the presence of Mustard Ware. The Indian imports are even more numerous and Nabhanid sgraffiatos are still present, together with unglazed moulded jugs from Iran dated to the 12th-13th centuries. No local pottery from the kilns excavated in B41 were found, but some hand-made pieces were identified, which could possibly be interpreted as an early tentative of Qalh ati ceramic production. These levels may therefore be dated to the first half/middle of the 13th century.

The great mosque of Bibi Maryam was built in Phase 3 from the top of these levels, which were entirely destroyed to the east to erect the basement on the bedrock. The foundation trench of the qibla wall delivered the first sherds of local ceramic from the B41 pottery, which was most probably founded first to produce the green glazed tiles in the shape of stars and crosses for the

decoration of the mosque. Mustard Ware is still present and Indian imports numerous, especially with painted decoration. The dating of this assemblage may be dated to the second half of the 13th century.

The backfill which was later deposited inside the courtyard, in Phase 4, is very homogeneous, with several fragments of a same vessel found from top to bottom. The ceramic assemblage is rather similar to the one of the foundation trench of Phase 3, with many painted Indian sherds, Mustard bowls, moulded jugs, some local productions from B41, all glazed, and still some Nabhanid sgraffiatos. The assemblage of this backfill may therefore be dated to the second half or end of the 13th century, and it is thus clear that it was deposited shortly after the completion of the mosque, for a reason which is still unknown.

The assemblage of the second backfill which was later deposited on top of the first one (Phase 5) is also rather homogeneous, but slightly different : few Mustard pieces, local production from the pottery B41- Phase 2, many Indian sherds but mostly not decorated, and coarse regional cooking pots. It may be dated to the middle and/or second half of the 14th century.

The filling of the great pit which was then dug in the area, to the north of the sounding S30, mainly delivered local ceramics, glazed and unglazed. The absence of Mustard Ware on one side, of Bahla ware on the other, and the presence of Iranian blue speckled ware and of typical Qalhâti jugs allow a dating of the 15th century, probably the second half of the 15th. The purpose of this pit is difficult to understand, possibly connected with repair works at the mosque.

The filling of the second pit is very homogeneous and delivered a large amount of pottery which may be dated to the 16th century, during the Portuguese attack of Qalhât or later.

The study of the various material objects of excavations at B21

The publication of the 2013 excavations in the north-west quarter of the city, house B94, store B21 and small mosque B19, is currently ongoing. The archaeobotanical, archaeozoological and ichthyological material has already been studied, and also the ceramics. The various material (glass, metal, stone) and small objects of B94 were studied last season. The 2016 season was therefore devoted to the study of the material from B21. All fragments of glass, metal, stone, and all small objects, which were already photographed and listed in the course of the excavation, were checked and described.

The storing

As the second guest house of the QP/QDP team in Sûr must be given back to the owner at the end of this year, it had to be completely emptied. All the boxes of material which were still stored there, either because it was not yet studied or because there had been no time to move them in the store newly built at the site, were moved this year to the store, altogether around 220 boxes.

Also very large (ca 300m²) and very well furnished with strong shelves, the store is now nearly full with all the material from the QP and QDP since 2008, altogether more than 1500 boxes, and many architectural and decoration fragments from the mosque. It is very logically organised to allow a quick research of any specific box in the shelves, according to the listing below:



QALHAT STORE - LIST OF STORED MATERIAL

CER: ceramic / FAR ESTERN: Far Eastern ceramics / MET: metal / NUM: coins / GLA: glass / MIN: stone
 PRE: samples / FAU: bones / MAL: shells / WOOD: wood
 DEC: fragments of decoration / ISOARC: architectural fragments / EPIG: epigraphical fragments

Shelve Column	Shelve	Type of material	Provenance building
1	A	CER	B12A/B12B/B12C/B12D/B12F/B12G/B12H
1	B	CER	B12J/B12K/B12L/B12M/B12N
1	C	CER	B12E/B12N/B12P/B12Q/B12R/B12S/B12T/B12U/B12V/B12W

1	D	CER	B12HC/B12EXT/B13/B95
1	E	CER	B12LC/B12EXT-S
2	A	DEC	B12
2	B	DEC	B12
2	C	DEC	B12
2	D	DEC	B12
2	E	DEC	B12
3	A	DEC	B12
3	B	DEC	B12
3	C	DEC	B12
3	D	DEC	B12
3	E	DEC	B12
4	A	CER	B12PR-N/B12PR-S/B12E/B12G/B12H/B12HC
4	B	CER	B12K/B12LC/B12EXT-W/B12EXT-S/B12EXT-E
4	C	CER	B12LC
4	D	CER	B12B/B12K/B12L/B12R/B12W/B29
4	E	<i>empty</i>	
5	A	CER	Bvarious-excavations 2008-2011 (repacked MHC)
5	B	CER	Bvarious-excavations 2008-2011 (repacked MHC)
5	C	CER	Bvarious-excavations 2008-2011 (repacked MHC)
5	D	CER	Bvarious-excavations 2008-2011 (repacked MHC)
5	E	CER	Bvarious-excavations 2008-2011 (repacked MHC)
6	A	CER	B41K/B41L/B41floors
6	B	CER	B41floors/B41tripods
6	C	CER	B12S30/B12S31/B12S32/B12S33/B12S34
6	D	<i>empty</i>	
6	E	CER	B139/B255
7	A	CER	B41A/B41B/B41C/B41D
7	B	CER	B41D/B41E/B41F
7	C	CER	B41F/B41G/B41H/B41I
7	D	CER	B41I/B41J/B41K
7	E	CER	B41(2011)
8	A	CER	B21P/B21Q/B21R/B21S/B21T/B21U/B21V/B21W/B21X
8	B	CER	B21G/B21H/B21I/B21K/B21Z
8	C	CER	B21M/B21N/B21SS/B21SE
8	D	CER	B21N/B41(2008)
8	E	CER	B41(2008-2011)
9	A	CER	B21H/B21I/B21J
9	B	CER	B21K
9	C	CER	B21K/B21L/B21M
9	D	CER	B21L
9	E	CER	B21L/B21M
10	A	CER	B94G/B94P/B94Q
10	B	CER	B21EXT-S/B94C/B94F/B94I/B94Q/B94R/B94S/

10	C	CER	B21EXT-S
10	D	CER	B21EXT-S/B21EXT-E/B21EXT-W
10	E	CER	B21AA/B21A/B21B/B21C/B21D/B21E
11	A	CER	B94 EXT-E/B94EXT-W
11	B	CER	B94EXT-N/B94EXT-W/B94EXT-S/B94A
11	C	CER	B94A/B94B/B94C/B94D
11	D	CER	B94G/B94H/B94I
11	E	CER	B94J/B94K/B94L/B94M
12	A	CER	SURVEYS Q 2008sq +B102-106
12	B	CER	SURVEYS Q BEFORE 2008
12	C	CER	SURVEY Vosmer + exc.B4
12	D	CER	SURVEY Vosmer + exc.B4
12	E	<i>empty</i>	
13	A	CER	B39/B140-141
13	B	CER	B140-141
13	C	CER	B67
13	D	CER	B67
13	E	<i>empty</i>	
14	A	CER	B39A/B
14	B	CER	B39B/D/F
14	C	CER	B39E
14	D	CER	B39E/EXT
14	E	CER	B39EXT
15	A	CER	B20/B197
15	B	CER	B29/B31/B280-281
15	C	CER	B29
15	D	CER	B16/B29/B91
15	E	CER	B19/B91/B92/B93
16	A	FAR EASTERN	Bvarious - to be studied 1st priority
16	B	FAR EASTERN	Bvarious -to be studied 1st priority
16	C	FAR EASTERN	Bvarious - to be studied 1st priority
16	D	FAR EASTERN	Bvarious - not to study
16	E	FAR EASTERN	Bvarious - not to study
17	A	FAR EASTERN	Bvarious - to be studied 1st priority
17	B	FAR EASTERN	Bvarious - to be studied 2d priority
17	C	FAR EASTERN	Bvarious - to be studied 2d priority
17	D	FAR EASTERN	Bvarious - already studied/ + B12S30-34 to be studied 1st priority
17	E	<i>empty</i>	
18	A	CER	ISO HR
18	B	CER	ISO HR
18	C	CER	ISO HR
18	D	<i>empty</i>	
18	E	<i>empty</i>	
19	B	NUM	B12/B21/B39/B41/B94/B95/B140-141/Bvarious - to be studied 2d priority

19	A	MIN	B21/B39/B95/B140-141
19	C	MET	B41/B94/B140-141/Bvarious
19	D	GLASS	Bvarious
19	E	<i>empty</i>	
20	A	MIN	SURF/ B12 /B29/B95/B255/Bvarious
20	B	MIN	B94/B139
20	B	EPIG	ALL
20	B	NUM	B12/B94 - to be studied 1st priority
20	C	MET	B12/B21/B39/B94
20	D	GLASS	B12/B21/B29/B94/B95/
20	E	<i>empty</i>	
21	A	PRE	Bvarious
21	B	PRE	Bvarious
21	C	PRE	Bvarious
21	D	PRE	Bvarious
21	E	PRE	Bvarious
22	A	PRE	Bvarious
22	B	PRE	Bvarious
22	C	PRE	Bvarious
22	D	PRE	Bvarious
22	E	PRE	Bvarious
23	A	ISOARC	B39
23	B	MAL	B39/B41/B95
23	C	MAL	B139/B140-141
23	D	<i>empty</i>	
23	E	<i>empty</i>	
24	A	FAU/MAL	B12
24	B	FAU/MAL	B12
24	C	FAU/MAL	B12/B13/B16/B21/B29/B31/B101/Bvarious
24	D	FAU/MAL	B21/B39
24	E	FAU/MAL	B94
25	A	ISOARC	B12
25	B	ISOARC	B12
25	C	ISOARC	B12
25	D	ISOARC	B12
25	E	DEC	B12
26	A	ISOARC	B12
26	B	ISOARC	B12
26	C	ISOARC	B12
26	D	WOOD	B12
26	E	DEC	B12