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Dûma 1. 2010 Report of the Saudi-Italian-French Archaeological Project at Dûmat al-Jandal

Guillaume Charloux, Romolo Loreto

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Dûma 1

2010 Report of the Saudi-Italian-French Archaeological Project at Dûmat al-Jandal Saudi Arabia

Guillaume CHARLOUX & Romolo LORETO

Under the patronage of Alessandro DE MAIGRET,
Khalîl I. AL-MU‘AYQIL & Christian ROBIN

With the participation of ‘Abd al-Hâdî K. al-Tirâd,
Ahmad ‘A. al-Qa`îd, ‘Abd al-‘Azîz I. al-Dâyil, Hammûd M. al-‘Arjân,
‘Abd al-Majîd N. al-Murshd, Thâmir ‘A. al-Mâlikî, Andrea Marcolongo,
Quentin Morel, Dar‘ân M. al-Qahtânî, Mansûr H. al-Qahtânî,
Jérémie Schiettecatte & Pierre Siméon

RIYÂDH
1435-2014

Dedicated to the Memory of Alessandro de Maigret (1943-2011)

Paris & Riyâdh
Page layout by Guillaume Charloux



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- The Supreme Commission for Tourism and Antiquities, in particular to Prof. ‘Ali Ibrāhīm al-Ghabbān, for providing us with scientific and financial support.
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To finish, we also wish to thank Prof. Khalîl al-Mu‘ayqil for his tireless participation and support of the Saudi-Italian-French project in Dûmat al-Jandal, to Prof. Christian Julien Robin for his friendship and constant advice, and to Dr. Geoff Emberling for his useful comments on this report.

2010 Season at Dûmat al-Jandal

Guillaume Charloux & Romolo Loreto

In June 2008 Alessandro de Maigret was invited by the Supreme Commission of Tourism in Riyâdh to carry out an archaeological survey on the site of Dûmat al-Jandal, in the Saudi province of al-Jawf, after the approval of an “Italian proposal for research at Dûmat al-Jandal” by the Research Committee of the Saudi General Organization for Tourism and Antiquities (GOTA).

In 2009 GOTA in Riyâdh, under the direction of ‘Alî I. al-Ghabbân, granted Alessandro de Maigret permission to undertake archaeological excavations on the site, under the patronage of the Italian Institute for Africa and Orient in Rome and with the support of the president Gherardo Gnoli. A formal Joint Cooperative Agreement for a period of five years was signed at Riyâdh on May 5 in the presence of HH. Prince Sultân bin Salman bin ‘Abdulaziz and the Italian Ambassador Eugenio D’Auria. A first archaeological campaign was carried out between April 23 and May 7 2009.

In 2010 the cooperation agreement between Italian and Saudi institutions (SCTA) was extended to a partnership involving the French Archaeological Project in Saudi Arabia, represented by Christian J. Robin and Guillaume Charloux. The excavations carried out from 30 September to 7 November 2010 were the second campaign on the site of Dûmat al-Jandal, conducted by the new Saudi-Italian-French Archaeological Project.

Affiliations and Partnerships

The project works under the aegis of following scientific institutions:

Italian Institute for Africa and Orient

University of Naples “*L’Orientale*” (*Dipartimento di Studi Asiatici*)

French National Center for Scientific Research (UMR 8167, *Orient et Méditerranée*)

Saudi Commission for Tourism and Antiquities

Financing for the 2010 project was provided by:

Saudi Commission for Tourism and Antiquities in Riyâdh

French Ministry of Foreign and European Affairs (MAEE)

French Embassy in Riyâdh, Service de coopération et d’action culturel (SCAC)

French National Center for Scientific Research (CNRS)

UMR 8167, Orient & Méditerranée, “*Composante Mondes sémitiques*”

Italian Ministry of Foreign Affairs (MAE/DGSP)

Italian Institute for Africa and Orient



Fig. 3. Central historic area of Dūmat al-Jandal oasis, looking south-east

Participants

The project is currently directed by Dr. Guillaume Charloux and Dr. Romolo Loreto, under the patronage of Prof. Christian J. Robin and Prof. Khalīl I. al-Mu‘ayqil. The following specialists took part in the project in 2010:

Saudi part

Prof. Khalīl I. al-Mu‘ayqil (Jawf deputy, Majliss ash-Shûrâ)

‘Abd al-Hâdî K. al-Tirâd (director of the al-Jawf Antiquities, SCTA)

Ahmad ‘A. al-Qa‘îd (director of the al-Jawf Museum, SCTA)

‘Abd al-Majīd N. al-Marshd (vice director of the al-Jawf Museum, SCTA)

Thâmir ‘A. al-Mâlikî (historian-archaeologist, SCTA)

‘Abd al-‘Azîz I. al-Dâyil (historian-archaeologist, SCTA)

Dar‘ân M. al-Qahtânî (historian-archaeologist, SCTA)

Mansûr H. al-Qahtânî (historian-archaeologist, SCTA)

Hammûd M. al-‘Arjân (assistant curator, SCTA)

Italian part

Dr. Romolo Loreto (archaeologist, University of Naples “ L’Orientale ”)

Dr. Andrea Marcolongo (architect, CNR)

French part

Dr. Guillaume Charloux (archaeologist, CNRS/UMR 8167)

Quentin Morel (land surveyor, topographer)

Prof. Christian Robin (historian, CNRS/UMR 8167)

Dr. Jérémie Schiettecatte (archaeologist, CNRS/UMR 8167)

Dr. Pierre Siméon (ceramologist-archaeologist, CNRS/UMR 8167).

Activities of the Project

1. Survey

The program of the 2009 campaign was designed to obtain a first comprehensive topographic map of the historical core of the oasis (sectors A-B) (see Loreto, Sector A, Fig. 1).

During the 2010 campaign we proceeded with a more extensive mapping of the historical site (Mârid Castle & parts of the surrounding medieval village of al-Dira'). Sector C, with its great monumental enclosure wall located 3 km to the west of sector A, was fully studied (see Charloux et al., Survey, Fig. 1). We also started a comprehensive recording of hydraulic and archaeological features in the oasis (wells, *qanât*, etc.).

In the near future we would like to go on surveying the whole oasis, and fully record all preserved ancient structures, among them segments of the ancient enclosure wall.

2. Excavations

Some systematic excavations were started in 2009 in the historical center of the oasis, providing the first stratigraphic data regarding the city's history.

Sector A corresponds to the area located north-east of the Mârid castle (quadrant N6-I, 10 x 10 m of our grid map). The excavation carried out here was exploratory, to identify the first stratigraphic features of the site.

Sector B corresponds to the area in front of the medieval village of al-Dira' (quadrant G3-IV-b, 5 x 5m of our map grid) where a brief test excavation was carried out, bringing to light the foundations of the more recent structures dating from the beginning of the 20th century.

During the 2010 season, two main objectives were set:

1. to extend the excavation trench dug in 2009 (sector A, Quadrant N6-I) so as to start extensive excavation of the structures located at the foot of Mârid Castle (the ancient acropolis). This has made it possible to define a first comprehensive chronological sequence from the recent centuries to the pre-Islamic layers (**see Loreto, Sector A**);
2. to begin a series of systematic excavations along the enclosure wall (sector C), in order to understand its building method and function, as well as to date it and to determine its extension in the oasis (**see Charloux et al., Sector C**).

The excavations were located in areas that were already partly protected by metal fences put in place by the Saudi authorities (sectors A, B and C), with agreement from the local SCTA official.

3. Public awareness and restoration

Some cleaning of the excavated structures (sector C, ancient enclosure) and restoration of the collected materials (ceramic items) were conducted during the work, thanks to the collaboration with the al-Jawf Museum.

Restoration work was begun on some ceramic containers found during the excavation of the walls (sector C), using the laboratories and specialized equipment available in the museum.

The overall aim is to make the excavated monuments accessible and to raise awareness among the local population of the conservation of an architectural heritage that is being suffocated by modern building; and at the same time to preserve the finds so as to add to the collections of the local museum.

4. Methodology

A recording system was set up during the 2009 season by the joint Saudi-Italian Project. As explained in detail in the excavation report of sector C (**see Charloux et al., Sector C**), the recording system used in the excavation of sector C was adapted from that established in 2009 by the Italian part (sectors A and B) and is very similar to it.

The databases, featuring Zambil/layers, walls, loci, ceramic, objects and photographs, were created using ©Excel and ©FilemakerPro software. In order to ensure complete compatibility between the Saudi, Italian and French teams, the working language of the project is English. The databases of the project are therefore completed in this language.

Plans and archaeological sections in the field were drawn by the archaeologists (**see Charloux et al., Sector C**) and architects (**see Marcolongo, Topographic & Photogrammetric Survey**), using a Leica TCR407 total station. Survey work was carried out by an epigraphist and archaeologists as well as by a topographer using a differential GPS (**see Morel, Topographic Survey**).

After cleaning by a workman the ceramic material was classified, photographed, drawn and stored by Pierre Siméon, ceramologist and archaeologist (**see Siméon, Recording System**). With Quentin Morel, he also carried out some vessel restoration. Pottery material coming from the excavations was stored in a storeroom lent by the Museum. Two rooms are also used inside the Museum for material and computer studies.

Among the main difficulties encountered during the 2010 project we have to mention that:

- the ceramic material seems very local and it is therefore difficult to relate to well-known cultures for most periods (Roman, Byzantine, Islamic in particular). Dating is therefore preliminary and will be completed using C14 analysis in the near future.
- the great quantity of stone blocks in sector A which makes the excavation long and difficult.

- the enclosure wall (Sector C) cleaned in 2010 needs to be protected properly by adding mud plaster. The local authorities from the SCTA told us that specialized workmen could do this work during the 2011 season.
- the significant recent population increase in the oasis. Many archaeological structures need to be recorded and studied soon and some protected.

5. Lectures

1. Loreto R. Joint Saudi-Italian archaeological project at Dûmat al-Jandal. Preliminary report of the 1st excavation campaign (2009), at the Ancient Arabia Colloquium, Cambridge - Clare Hall (July 2010).
2. Loreto R. Dûmat al-Jandal (Arabia Saudita): fonti testuali e prime testimonianze archeologiche dell'antica Adumatu, at the University of Naples "L'Orientale" – Dipartimento di Studi Asiatici. (March 2011).
3. Charloux G. Dûmat al-Jandal, une oasis sur les pistes caravanières d'Arabie saoudite, at the Paris A CNRS office, Ivry-sur-Seine (May 2011)
4. Charloux G. & Loreto R. Dûmat al-Jandal (Arabie saoudite), premières explorations de l'oasis par la Mission archéologique Italo-franco-saoudienne, *Note d'information* at the *Institut de France - Académie des Inscriptions et Belles-Lettres* (May 2011).
5. Charloux G. & Loreto R. The Saudi-Italian-French Archaeological Project in Saudi Arabia, at the 15th Rencontres Sabéennes, in Moscow (May 2011).
6. Loreto R. The Saudi-Italian-French Archaeological Project at Dûmat al-Jandal (Ancient Adumatu). A first relative chronological sequence for Dûmat al-Jandal. Architectural elements and pottery items, at the Seminar for Arabian Studies in London – British Museum (July 2011).
7. Charloux G. Known and Unknown Archaeological Monuments in Dûmat al-Jandal, at the Seminar for Arabian Studies in London – British Museum (July 2011).

8. Charloux G. Dûmat al-Jandal, une oasis sur les pistes caravanières d'Arabie saoudite, at the French International High School, Riyâdh (october 2011)
9. Charloux G. Dûmat al-Jandal, une oasis sur les pistes caravanières d'Arabie saoudite, at the French Embassy, Riyâdh (october 2011)
10. Loreto R. The Saudi-Italian-French Project at Dûmat al-Jandal, at the Italian Embassy, Riyâdh (october 2011)

6. Publications

1. de Maigret A. 2010. Joint Saudi-Italian Archaeological Project at Dûmat al-Jandal. Preliminary Report of the First Excavation Campaign (2009). *Newsletter di Archeologia CISA (L'Orientale)*. Vol. 1: 67-83.
2. Loreto R. 2011. Saudi-Italian-French Archaeological Project in Saudi Arabia. Dûmat al-Jandal 2010. The excavation of Sector A. *Newsletter di Archeologia CISA (L'Orientale)*. Vol. 2: 179-217.
3. Charloux G. & Loreto R. 2011. Deserto Verde. *Archeo, Attualità del Passato* 321 (november): 26-37.
4. Charloux G., Loreto R., al-Tirâd A. K., al-Qa'îd A. A., al-Dayîl A. I., al-Mâlikî T. A., Marcolongo A., Morel Q., al-Qahtânî D. M., al-Qahtânî M. H., Schiettecatte J. & Siméon P. 2012. Dûmat al-Jandal, Immémoriale oasis d'Arabie Saoudite. *Archéologia* 495 (january): 46-55.

In press

5. Charloux G. in press. Known and Unknown Archaeological Monuments in Dûmat al-Jandal. *Proceedings of the Seminar for Arabian Studies* 2011.
6. Charloux G. & Loreto R. in press. Dûmat al-Jandal (Arabie saoudite), premières explorations de l'oasis par la Mission archéologique italo-franco-saoudienne. *CRAIBL* 2010.
7. Loreto R. in press. The Saudi-Italian-French Archaeological Project at Dûmat al-Jandal (Ancient Adumatu). A first relative chronological sequence for Dûmat al-Jandal. Architectural elements and pottery items. *Proceedings of the Seminar for Arabian Studies* 2011.

Historical Overview

Guillaume Charloux & Romolo Loreto

With a contribution by Christian Julien Robin



Historical Overview

Guillaume Charloux (CNRS, UMR 8167)
& Romolo Loreto (University of Naples, “L’Orientale”)

We only know the broad outlines of the rich history of Dûmat al-Jandal (or Dûma¹), which stretches over nearly 2700 years. It was concisely summarised at the beginning of the 19th century by Musil², and more recently by al-Sudairi³. The long periods of Assyrian, Nabataean, Roman and Islamic occupation are attested by rare inscriptions, some ancient artifacts that have come to light during excavations and surveys, and in the textual sources from the Islamic era. The major events that took place here, together with most of the traces of its past glory, lie buried in the sand. This chapter attempts to summarise current knowledge and provide a starting-point for the activities of the Archaeological Project.

Geographical context

In view of its location on the borders of the wâdî al-Sirhân linking southern Syria to the desert Arabia, the oasis of Dûmat al-Jandal⁴ constitutes one of the few obligatory ports of call on the east-west traverse of the Arab peninsula. Situated at the intersection of caravan trails linking Mesopotamia, the Arabo-Persian Gulf and desert Arabia, the geographical isolation of the region of Dûma actually favoured its development and fame in the Pre-Islamic era.

1. Veccia Vaglieri 2010.

2. Musil 1927: 531-552.

3. al-Sudairi 1995.

4. Also featuring in Western sources in the forms *Daumet al-Jandal*, *Dûmat al-Djandal*, *Dûmat al-Gandal*, *Doumat-alJandal*, *Doumet-alJandal*, *Dawma*, *Dowma*.

Bordered to the north by the steppe-like limestone plateau of Hammad and to the south by the arid desert of Nafûd, Dûmat al-Jandal stands at the northern edge of Saudi Najd (**Fig. 1**), 280 km as the crow flies from Taymâ', 700 km from Medina, 400 km from Mâda'in Sâlih, 308 km from Hâ'il and 530 km from Damascus⁵.

In the 13th century the Arab geographer Yâqût stated that Dûmat al-Jandal measured 5 farâsikh⁶, and that "from the west the Tatij spring irrigates what there is in the way of palm groves and crops"⁷. Today the oasis takes the form of a vast shallow depression (**Fig. 2**) about 8 km in length and 3.5 km across (29°48'40.60"N, 39°52'04.51"E). An artificial lake about 2.90 km in length, created in the early 1980s east of the valley, now serves as a reservoir for the crops. A vast, highly saline plain, certainly the bed of an ancient lake (Sabha), stretches away beyond the artificial lake in the east of the valley bottom.

The limestone mountains surrounding the oasis are known as "al-Gal"⁸. The palm grove and the crops occupy the valley floor while modern residential quarters have been built on the adjacent plateaux unsuitable for cultivation overlooking the oasis to the south-west and north-west. These zones are currently subject to intense building activity, with a sharp demographic increase of 4% per year, so that the population of the oasis now stands at 33,000 inhabitants.

The region of Jawf is situated in the vast zone of sedimentary rocks in the north-east of the Arab peninsula, at the intersection of four great Palaeozoic geological formations (primary era) in the south-west and Mesozoic (secondary era) in the north and east⁹. A Devonian (Palaeozoic) formation stretches from Hijâz in the direction of Jawf (mountainous zone of al-Tawîl), where it meets a more recent formation of the Trias (Mesozoic), at the south-eastern end of the basaltic Harrat al-Harrah (Jebel Druze). The pronounced mechanical erosion of the Devonian plateaux gave rise, by means of wind-blown deposits, to areas of sand dunes in the Nafûd desert, south-east of Dûmat al-Jandal. Moreover

5. See the Arab geographers Abû al-Fidâ' Ismâ'il b. 'Alî 1848: 109 ("Doumat al-Jandal is a place situated between Syria and Iraq, seven days' walk from Damas and thirteen from Medina"), and Ibn Khaldûn 1967: 132 ("to the east, al-Hijr is followed by the country of Thamûd, Taymâ' and Dûmat al-Jandal, the northern part of Hijâz").

6. About 25 km.

7. Yâqût al-Hamawî 1995: vol. 2: 487.

8. "Gâl-Algawf" in Wallin 1854: 138; "al-Ġedilijje" in Musil 1927: 467.

9. Parr *et al.* 1978: 33, pl. 21, see also Sayari & Zötl 1978; Sindi 1986: 104-106.

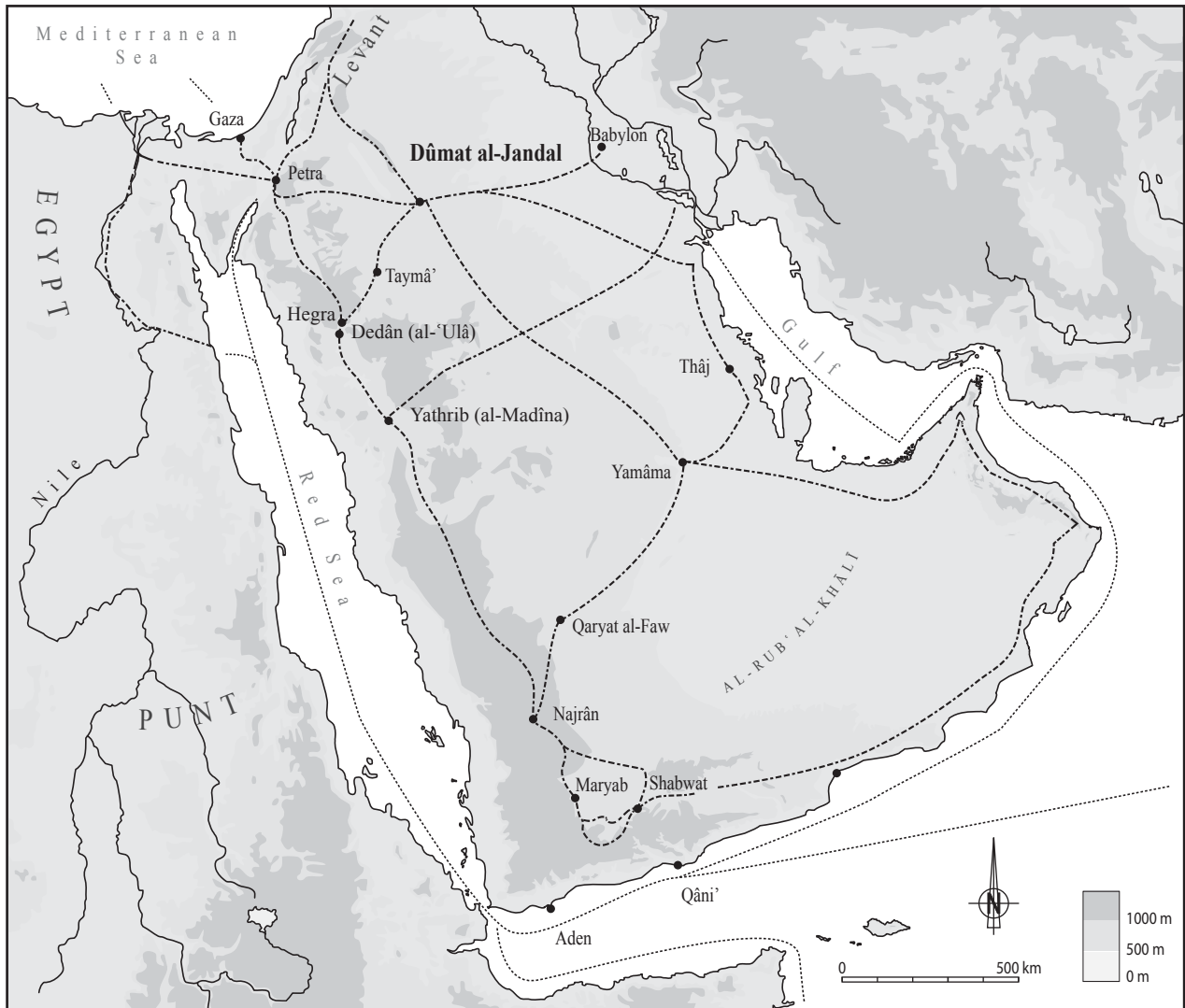


Fig. 1. Localization of Dûmat al-Jandal in the Arabian Peninsula, and the main roads of Arabia



Fig. 2. Dumat al-Jandal Oasis, GeoEye-1 © GeoEye; <2011>; Distributed by e-GEOS (for GE-1 and IKONOS)

Quaternary flood deposits built up in the valley beds, in particular the wâdî al-Sirhân, while north-east of Jawf Cretaceous rocks were laid down, particularly the arid calcareous plateau of Hammâd¹⁰.

The Devonian limestone formation bearing the name of the “Jawf Formation” (including limestone, siltstone and gypsum)¹¹ has five distinct features¹². The three most significant at Dûmat al-Jandal are the *Qasr Member*, on the site known as Qasr Mârid, comprising grey clayey-muddy limestone with underlying grey shells; the *Subbat Member* comprising above all shells is readily recognisable, forming two enormous and striking grey-purplish cones in the north of the oasis (known as Sabb’a/Subbat); the *Hammamiyat Member*, with underlying shells, siltstone and red limestone, occupies the site called Jebel al-Hammamiyat about 25 km north-east of Dûma, but also in the oasis. Magmatic rocks from the tertiary have also been observed.

The name al-Jawf comes from its topography (“depression, ditch” in Arabic)¹³, and nowadays this name also designates the vast administrative province of Saudi Arabia bounded on the north-west by Jordan, on the east by the “Northern Frontiers” and in the south by the provinces of Tabûk and Hâ’il (**Fig. 3**). The name “al-Jawf” has commonly been substituted for Dûmat al-Jandal since the 19th century¹⁴. The first occurrence of the toponym seems to go back to the 10th century¹⁵, when it appears to have referred to the region as a whole. The conjunction between the region called al-Jawf – whose boundaries are only vague – and the principal oasis Dûmat al-Jandal, with its characteristic shape, comprising several different villages, became generalised only from the 19th century onwards. In 1780, Niebuhr, in the *Description de l’Arabie*, refers to the “mountainous region of Djof âl-Sirhân containing Skake and Duma”¹⁶, speaking of a single entity with

10. Cf. Pollastro, Karshbaum & Viger 1997.

11. Characterised by shells, unlike the formations of Tawîl and Jubbah.

12. Al-Ajmi 2005: 1. *Sha’iba Member*: in the zone of Barqa Shaybah about 17 km north-west of Dûmat al-Jandal, made up of grey shell, clayey or muddy limestone and fine sandstone; 2. *Qasr Member*; 3. *Subbat Member*; 4. *Hammamiyat Member*; 5. *Murayr Member*, named after the formation observed in the Wâdî al-Murayr 60 km north of Dûma.

13. Also found in the forms *Jawf*, *Djawf*, *Djowf*, *Jôf*, *Jouf*, *Djôf*, *El-Giof*, etc. The oasis was also known as “al-Sirhân” (Seetzen 1808: 386; Wallin 1854: 240, and “the gate/entrance of the Negd” or Jawf el-‘Amr [Bin Ahmad al-Bisâm 1831: 10; al-Karmalî 1947: vol. 3: 353; Carruther 1922: 413]).

14. Burchardt 1822: 662-664.

15. In *al-Aghânî* by Abû al-Faraj al-Asbahânî, according to al-Sudairi (1995: 5).

16. Niebuhr 1774: 297; see also Bin Ahmad al-Bisâm 1831: 10.

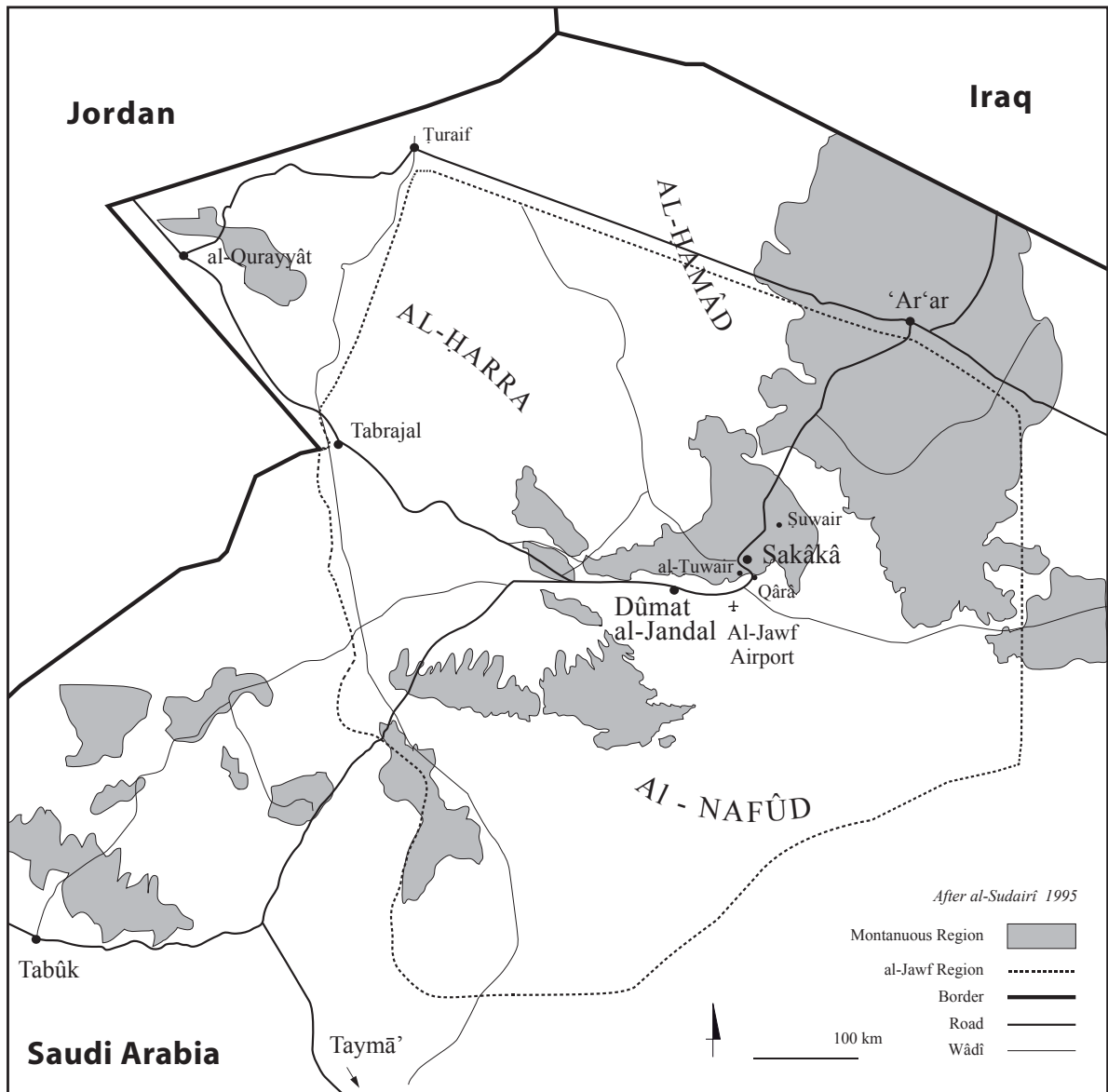


Fig. 3. al-Jawf Region in Saudi Arabia, after al-Sudairi 1995

two chief regional settlements. In 1810 de Corancez reported a list drawn up by Baron Antoine-Isaac Silvestre de Sacy: “In the Djauf there are five towns or important villages, Djauf, Serrah, Derh, Downa [Dowma]¹⁷, Sekake”¹⁸. In this case “Dowma” is distinct from the town of “Djauf”, even though the latter’s location is not given. Derh refers to the quarter of al-Dira’ in the oasis, and Serrah that of “Alsarrâh / Es-Sîdîn”¹⁹. However the toponym of al-Jawf does not occur again in subsequent lists of the quarters of the oasis recorded during the 19th century²⁰.

Another toponym appears to have been used to designate the oasis: Khabt (Ḥabt)²¹, found in ancient Arab poems, which also refers to a depression²².

The toponym of the ancient and medieval oasis that has come down to us from Pre-Islamic and Islamic written sources is Dûmat al-Jandal, which probably originated in “Adummatu”²³ and its prefix “al-Jandal”, an ancient attribute which according to Yâqût referred²⁴ to the local stone used to build the monuments and dwellings in the oasis²⁵.

The caravan trails

The location of the main caravan trails and gates giving access to the oasis in ancient times may be surmised by combining the accounts left by Western explorers in the 19th and 20th centuries, prior to the layout of the modern road network (**Fig. 1**).

1. In the direction of Syria and Western Arabia there appear to have been two or three exits. However, it is never easy to follow exactly the routes taken by the explorers. Shakespear, Wallin and Musil took the route to the north-west of the oasis²⁶, while

¹⁷. The list was confirmed in 1809 by the chaplain to the emir Seoude, according to the consul general of France in Alep, M. Rousseau (de Sacy 1811: 156).

¹⁸. de Corancez 1810: 214, n.39.

¹⁹. See below.

²⁰. See below.

²¹. Labîd 2004: 46; al-Andalusî 1982: vol. 2: 486; Yâqût al-Hamawî 1995: vol. 2: 488; de Goeje 1900: 14; Thilo 1958: 28, 58 (I wish to thank C. Robin for the latter reference).

²². Torrey (1937: 31) also suggests that Khor may refer to Dûma.

²³. See below.

²⁴. On this question, see the note by Ch. Robin, below.

²⁵. Yâqût al-Hamawî 1995: vol. 2: 487; Abû al-Fidâ’ Ismâ’îl ibn ‘Alî 1848: 109 (note 4 in Reinaud).

²⁶. Carruthers 1922a: map. According to Wallin, the gorge situated to the north-west leading towards Syria is called “Alfa’w”, “Bâb al-Faw” according to Musil 1927: 467.

Blunt and Huber chose another route that started from the village of al-Hussaynî. This route is illustrated in detail by Guarmani: “Leaving by the gate of el-Husseïn, you begin by going up among some gentle hills, until you arrive at the upper plain where, on the left, winter rains leave many pools. First you have to go west and, in spite of the inconvenience of the slightly mobile sands, continue in this direction for 9h.30; after 6h. you have Gebel-el-Daare [Jebel al-Dira‘] a quarter of an hour to your right, after 10h. you can reach El-Hamamie (Jebel al-Hamâmiyât) to the north”.

These two routes then fed into the better known trail to Damascus along the wâdî Si-rhân. Wallin records the main obligatory stops with watering places: “Nabk, Mureira, Ghurab, Kurikir, Albazim, Azrak, Bisrd (a village in Nukrit Alshim), Hureira, Ruzdaly on the pilgrims’ way, Al’awig, Damascus”²⁷.

It was also possible to reach ‘Aqaba in the west or Taymâ’ in the south passing through Tabûk, as Shakespear did in 1914²⁸, going round Nafûd to the north.

2. In a southerly direction the trail was also well known between Dûma and Hâ’il, cutting across Nafûd. Shakespear (**Fig. 4**), Wallin and Huber chose this route, which was undoubtedly direct but must have been difficult on account of the high sand dunes that had to be crossed²⁹. A trail running in a straight line towards Taymâ’ across Nafûd, as attempted by Musil³⁰, was also frequently used. From Hâ’il it was then possible to plunge down into the heart of Arabia in the direction of al-Yamâma or else make for the Arabo-Persian coast and al-Gerrha.

A south-eastern gateway of the oasis leading through the “al-Gerâwi garden” is shown on the map of Carruther and also of Musil³¹.

3. In an easterly and northerly direction. It seems that the most favoured route for journeys east and to the Arab-Persian Gulf involved a large detour through the north of the peninsula. First one had to reach Sakâkâ then ‘Ar’ar to the north-east from Bi’r Jâwâ (exits in the north-north-east or in the south-east of the oasis), either passing

27. Wallin 1854: 150-151.

28. Carruther 1922: 414, map.

29. Carruther 1922: 404, 414; Huber 1891: map.

30. Musil 1927: map.

31. Carruther 1922: 414; Musil 1928: 1 & map.

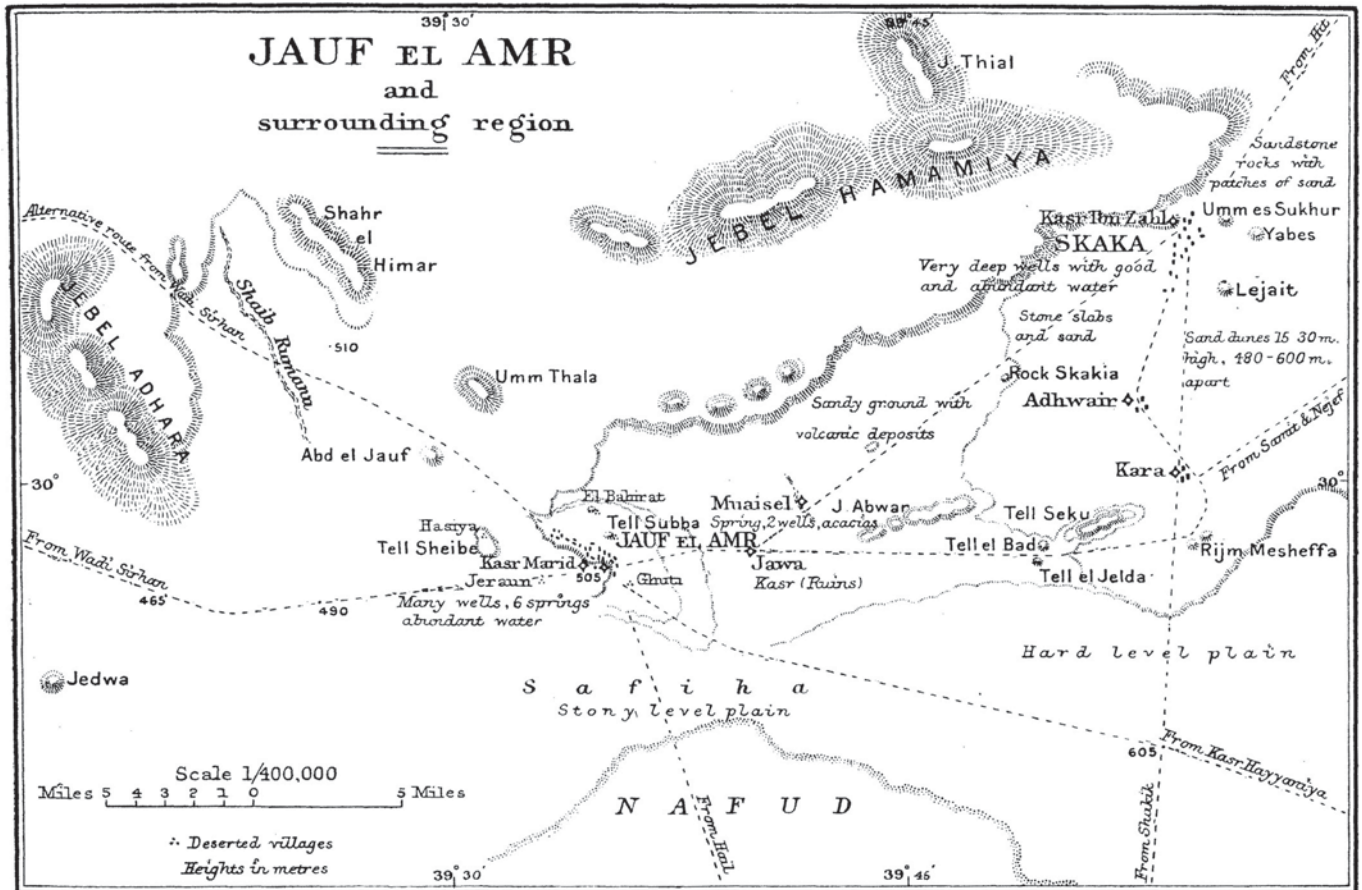


Fig. 4. Map of the Region of Dumat al-Jandal, after Carruther 1922b: 414

through Mû'aysin in a straight line³² or making a detour to the east through Qârâ and al-Tuwayr³³. From 'Ar'ar it was possible to reach the east of Jordan, Babylonia and the Arab-Persian Gulf (Kuwayt or Dammâm) in a straight line through Rafha and Hafar al Bâtin³⁴.

³². For example, journey of Butler 1909: map.

³³. Philby 1923: map.

³⁴. As T. Bauzou (1996: 24) points out, this route must have permitted trading with the Parthian empire without passing through Roman Syria after the diversion of caravan traffic along sea routes in the 1st century; see also Speidel 1987: 213. According to P. Bernard (1990: 51), the Chinese *Wei-Io* speaks of the existence of two caravan routes across the Arabian Peninsula in the 3rd century, one passing through Dûma.

Fauna, flora and the local economy

Until the middle of the 20th century the inhabitants of the oasis ate mainly local produce. The dates, in numerous local varieties all of excellent quality, were particularly prized³⁵. They accounted for the majority of local production although other fruits were cultivated: apricots, peaches, oranges, lemons, apples and tomatoes³⁶. Classic Mediterranean produce, figs, grapes and olives, was astonishingly abundant for such an isolated environment, probably on account of contacts with centres on the Levant coast from the wâdî Sirhân³⁷. Pulses, cereals and vegetables were rare, among them melon, cucumber, onions, beans and some maize above all. These resources were completed by what the nomad Bedouin who criss-crossed the region brought and bartered with the local population: cattle, sheep, dairy products and rice, in exchange for dates, wood and craft products (woollen bags, tents and clothing, including the “mishlakh” or ‘abbâs, a warm woollen cloak used by pilgrims bound for Mekka)³⁸. Relations between the Bedouin and the sedentary population of the oasis always seem to have been both complementary and conflictual: Wallin records that each village paid tribute to a Bedouin Sheikh in the form of dates and quantities of other goods³⁹.

The water used to irrigate palm groves and orchards came above all from wells (**Fig. 5**). In the 19th century it was abundant and drawn up by cattle, donkeys or camels using ropes and buckets, then poured into rudimentary, uncovered irrigation channels⁴⁰. Since then the enormous increase in the demand for water, with ever larger areas of land under cultivation and the growing of vegetables, appears to have contributed to a significant drop in the level of the water table. The wells are now practically empty and deep level pumping has become the norm.

35. Blunt 1881: 123; Wallin 1854: 148-149.

36. Wallin 1854: 145; Forder 1902: 623.

37. Still present today in the oasis.

38. Wallin 1854: 150.

39. *Id.*

40. Blunt 1881: 114; Forder 1902: 623.



Fig. 5. The oasis during the 19th century, photograph by Musil 1927

In the 19th century the inhabitants of the oasis could rely on cattle, camels and goats, and these animals were rarely killed for meat. The supply of animal fat and sheep depended on the Bedouin. The hunting of wild animals, which continued throughout the 20th century, ensured a more varied diet: antilopes, ostriches, hares, partridges⁴¹. In an extraordinary episode dating from the Moslem conquest of the oasis in 630, two wild “horned cows” (oryx?), frequently depicted in cave paintings, came to rub their horns against the gates of the stronghold, encouraging the sovereign Ukaydir to go out hunting, bringing him straight into the trap set for him by Khâlîd bin al-Walîd, a companion of the Prophet⁴². We also know the presence of foxes in the area⁴³. A caracal, or desert cat, has recently been sighted in Harrat al-Harrah⁴⁴.

41. Butler 1909: 523.

42. Al-Wâqîdî 1989: vol. 3: 1027

43. See Green 1984a: 48-58; 1984b.

44. van Heezik & Seddon 1998.

Historic sources

Dûma in the 7th-5th century BCE

According to a theory that has gained general consensus, the name of the oasis Dûmat al-Jandal derives from “Adummatu”, a toponym found in the Neo-Assyrian annals⁴⁵. The most illuminating written source is the inscription VA 3310, which speaks of a military campaign by Sennacherib against Telkhu, “queen of the Arabs in the middle of the desert”, in an unspecified location, following which the Assyrian troops pursued the fleeing Arabs as far as Adummatu, referred to as “Adumu which is situated in the desert”. The campaign must have taken place in about 688 BCE⁴⁶.

The annals of King Esarhaddon (680-669 BCE) and King Assurbanipal (668-627 BCE) record that at the time of Sennacherib, Queen Telkhu, then a priestess of Dilbat and queen of “Adumu the fortress of Arabia”, betrayed the Assyrian king. She was taken off to Nineveh together with the divinities of Dûma (Atarsamain, Dai, Nuhai, Rudaiu, Abirillu and Ataqruruma) and her daughter Tabu’a, the future queen. The latter was detained to be educated there, ensuring the Assyrians greater control over Northern Arabia through a sovereign who had been educated at the imperial court. It was apparently Esarhaddon who gave orders for the queen to return to Dûma together with the deported divinities⁴⁷.

The north of the Arabian peninsula is mentioned again in Babylonian chronicles of the time of Nebuchadnezzar and Nabonidus. In particular the latter alluded to the site of “Adummu” (*[/]-du-um-mu*), conquered during the campaign of 552 BCE against Taymâ’ and used as a royal residence for eleven years. However, “Adummu” could refer to the land of Edom, in Syria-Palestine, where Nabonidus may have led his troops before making his way south⁴⁸, and thus cannot be surely identified with Dûmat al-Jandal.

⁴⁵. See Eph’al 1982; MacDonald 1995; Potts 2010.

⁴⁶. Eph’al 1982; Luckenbill 1927.

⁴⁷. Wixman 1958: 4; Musil 1927: 480; Smith 1878: 138, K3087 and K3405.

⁴⁸. Smith 1924:84, 1925: 508-511; see also Eph’al 1982:120, *contra* Albright 1925: 293-295.

There has been considerable discussion concerning the location of Adummatu. It is now generally believed that this desert fortress stood on the site of Dûmat al-Jandal, as maintained by Arab geographers, in view of the affinity in the toponyms, the geographical situation in the desert on the borders of Mesopotamia, and the fact that this is the largest oasis in the north of Saudi Arabia.

The location of the biblical Dûma on the site of Dûmat al-Jandal has always been argued over. In Genesis Dûma is one of the twelve sons of Ishmael and Hagar, and thus a grandson of Abraham⁴⁹. The oasis also features in a verse from Isaiah, in the phrase “the burden of Dûma”⁵⁰, and each time is cited together with Tema (Taymâ’) and/or the “caravans of the Dedanites”.

In the case of the first two, Assyrian and biblical sources, at least three places in the Near-East bearing the name Dûma - Dûmat al-Hîra, Dûmat al-Jandal and one other to the north-east of Damascus⁵¹ - could lay claim to being Biblical Dûma and Adummatu. The situation of the oasis of Dûmat al-Jandal, isolated in the centre of the desert of Northern Arabia, is generally recognised to best correspond to the few indications given in the Assyrian sources. The most convincing confirmation of the correct identification of the oasis comes from the discovery of several Nabataean inscriptions in the region of Jawf which in turn allude to the name of “Dûmat”.

Moreover, between the 8th and 5th century BCE the region of Dûmat al-Jandal was in all likelihood one of the centres of the tribal confederation of Qedar (Cedar)⁵². These two names are found in association not only in the Assyrian annals (Adummatu / Qedar) but also in biblical texts (Dûma / Qedar). What is more, the Qedarites venerated ‘Atarshamein⁵³ and Han-’Ilât (Allât), as we know from three silver bowls discovered at Tell al-Maskhutah in the far east of the Nile Delta which were offerings made to Han-

49. Genèse 25:14: 55; Chroniques 1:30: 443.

50. Isaïe 21:11: 1112. Confusion between Dûma and Edom (Idumée), which has the same root (‘dm), may exist in this case (cf. Savignac & Starcky 1957: 209.)

51. On this question see de Goeje 1900: 14-16; Caetani 1907: 947, & 882, n. 1; Musil 1927: 542-546.

52. Eph’al 1982:225; Robin 1991a:49, 1991b: 10, 2010: 98-99; see also Livingstone 1989 (notably: 89, mention of a settlement of the Arab tribe Qedar in a document of 9th year of Nabonidus; 90: encampment of a Qedar group in the vicinity of Eridu).

53. For a representation of this warrior goddess see the Aramean seal dating from the end of the 9th century, collection H. Seyrig, in Bordreuil 1986: 75, n°85.

’Ilât (one by Qainu, son of Geshem, king of Qedar)⁵⁴. ‘Atarshamein belongs to the groups of divinities brought by Sennacherib when he captured Adummatu. This divinity is also mentioned in the Thamoudic or Safaïtic graffiti found in the region of Jawf, together with two other divinities Rudâ, Nuhai⁵⁵, also mentioned by Essarhaddon. As for the Arab Venus Alilat/Alitta, she is twice referred to by Herodotus in connexion with Cambyses’ campaign in Egypt in the 5th century⁵⁶.

Assyrian and biblical sources indicate that the Qedarites were nomadic groups living in tents in the desert with their flocks and camels. Their territory was located on the western frontier of Babylonia, probably stretching to the western limit of the fertile crescent since in about 652 BCE they invaded the eastern part of Transjordan. The invasion ended in defeat and the stipulation of a treaty between Assurbanipal and Qedar, signed by Iauta (*m Ia-û-ta-’*), son of Hazael⁵⁷. In 599 BCE Nebuchadnezzar sent his army to attack the Qedarite encampments in the western part of the Syrian desert, an episode recounted by the prophet Jeremiah⁵⁸. In the 5th century BCE the territory of Qedar extended as far as Sinai, after the Qedarites had helped the Persians against the Egyptians⁵⁹.

Several times the king of Qedar is assimilated to the “king of the Arabs”. However, the mention of two Qedarite kings reigning at the same time, Iauta and Ammuladi – both allies of Shamash-shum-ukin, the brother and rival of Assurbanipal, and deposed to the advantage of a certain Abiyate’ b. Te’ri – suggests that the social organisation in the north of Arabia was more complex than what we can learn from external written sources. Qedar does not designate Arabs taken as a whole but merely a grouping of nomad tribes within a wider population that constitutes “the Arabs”⁶⁰.

Nonetheless such a line of reasoning comes up against an obstacle in the systematic mention in the biblical lists of Dûma with the same status as Qedar. Does this mean that they were two quite distinct entities? That the kingdom of Qedar did not stretch as far as

54. Rabinowitz 1956, 1959; Dumbrell 1971; see also Lemaire 1974.

55. Winnett & Reed 1970: 80, n°23; 75, n°3; 80, n°21, 22.

56. Herodotus, *Histories*, I:131, III:8.

57. Eph’al 1982: 143-144.

58. Jérémie 49:28-31: 1216.

59. Cf. Sérandour 1997: 93.

60. Eph’al 1982: 82-83.

Dûma? And that ‘Atarshamein was a divinity venerated by all the Arabs in the north of Arabia, and the tribe of Dûma did not participate in the Persian conquests?

At the same time Qedar is mentioned three times in the Southern Arabian “Hierodulenlisten” (lists of Hierodules “probably representing the recording of payments for foreign spouses of Mineans for their ‘naturalisation’”) at the end of the 6th – early 5th century BCE⁶¹.

To conclude, the association between Adummatu, the Dûma of the Bible and the oasis of Dûmat al-Jandal is based on a series of convincing indications. Nonetheless it is as well to recall that no archaeological evidence or material relic certainly dating back to the period going from the 7th to the 2nd century BCE has been discovered in the region⁶², with the exception of a Minean graffiti⁶³, a few names of Qedarite gods and three painted sherds⁶⁴. What is more, all the written references to Dûma come from elsewhere. Whether they are in the Assyrian annals or biblical texts, at the earliest they date from the 7th century BCE. At this date, Dûma had still not taken its place in history.

From the 3rd-2nd century BCE to the 4th century AD

The northern Arabian name of Geshem⁶⁵, inscribed on the bowls found at Tell al-Maskhutah, occurs again in an Aramean inscription dating from the 3rd-2nd century BCE possibly discovered at Dûmat al-Jandal. This inscription is only known thanks to an approximate copy published by Torrey⁶⁶, and we should be prudent about its use. It gives information about the organization of a cemetery laid out in rows⁶⁷ - and also about the construction of a wall round the settlement by the army of Gusham, son of Shalamu.

61. Lemaire 1996: 39-43.

62. See Parr 1989.

63. Winnett & Reed 1970: 74, n°1.

64. al-Mu‘ayqil 1994b.

65. See Rabinowitz 1956: 6.

66. Torrey 1934. The author’s translation reads: “*Urfan son of Ma’nai built this wall, at the close of the year in which Hor was devastated. Also, he laid out a cemetery; and he made the rows, and cleared the ground of their cemetery, according to the prescription. And he went forth in command of the army of Gusham son of Shalamu to perform this task*”

67. See comment about “The Graves” in Charloux *et al.*, survey: 86.

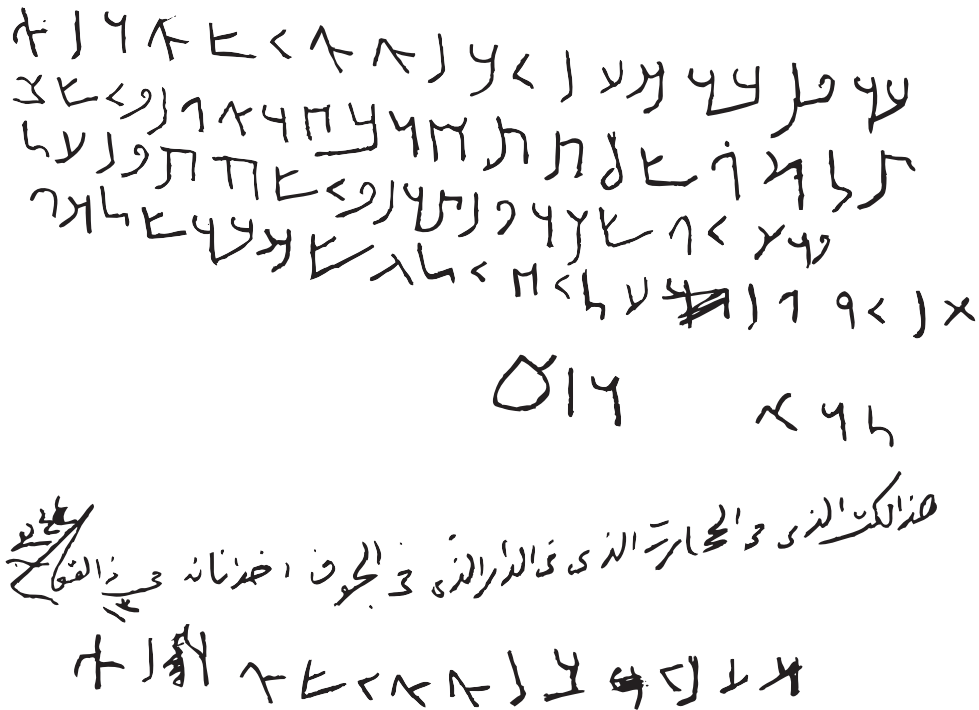


Fig. 6. Approximate fac-Simile published by Torrey 1934: 30, written and given to him by a Joufi

Although Torrey supposes that these events took place at Dûmat al-Jandal, since “Ḥor / Khaur” in Arabic is similar to the designation “depression, large valley”⁶⁸, like Jawf in Arabic, and the construction of a defensive wall would follow on the valley’s destruction⁶⁹, it seems very uncertain to base this hypothesis on such an approximate textual evidence.

None of the few Nabataean inscriptions and dozens of graffiti that have been found in the region and the oasis⁷⁰ predate the 1st century AD, and apparently the reign of Arethas IV⁷¹. In this respect Musil relates the words of a certain ‘Amer, Nawwaf’s regent [...]: “He answered that while deepening the well in the Mâred tower they had found a

68. Actually “sunken valley, fjord”. Thanks to C. Robin for specifying this.

69. de Goeje 1900: 14 also mentions: “A poet of the Kelb composed these lines for the occasion: Let no one believe himself immune to the loss of his prosperity ! See how the beautiful women in the palanquins of Acdar [Ukaydir] have disappeared from Khabt. Khabt, strictly “*bas-fond*”, is the ancient name for Djôf.”, which has the same meaning.

70. Cf. al-Theeb 2005.

71. al-Theeb 1994: 34-37 (4/5 CE); Kitchen 1994: 173; Winnett & Reed 1970: 144 (plaque from tomb dated 26 CE?).

number of marble slabs bearing strange inscriptions [...] also in the street of the Mâred”⁷². Since the latter is known to be in Nabataean, one can suggest that this was probably the case for the others too.

The name “Dûmat” appears for the first time⁷³ in an inscription from Jawf⁷⁴ dating back to the 5th year of king Malichos II (45 AD)⁷⁵, son of Arethas IV (**Fig. 7**). Interestingly this inscription mentions the construction and restoration of a sanctuary at Dûma, dedicated to the great god Dûshara by Ghanimu, son of Damascusippe, commander of the camp or of the fort⁷⁶. This Ghanimu is also believed to figure in another inscription of Jebel Ithlib at Hegra where he is cited as a strategist⁷⁷.

Mention of a sanctuary dedicated to Dûshara, the supreme god of the Nabataeans, indicates a rupture with the pantheon mentioned in the Assyrian and Thamoudic inscriptions from the neighbourhood. Is this evidence of the cohabitation of several entities in the same region? Doesn't Pliny mention the existence of the “Cedrei” (Qedarites) in the 1st century, when the Nabataeans were present in the region⁷⁸?

Lastly one graffito dates from the reign of Rabbel II (70/71 AD)⁷⁹.

The external sources also mention Dûma in this period, which must have been a time of prosperity for the oasis: “Domatha” in Pliny the Elder's Natural History⁸⁰ with Egra [Hegra], then “Dumaetha” in Ptolemy's Geography in the 2nd century AD⁸¹, featuring as a large city in Arabia.

72. Musil 1927: 470.

73. According to Maani 2002: 156, “Dûma” is also found in Thamoudic inscriptions as TMD.

74. The inscription was discovered in about 1944 by a mission sent to combat locusts in the region of Jawf, before being printed and deciphered by Savignac in the Palestinian museum in Jerusalem, after which it disappeared (cf. Savignac & Starcky 1957: 196).

75. Savignac & Starcky 1957: 196-217.

76. Savignac & Starcky 1957: 215: “This sanctuary is the one built by the chief Ghanimu, son of Damasippe, for Dûshara the god of Gaia at Dûmat. And it was restored and enlarged by Malik the devine at Dûmat, son of Haza, in the 5th year of the king Maliku, king of Nabatene”.

77. Savignac & Starcky 1957: 202.

78. Pliny 1848: book V. 11: 496.

79. al-Theeb 1994: 38-39.

80. Pliny 1848: lib. VI.XXXII.14: 824.

81. Ptolemy 1838: lib. V.C.18: 382.

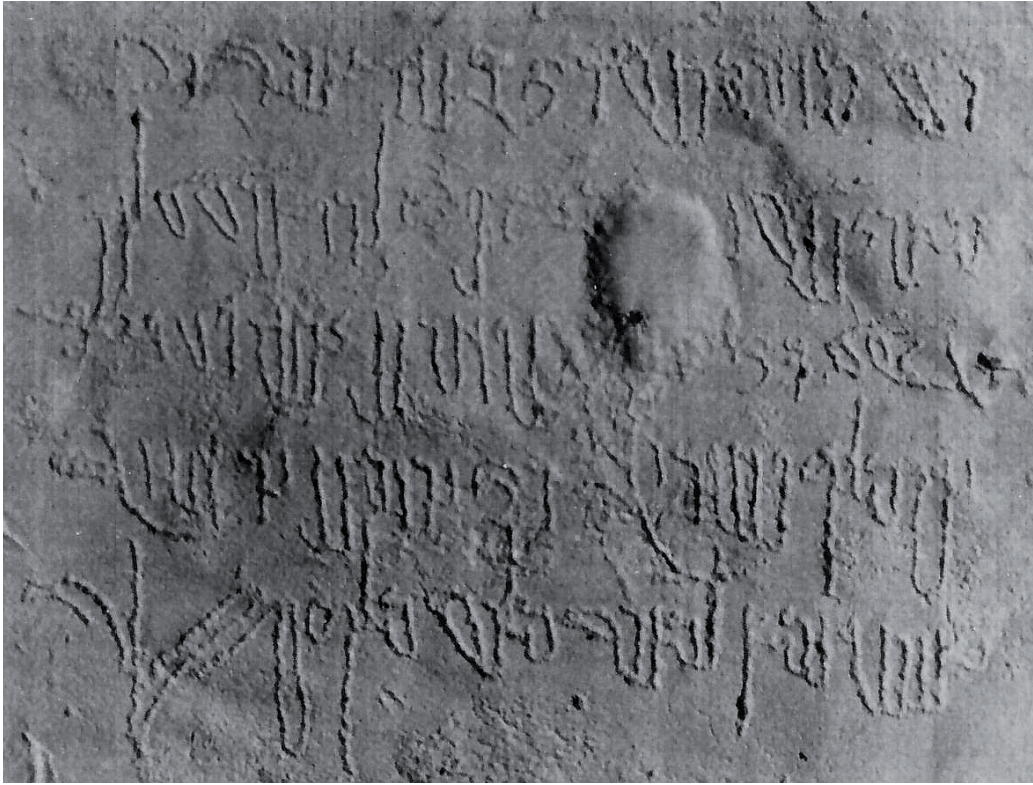


Fig. 7. Rubbing of a Nabatean Inscription from the Jawf Region (after Savignac & Starcky 1957: pl. V)

The annexation of Arabia Petraea into the Roman Province of Arabia in 106 AD meant that Rome was encroaching on the borders of Nabataea. However, there are few written attestations of a Roman presence at Dûmat al-Jandal⁸². The first is an undated stone stela (altar?) found in the oasis⁸³ (**Fig. 8**), apparently from the 3rd century AD, dedicated by the centurion of the 3rd Cyrenaic legion⁸⁴ Flavius Dionysius⁸⁵. According to Livingstone, the god Sulmus in the Latin inscription is to be linked with the Arab cult of the god *slm* also present at Taymâ⁸⁶.

82. Note also that a roman coin found in one of the soundings of al-Dâyil & al-Shadukhi (1986: pl. 84, fig. 1) bears the standing Felicity and the following letters *PM TRP COS* (in the center *AETER [NITATI AVG]*). According to the list established by P. Le Gentilhomme (1962), it could date from the 3rd century AD.

83. al-Jâsir 1981: 135-138 (now at the University Museum of Riyadh, reg. num. 39); Bowersock 1983: pl. 14; Speidel 1987: 213-221.

84. Legion also present at Hegra (Madâ'in Sâlih),

85. Bauzou 1996: 24: "For the health of our two August lords, for Jupiter Hammon and Saint Sulmus, Flavius Dionysius, centurion of the 3rd Cyrénaïc legion, has accomplished his vow ».

86. Livingstone 1989: 103.



Fig. 8. Undated stone altar found in Dûmat al-Jandal (after al-Jâsir 1981: 137)

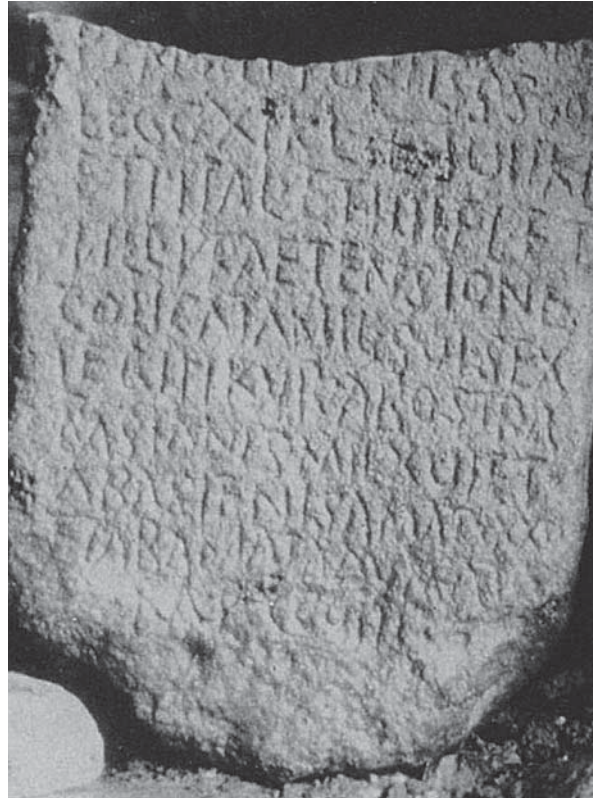


Fig. 9. *Praetensio* Stela from Qasr al-Azraq (after Kennedy & Macadam 1985: pl. 2)

A Nabataean inscription dating apparently from 225 AD, discovered at Jebel Abû al-Qays⁸⁷, close to Dûma, commemorates the priest ‘Awîdû, son of Shulaimû, which could testify not only to the persistence of a sanctuary in the region, probably at Dûma, but also to occupation by people speaking Nabataean in the heparchic era comparable to what is known for Hegra⁸⁸.

According to Bauzou the “*Praetensio*” stela of Qasr Azraq records work on the Roman road between Bosra and Dûma (“Dymata”), via Dasianis/Basienis and Amata, involving several squads of the Roman legions (**Fig. 9**). However, Christol and Lenoir prefer to consider the term “*praetensio*” applying to a military action designed to restore Roman authority during the reign of Aurelian (270 to 275), over an itinerary and territo-

⁸⁷. Winnett & Reed 1970: 145, n°17.

⁸⁸. For example, the text in Nabataean recording the construction of the tomb of Raqush in 267 AD by his son Ka’bû (cf. Nehmé 2009: 48-49).

ries that had been lost following the Palmyrene conquest of Zenobia⁸⁹. In the 8th century AD, al-Dhabbî is the first to give the citation “tamarrada Mârid wa ‘azza al- ‘Ablaq”⁹⁰ that was often quoted thereafter⁹¹. It tells of an episode taken from local tradition: the failure of the Palmyrenian troops to take the fortresses of Dûma and Taymâ’. There are no attestations confirming this event; however, the attempt by Queen az-Zabbâ (Zenobia) to take control of all the territories of the Roman Province of Arabia, seems to correspond with the historical reconstruction proposed by Christol and Lenoir.

It is true that the oasis of Dûma was situated at the furthest limits of the empire, a long way from Palmyra; but it controlled the entrance to the wâdî al-Sirhân which led straight to Bosra, captured by Zenobia. It was of undeniable strategic importance whenever the Arab tribes threatened to regain control of the caravan trails. This was also the reason why in the 4th century Rome reinforced the *limes Orientalis*⁹², subsequently delegating control to the local tribes in a carefully managed regime of alliances and treaties.

From the 4th to 7th century AD

Between the 4th century and the Moslem conquest the history of Dûmat al-Jandal can only be partially traced, relying on a hypothetical reconstruction of events in the region⁹³.

Little is known of the history of the region of Jawf as a whole from the 4th to the 6th century, at which time it appears to have been conquered by allies of the Sassanids to the east and the Byzantines to the west, even though it was protected by its isolation from the worst of the conflicts. For a long time Dûma belonged to a federation of allies of Byzantium, at least up until the beginning of the 6th century, then to a branch of the tribe of the kings of Kinda which produced a celebrated local sovereign named Ukaydir⁹⁴, who however did not belong to the fraction of the Hujrids⁹⁵. Ukaydir bin ‘Abd al-Malîk

89. Christol & Lenoir 2001: 176.

90. al-Dhabbî 1981: vol. 1: 143–144.

91. e.g. bin Sallâm al-Baghdâdî: vol. 1: 94; al-Mas‘ûdî 1864: vol. 3: 197; Yâqût al-Hamawî 1995: vol. 4: 389.

92. Cf. Villeneuve 1989: 131.

93. Cf. Robin 1996.

94. al-Wâqidî 1989: vol. 1: 402.

95. Robin 1996: 671.

al-Kindî belonged to the fraction of as-Sakûn bin Ashras bin Kinda⁹⁶. Since he recognised Heraclius, he was probably an ally of Byzantium.

We have practically no sources which speak of Dûmat al-Jandal in this period⁹⁷. The greatest difficulty is to distinguish the references to Dûmat al-Jandal from those to Dûmat al-Hîra, as only the name “Dûma” is mentioned. Shahîd often preferred the former option, but this remains highly debatable in most cases⁹⁸. He suggested the implantation of the Persian power in the region and at Dûmat al-Jandal in the 4th century⁹⁹. He also spoke of the existence of two Greek Ghassânid inscriptions of a certain Silvanus and Mayia discovered at Anasartha, one dating from 425 AD¹⁰⁰. Maya might be the daughter of a king foederati of the tribe of Kalb, suggesting a relationship between Byzantium and the region of Dûma.

The tribe of Kalb at Dûma

Prior to the Moslem conquest Arab sources speak of the presence of the tribe of Kalb¹⁰¹ at Dûma and in the north of Arabia. The “Banû Kinâna, Banû ‘AbdWadd and Banû ‘Âmir al-Akhdâr”¹⁰², all installed in the region of Dûma, seem to have been subgroups of the powerful Bedouin tribe¹⁰³. It is likely that this tribe had long been in occupation, probably since the 1st millennium BCE, of a vast territory to the north of Arabia, stretching from the south of Syria to the region of Hâ’il. A Thamoudic graffiti “O Rûda, the petition of Kalb is here”, found at Sakâkâ, appears to link the Kalb with the ancient Arab god Rudâ, mentioned in other graffiti¹⁰⁴ and in Neo-Assyrian texts. The tribe of Kalb

96. According to I. Shahîd (1995: 35): “The presumption is that this branch of Kinda [the Sakûn] was in charge of the defense of wâdî al-Sirhân as early as the period of the reorganization of the *Limes Orientalis* around 530”.

97. The mention of Dûma (“Domaeitha”) in the “Arrangement concerning a heritage” of the *papyrus Pétra* refers more certainly to Dûma in Judea than the Jawf, *contra* Fournet 2003: 402, note 12.

98. Cf. Shahîd 1995: vol. I, p. 480 (mention of a Dûma in the poem *Diwan* by ‘Adi Ibn-Zayd ambassador to Constantinople: probably Hirâ); vol. II: p. 240-241, and appendix II, p. 283-287, verse 20, poem 13 Ghassanide of Hassân (632-661 A.D.): mention of Qasr Dûmat.

99. Shahîd 1984: 62.

100. Shahîd 1984: 228, 238.

101. The tribe name derives from the baying of the Arab warriors, according to the interpretation of Foster (1844: 234-235)!

102. Ibn al-Kalbî (1969) states that when Khâlid bin al-Walîd returned to Dûma to destroy the sanctuary of the god, after the battle of Tabûk, he encountered first of all the “Banû ‘AbdWadd and Banû ‘Âmir al-Akhdâr”, and killed the cousin of Ukaydir.

103. Veccia Vaglieri 2010; Shahîd 1984: 386.

104. Winnett & Reed 1970: 80, n°21.

recur again among the names of the tribes of Dûma, in particular the Husaynî al-Kalb, mentioned by Lady Blunt in the 19th century. Veccia Vaglieri suggests distinguishing this Bedouin tribe from the sedentary populations who lived in the oasis¹⁰⁵. There always seems to have been a dichotomy between the sedentary populations of the oasis and the semi-nomad Bedouin, which may explain the particular status of Qedar in the region of Dûma during the 1st millennium BCE, as we saw above.

Religious observance at Dûma prior to Islam

In the 3rd century AD, first Porphyrius¹⁰⁶ then Eusebius Pamphilius¹⁰⁷, reported by Stephanus Byzantinus in the 6th century¹⁰⁸, described the *Dumathii* as an Arabian people who each year sacrificed a child and buried it under the altar which represented the divinity. This type of practice was well known to the Nabataeans and Romans and is mentioned in Pre-Islamic Arab poems¹⁰⁹.

On account of its remoteness Dûma evoked above all an exotic fascination in the West, and the question of religious belief at Dûmat al-Jandal is of interest for the first seven centuries AD.

In *Kitâb al-Asnâm*¹¹⁰ the Abbasside savant Hishâm Ibn al-Kalbî, who died in about 820, twice referred to the Bedouin oral traditions, recalling the link between the tribe of Kalb and a god named Wadd. The idol¹¹¹, brought from an unknown locality by a person called ‘Awf bin ‘Udra¹¹², was set up at Dûmat al-Jandal in the wâdî Qurâ¹¹³. The descendants of ‘Awf bin ‘Udra saw to the administration of the cult, and we know that it involved offerings in kind, in particular milk. A certain Abû al-Mundir al-Kalbî described

105. Veccia Vaglieri 2010.

106. Porphyrius 1747: lib.II. 56: 165.

107. Eusebius Pamphilius 1890: 1141.

108. Stephanus Byzantinus 1678: 244.

109. Cf. Hoyland 2001: 183-186.

110. Ibn al-Kalbî 1969: 7, &7c; p. 46 and 47, &49d-51b.

111. On the question of the idols, see Lecker 2005.

112. ‘Awf bin ‘Udra ibn Zayd-al-lât bin Rufayda bin Tawr bin Kalb bin Wabara bin Taglib bin ‘Imrân bin Qudâ’a.

113. Today this wâdî is not part of the oasis, but the mention of the toponym also occurs in other medieval texts (al-Wâqidî: vol.3: 1), and according to C. Robin appears to refer to the oasis of al-‘Ulâ (cf. Robin 2008: 178), which denotes the imprecision of the words reported and perhaps confusion or elision of cities in Arabia.

the idol thus: “It was the statue of a large man, the largest there could possibly be. He had two cloaks, wearing one, and with the other draped over him. A sabre at his waist, a bow on his shoulder, in his hands he held a spear adorned with a pennon and a quiver full of arrows”. This description clearly calls to mind the representations of gods in the 1st millennium BCE. The German-Saudi excavations at Taymâ’ recently yielded a stela with a similar representation, in a style which recalls the neo-Assyrian tradition. Moreover the god Wadd was popular¹¹⁴ in Northern Arabia in the 1st millennium BCE among both the Mineans and the Nabataeans. He is also mentioned in the Qûran as calling on the populations who had remained faithful to him, showing the cult’s longevity.

Together with this evidence of idolatry, the Arab authors refer to a Christian presence at Dûma before the arrival of the prophet. According to al-Tabarî, the king of Dûma named Ukaydir was a Christian Kindite¹¹⁵. As Lecker pointed out, there is no indication of a decline in the cult of idols prior to the coming of Islam¹¹⁶. The Jewish and Christian monotheistic faiths did not have much of an impact on the illiterate local populations. In fact a Christian carpenter from Mekka named Abû Tijât, the son-in-law of a member of the family of the Umayyades, made his living by manufacturing idols¹¹⁷, in spite of the struggle waged by Islam against pagan images.

In this context, and without any more exact information, there is no reason to suppose that different religious beliefs did not exist alongside one another at Dûmat al-Jandal prior to the arrival of Islam. A millenary cult of the idol Wadd could have persisted together with a Christian faith that may have reflected opportunism and geo-political interests¹¹⁸.

¹¹⁴. Lecker 2011, forthcoming.

¹¹⁵. al-Tabarî 1990: 58.

¹¹⁶. Lecker 2005: 35-36.

¹¹⁷. *Ibid.*

¹¹⁸. Another solution would be that groups in the region with different origins (Kalb / Kindi) each possess their own beliefs.

The arrival of Islam

It appears that the oasis of Dûmat al-Jandal held out for a long time against Islam¹¹⁹, and thereafter constituted both a place of refuge¹²⁰ and a seat of arbitration¹²¹. It took no less than four campaigns by the companions of the Prophet until the independence of the oasis was finally subjugated. There are numerous descriptions of these episodes in medieval Arab sources, which here we merely summarise:

The first raid took place in 626, for fear that the oasis would be conquered by the allies of Byzantium¹²². The enemies fled before the Prophet, leaving their tents empty.

The second expedition took place in 628¹²³. The Prophet sent ‘Abd al-Rahmân bin ‘Awf to Dûma at the head of 700 men to convert the inhabitants to Islam, culminating in the marriage of ‘Abd al-Rahmân bin ‘Awf with Tumadîr bint al-Asbagh bin ‘Amr al-Kalbî, the daughter of the Christian chief of the Kalb tribe¹²⁴.

The third military expedition in 630 came after the battle of Tabuk, in view of the Byzantine threat from the north¹²⁵. Khâlîd bin al-Wâlid was sent with 420 men to Dûmat al-Jandal to attack Ukaydir. The trap set for Ukaydir led to the death of his brother Has-sân in the struggle. An agreement was finally reached enabling Khalîd to enter the oasis. Ukaydir was granted a pardon by the Prophet at Medina, and consented to pay a tribute. According to al-Balâdhûrî, he converted to Islam but violated the treaty and fled towards Dûmat al-Hîra¹²⁶. Ukaydir may have been slain by Khâlîd, but there are different traditions about the fate of this sovereign of Dûma.

119. See article by Veccia Vaglieri 2010.

120. al-Tabarî 1993: 44: “[...] he deployed the cavalry among them and ordered them to make those who had stood firmly by Islam rise up against those who had turned back from it, so that they fled until they took refuge in Dûma and gathered round Wadî‘ah”.

121. Meeting between the representatives of ‘Alî and al-Mu‘âwiya in the year 38 of the Hegire (al-Mas‘ûdî 1865: 390-391).

122. al-Wâqidî 1989: vol. 1: 402; reported by al-Tabarî 1997: 4-5.

123. al-Wâqidî 1989: vol. 2: 560.

124. al-Tabarî 1997: 95; cf. Musil 1927: 538.

125. al-Wâqidî 1989: vol. 3: 1025-1027; al-Tabarî 1990: 58.

126. al-Balâdhûrî 2002: 96.

In *Kitâb al-Asnâm* Ibn al-Kalbî relates that Khâlid returned later to Dûma to destroy the sanctuary of Wadd¹²⁷, provoking the wrath of the god's worshippers, some of whom Khâlid put to the sword.

Khâlid bin al-Walîd may also have captured Layla, the daughter of the Ghassanid military commander al-Jûdiyy¹²⁸. However, de Goeje rejects this detail, arguing that the episode did not concern Dûmat al-Jandal but Dûmat al-Hîra¹²⁹.

Dûmat al-Jandal up until the 19th century

We have few textual references for the medieval period. Dûma gradually lost its status at the intersection of major caravan trails as the commercial routes changed to follow the pilgrim routes to Mekka¹³⁰. The resistance of the local populations towards Islam also probably counted against the oasis. The important market of Dûma, mentioned above all by al-Wâqidî¹³¹, must certainly have undergone a rapid decline in these circumstances.

Subsequently Arab sources still often mention the oasis but invariably in relation to the episodes we have already recorded, while geographers merely cite Dûma¹³², which lost all its economic power and strategic importance.

127. Ibn al-Kalbî 1969: 7, &7c; p. 46 and 47, &49d-51b.

128. al-Balâdhûrî 2002: 96-97.

129. De Goeje 1900; Veccia Vaglieri 2010.

130. Veccia Vaglieri 2010.

131. al-Wâqidî 1989: vol. 1: 403.

132. Abû al-Fidâ' Ismâ'il bin 'Alî 1848: 109; Ibn Khaldûn 1967: 132.

Recent history

The history of Dûma al-Jandal in the 19th and early 20th century has been summed up above all by Philby¹³³, King¹³⁴, and Veccia Vaglieri in 2010¹³⁵, and studied in detail by al-Sudairi¹³⁶. The key dates are the following:

- 1794: the oasis comes under the authority of the first Wahhabî state.
- 1818: following the collapse of the first Wahhabî state, Dûma is apparently autonomous, but riven by fierce internal conflicts.
- 1855: the oasis comes under the authority of the dynasty of the Ibn Rashîd de Hâ'il rather than of the Ruwwala of Syria.
- 1872: a Kurd pacha sent by the government of Syria attempts to regain control of the oasis. The Ibn Rashîd keep the oasis but pay tribute¹³⁷.
- 1909: The Ruwwalla regain the oasis.
- 1921: 'Abd al-'Azîz bin Sa'ûd incorporates the oasis in his territories and puts an end to the civil war.

These events and lengthy wars in the 19th and early 20th century surely account for the marked discrepancies we find in the descriptions left by Western explorers¹³⁸:

1806: Y. al-Mâlikî sent and mentioned by U. J. Seetzen¹³⁹

1810-1816: J.-L. Burckhardt¹⁴⁰

1845: G. A. Wallin¹⁴¹

1845-1853: A. Allain¹⁴²

133. Philby 1923: 243-244.

134. King 1978: 109-110.

135. Veccia Vaglieri 2010.

136. al-Sudairi 1995: 89-129.

137. See Doughty 1888: 805-808.

138. See Hogarth 1904: index.

139. Seetzen 1808.

140. Burchardt 1822.

141. Wallin 1854.

142. Allain 1853a, 1853b.

- 1862-1863: W. G. Palgrave¹⁴³
 1865: C. Guarmani¹⁴⁴
 1878: A. Blunt¹⁴⁵
 1883: Ch. Huber¹⁴⁶ and J. Euting¹⁴⁷
 1893: E. Nolde¹⁴⁸
 1900: A. Forder¹⁴⁹
 1909: S. S. Butler and L. Aylmer¹⁵⁰
 1914: Shakespear¹⁵¹
 1915: A. Musil¹⁵²
 1923: H. St. J.B. Philby¹⁵³
 1926: W. M. Turnbull¹⁵⁴.

As the oasis came into view we read alternately of travellers' disappointment¹⁵⁵ and enthusiasm¹⁵⁶. In general the oasis of Dûma was seen as a poor agglomeration that was picturesque and not without charm. In the 19th century it comprised a series of villages, known also as Souks, situated close to one another. Each village was made up of a group of houses in mud-bricks with flat roofs, surrounded by a large circular brick wall with a single entrance. The houses were laid out on a regular pattern and separated by small private gardens. A large open space at the centre of each village was apparently left for camels and the market¹⁵⁷. The palm groves and orchards surrounded the brick wall enclosure, in the valley bottom and at the foot of the limestone massif, with wells and

143. Palgrave 1866.

144. Guarmani 1866: 131.

145. Blunt 1881.

146. Huber 1891.

147. Euting 1896: 121-140

148. Nolde 1895: 11-16.

149. Forder 1902, 1905: 205-223.

150. Butler 1909.

151. Carruthers 1922a, 1922b.

152. Musil 1927, 1928.

153. Philby 1923.

154. See Torrey 1934: 29.

155. Blunt 1881: 115-121.

156. Guarmani 1866: 131.

157. Burckhardt 1822: 662.

little irrigation channels¹⁵⁸. The walls along these channels formed a network of unpaved alleyways. Each village was overseen by a Sheikh, and this sort of “confederation” was placed under the authority of a great Sheikh, who at the beginning of the 19th century collected tribute for Ibn Sa‘ûd¹⁵⁹.

In the middle of the 19th century, Wallin no longer speaks of separate villages but of twelve contiguous quarters¹⁶⁰. The first seven were located on the slope of the massif, from west to east: “1. Algharb¹⁶¹ (subdivided into 6 units¹⁶², including Ibnu Huseiny, and ‘Ain Umm Salîm¹⁶³ mentioned by Burckhardt), 2. Alder’ or Souk Ibn al-Der’ [the oldest, around the mosque of ‘Umar and Qasr Mârid]¹⁶⁴ 3. Souk Alsa’îdiyîn ou Alsarrâh¹⁶⁵ [with a castle, Alkuseir]¹⁶⁶, 4. Alrahîbiyîn¹⁶⁷, 5. Al‘alâg¹⁶⁸, 6. Khadh mâ¹⁶⁹, 7. Aldalhamiye¹⁷⁰; the others were on the valley floor: 8. Alkerâtîn to the west, 9. Alwâdî to the north (near a conical hill called Sabb’a)¹⁷¹, 10. Ghuttî to the north-east of Qasr Mârid, 11. Alsa’îdân (in Khadh mâ), 12. Algar’âwy (between Khadh mâ and Aldalhamiye)”.

These quarters were inhabited by anything between 2 and 130 families and were the theatre of conflicts¹⁷² and alliances between tribal clans with ancestral origins, quite possibly nomadic: Shammar, Jubba and Shakrâ in Najd, Ruhaiba’ village near the Syrian Hauran, and the wâdî Sirhân.

158. Owners of gardens lacking a well had to buy water from their neighbours.

159. Then during the 19th century by the Sheikh of Shammar (Wallin 1854: 147).

160. Wallin 1854: 141-143; thirteen villages according to Guarmani 1866: 131; ten villages according to Musil at the beginning of the 19th century (Musil 1927: 472-473); see al-Sudairi 1995: appendix IV for the description of quarters.

161. Sûk al-Rarb de Musil (1927: 472)

162. “Ashwân, Ibnu Huseiny, Sinnâ’ Almar’y, Algafriyé, ‘Ein ummi Sâlim, Ibnu Ka’ayid”.

163. Szûk ain üm Szalim in Seetzen 1808: 387.

164. Szûk el Dirreá, in Seetzen 1808: 387. It comprises 3 springs according to Wallin 1854: 142-143: “Alkubrâ, Bard Zubeida, and ‘Ein Algamal”.

165. Called Shârâ by Huber (1891: 49) and Sûk as-Shara by Musil (1927: 472); Szûk es Szejjidijîn in Seetzen 1808: 387.

166. The quarter is inhabited by five tribes “Alsa’îdîn, Al‘umar, Al‘abbâs, Alsalmân, Alhaboob”, according to Wallin (1854: 143). Three of these names seem to correspond to the toponyms mentioned by Guarmani (1866: 132) El-Selman, El-Habbuh, El-Seidan. Beit Haboob mentioned by Palgrave 1866: 76.

167. El-Rakebin in Guarmani (1866: 132); source Al‘arros; Sûk ar-Rhejbijîn in Musil (1927: 472).

168. El-Aladje in Guarmani (1866: 132); source called Ghanarna; Sûk ‘Alag in Musil (1927: 472).

169. Kadema in Guarmani (1866: 132); source of the same name Khadh mâ.

170. El-Delhamie in Guarmani (1866: 132), the site of ruins.

171. The tribes Dirbe and Menâhî; Sûk al-Wâdî in Musil (1927: 472)

172. Seetzen 1808: 387 “They have to live in an environment which is extremely hostile to others, and each man only dares to go well armed out of his walled village to a neighbouring village.”.

Previous Studies

Our recent studies must not make us forget the work of our predecessors at Dûmat al-Jandal and in the region¹⁷³, to whom we owe a great deal¹⁷⁴.

The first surveys were carried in 1962 and 1967 by Winnett & Reed¹⁷⁵. This short study concerns primarily the graffites and inscriptions.

The second expedition was supervised by the Saudi Authorities in 1976¹⁷⁶ and 1977¹⁷⁷. A small sounding delivered Nabatean and Roman material from lowest levels¹⁷⁸. Numerous archaeological structures were observed and recorded, among them a wide rampart located west of the oasis¹⁷⁹.

The third campaign was undertaken in 1985-1986, under the direction of al-Dâyil and al-Shadûkhî¹⁸⁰. Four places in the western part of the oasis were studied:

1. Qasr Mârid area: six soundings were opened (trenches A1, B1, B2), exhuming a residential quarter attributed to the Nabatean period¹⁸¹.
2. “Al-Sunamiyât” in the center west of the oasis: the discovery of graves and human skeletons associated with the grave goods in seven soundings suggests an area cemetery from the Nabatean period. There is perhaps the presence of monumental funerary structures¹⁸².
3. “Al-Buhayrât”: the two soundings have yielded no tangible results, although the release of long parallel walls¹⁸³.

¹⁷³. al-Mu‘ayqil 1994b.

¹⁷⁴. It is worth mentioning here the visits of M. Ghûl in 1968 and H. al-Jâsir in 1970 (see al-Jâsir 1981)

¹⁷⁵. Notably the visit of Winnett & Reed in 1962 (Winnett & Reed 1970).

¹⁷⁶. MC. Adams, Parr, Ibrahim & al-Mughannum 1977.

¹⁷⁷. Parr, Zarins, Ibrahim, Waechter, Garrard, Clarke, Bidmead & al-Badr 1978.

¹⁷⁸. *Ibid.*: 37.

¹⁷⁹. Today.

¹⁸⁰. al-Dâyil & al-Shadûkhî 1986; al-Dâyil 1988.

¹⁸¹. al-Dâyil & al-Shadûkhî 1986: 72.

¹⁸². *Ibid.*: 74-76; al-Dâyil 1988: 37-40.

¹⁸³. al-Dâyil 1988: 40-41.

4. “Bâb al-Rawdha”: Saudi archaeologists have identified a segment of the western enclosure wall (discovered in previous surveys), under a thick deposit of eolian sand. A mud-brick wall remarkably well preserved over nearly 4 m high seems to reinforce the inner wall. Although the excavated areas have provided no datable sherd, ceramics collected on the surface go back from the Nabatean period, according to the excavators.

4. The fourth and final season, under the responsibility of al-Mu‘ayqil, tried to complete our knowledge of the history of the site. The three surveys, conducted in the mid 1980’s, were published in the book *Study of the Archaeology of the Jawf Region*¹⁸⁴. The first trench (3 x 2 m) is located in a southern room of Qasr Mârid. The most striking discovery is a mosaic (90 x 60 cm) of red and white square tiles each measuring 20 cm square, which the author dates from the 7th century AD. It is also worth mentioning the discovery of a pipe of 2.20 m in length, associated with a pool. Deeper, 1.70 m below the surface, were collected ceramics from 1st centuries BC and AD in a thick layer.

The second trench (3.00 x 2.30 m) was opened in the old residential area located north of Qasr Mârid, and abandoned only about thirty years ago. Two phases of occupation have been recorded; their date remains uncertain.

The third, trench 3, is located 2 m east of the minaret of the Mosque of ‘Umar. The aim was to discover possible connections between the minaret and structures still buried. A succession of five layers was recognized by the excavator, ranging from medieval Islamic era to Nabataean period. The bedrock was reached 2.68 m below the present surface.

Remains found spread over a large period from the Islamic era to the Nabatean period¹⁸⁵.

¹⁸⁴. al-Mu‘ayqil 1994b. This research was conducted as part of a doctoral thesis at the University of Durham (England) in 1989.

¹⁸⁵. al-Mu‘ayqil 1994a, 1994b.

On the meaning of “Jandal” in Arabia

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Scholars generally agree on the translation of the Southern Arabian noun *gndl* as “fortress”; the only exception is Jacqueline Pirenne, who translates ancient Arabian inscriptions as if the language was classical Arabic.

The meaning “fortress” was proposed in 1938 by AFL. Beeston in his translation of the inscription Philby 29¹. In a note he added: “*gndlhn* /: Professor Margoliouth has suggested comparing this with Hebrew *migdal*. This view seems very probable, seing that elsewhere (e.g. Philby 52⁴) this word is replaced in the same context by *mhfd* /”². Beeston confirmed this translation the following year in a second publication dealing with the same inscriptions, giving the same explanation³.

With the abbreviation *RES* 4852 / 6 the author of the *Répertoire* concurs: “*gndl*, synonym of *mhfd*, cf. *R.É.S.*, 4878, 4, etc. Margoliouth suggests assimilating *gndl* with the Hebrew *migdal*”. Albert Jamme also agrees with this analysis and translates *gndl* as “fortress”⁴.

On the contrary, Jacqueline Pirenne renders *gndl* as “stony area”⁵, for the simple reason that Arab dictionaries give: *jandal* / *jandil*, plural *janâdil*, “stone”; in the plural, “Nile Waterfalls”.

1. Beeston 1938: 317.

2. Ph 29 and 52 correspond to Ja 928 (= *RES* 4852) and Ja 957 (*RES* 4878).

3. Beeston 1939: 449.

4. Jamme 1963: 39 (concerning Ja 921 = *RES* 4910 / 3).

5. Pirenne 1990: 97.

Epigraphic attestations at *Hadhramawt (Yemen)*

In pre-Islamic inscriptions the noun *gndl* occurs seven times, but this number should not mislead. It always occurs in the same formula, in inscriptions from one site: al-‘Uqla (the name of a rocky outcrop isolated in the desert), about 15 kilometres west of Shabwa, the capital of ancient Hadhramawt.

The numerous inscriptions from al-‘Uqla commemorate ceremonies that cannot be identified, apparently celebrated on the accession to the throne of a new sovereign. Most were found on the sides of a large rock surmounted by a small edifice, at the foot and to the east of the outcrop of al-‘Uqla (zone A). Just one is incised on a large isolated rock, without any sign of a construction, to the west of the outcrop (zone B).

Six of the seven inscriptions featuring the noun *gndl* (Ja 921 / 3; 923 / 3-4; 925 / 6; 926 / 5-6; 928 / 6-7; 949 / 2, 3) were found in zone A. The *gndl* is systematically called Anwad^{um} (‘*nwd^m*, hypothetical vocalisation). As an example, here is Ja 921 = RES 4910 = Pirenne E1 :

1 ‘l’z Ylṭ mlk H=

2 ḍrmt bn ‘mḍhr s’y=

3 r ‘d gndlⁿ ‘nwd^m h-

4 s’lqb

“Ilī‘azz Yaluṭ king of Hadhramawt son of ‘Ammîdhakhar, came to the *gndl* Anwad^{um}, to be proclaimed (?)”

The seventh inscription was found in zone B. Here the *gndl* is called Marwah (*Mrwh*, also hypothetical vocalisation).

Inscription Bâfaqih-al-‘Uqla :

1 *Yd’l Byn mlk Ḥḍrmt*

2 *bn R’b’l s’yr ’d*

3 *gndlⁿ Mrwḥ h-s’lqb*

“Yada’l Bayân king of Hadhramawt | son of Ra’ab’il came to|the *gndl* Marwah to be proclaimed (?)”

Semitic analogies

In his dictionary of Arab terms used in toponymy, Nigel Groom mentions *jandal* and various related nouns⁶:

- *jandal*, “stone, stones”,
- *janadil*, “a place where stones are collected”,
- *jundil*, “a place abounding in stones”.
- *janâdil*, “waterfall, cataract (Egypt)”.

The meaning “fortress” is not given.

The same is true of the *Dictionnaire des racines sémitiques*. It gives a long account of the root GNDL (fasc3: 154-155), divided up into eight sections. In the second, it mentions in particular the Arabic *jandal*, “round-shaped rock, pebble”, the ancient hadhramawtic *gndl* rendered as “rock” and the Jibbalite *gindél*, “rock”. One can now add the Mehrite *gēzel*, “large rock”, which probably derives from *gindél*.

Certain meanings suggest that the root GNDL may be a development from the root GDL (fasc2: 101). But for the interpretation of the hadhramawtic *gndl*, the reference to *mgdl* (Ougaritic, Moabite, Lihyânite, Ma’înique), *migdâl* (Hebrew), *magdelâ* (Syriac) or *mijdal* (Arabic), meaning “tower, château fort”, proposed by Margoliouth and accepted ever since, is not given.

⁶. Groom 1983: 125-126.

A reinterpretation of the inscriptions from al-‘Uqla

Reappraisal of the Southern Arabian inscriptions confirms that *gndl* does not mean “fortress”, but “rock”. The translation “fortress” was based above all on the fact that the appellative *gndl* which defined the nature of the proper noun Anwad^{um} alternated with *mhfd*, which certainly means “tower, bastion”: see the three inscriptions from zone A that mention “the tower Anwad^{um}”, *mhfd^{(h)n} ’nwd^m*, Ja 957 / 4, Ja 988 / 3-4 and Ja 996 / 3⁷.

Such an argument is by no means decisive. The chronological classification of the mentions of Anwad^{um} shows that the most ancient texts use the appellative *gndl*, while the more recent use *mhfd*:

— The term *gndl* is attested in the reign of Ilī‘azz Yaluṭ son of ‘Ammīdhakhar (Ja 921, 923, 925, 926, 928) and his successor Yada‘‘īl Bayân son of Rabbīshams, of the free men of Yuhab‘ir (Ja 949).

— The term *mhfd* is used in the reigns of Yada‘‘īl Bayân son of Rabbīshams (Ja 957), Ilīriyâm Yadûm son of Yada‘‘īl Bayân (Ja 988) and Yada‘‘ab Ghaylân son of Yada‘‘īl Bayân (Ja 996).

If our chronological classification is correct, we can see that Anwad^{um} was first of all qualified as *gndl*, and later as *mhfd*.

This suggests the hypothesis that, in hadhramawtic, the appellative *gndl* designates a large isolated rock, like those to be seen near al-‘Uqla.

First of all the place where the king of Hadhramawt went was designated by the expression “the rock Anwad^{um}”, referring to a characteristic of the site. Then, in the reign of Yada‘‘īl Bayân son of Rabbīshams, a tower was built and thereafter the place was known as “the tower Anwad^{um}”.

7. For the record, I note that *’nwd^m* is mentioned alone in Ja 973 / 3: “à Anwad^{um}” (*b-’nwd^m*).

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Dar'an M. al-Qahtânî (SCTA) & Pierre Siméon (CNRS, UMR 8167)

The survey carried out in 2010 has produced an initial detailed overview of the archaeological remains in the oasis¹. Most have already been carefully described²; others, particularly those dating to the 19th century, are less well known. As Seetzen³, then Musil⁴ a century later explained, the rivalry between villages and wars between clans were numerous during the 19th century at Dûmat al-Jandal. They destroyed gardens, houses and monuments, and caused the movement of populations. Many structures, particularly defensive ones (aimed equally against outside aggressors as against their own neighbours), were built in the palm groves during this period, some on top of older buildings.

The project aims equally to create a map of the archaeological remains (**Fig. 1**), to contribute to tourism development of the site and to disseminate scientific information that has so far remained in the preserve of professionals. Given the limited area of the Dûmat al-Jandal oasis, the variety of structures is considerable. Amongst the monuments encountered during our survey there were pre-Islamic, Islamic and modern remains. The tentative archaeological overview presented in the following pages will be used as a base for the project's future work and will be completed by further field work.

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1. Charloux & Loreto 2011.
 2. al-Mu'ayqil 1994b.
 3. Seetzen 1808: 387.
 4. Musil 1927: 162-163.

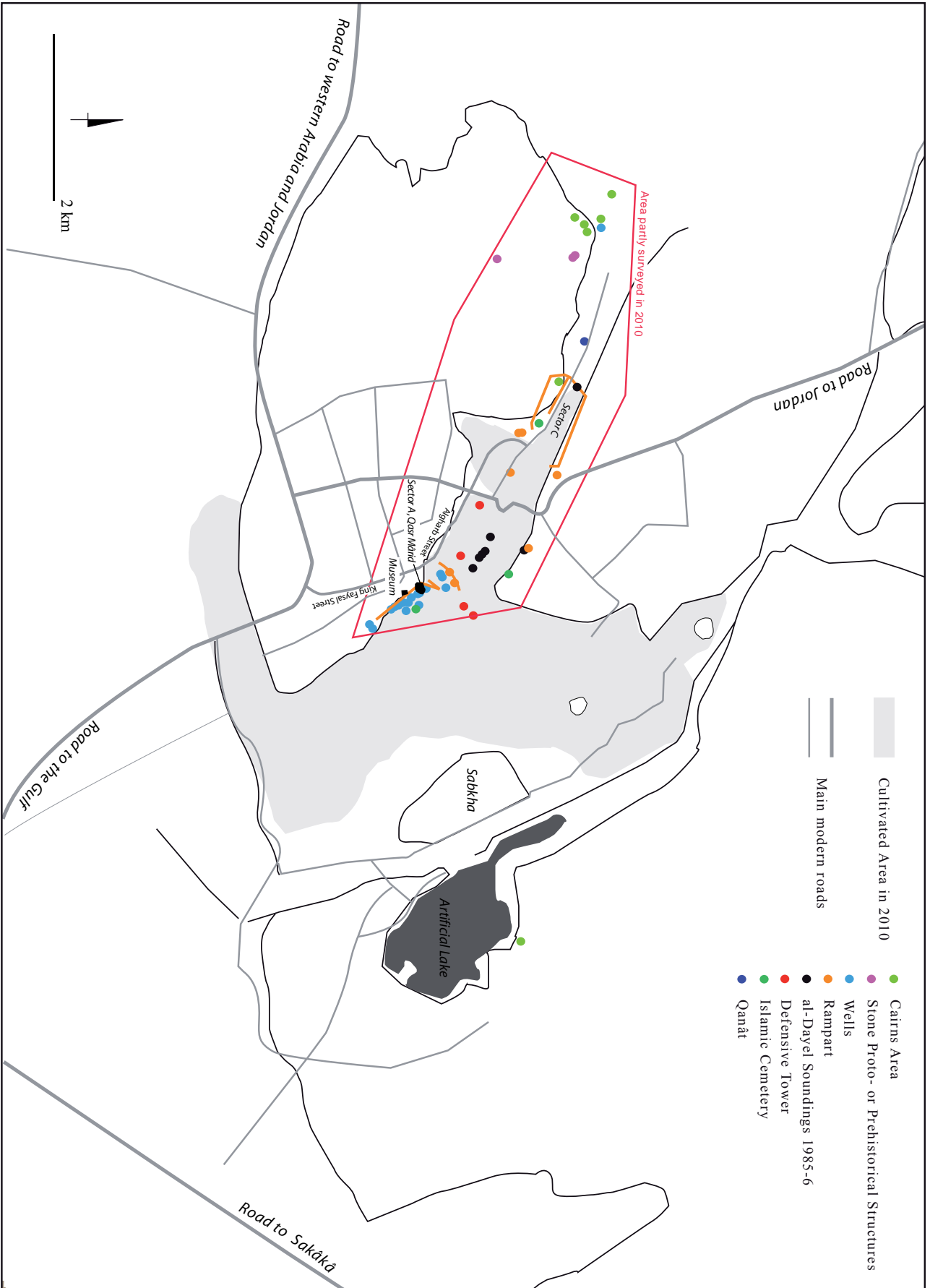


Fig. 1. Schematic map of the oasis - area partly surveyed in 2010 (inside the red limits)

For the method employed at this stage, the structures were photographed and numbered. Their coordinates were taken as far as possible in a systematic manner using a manual Garmin GPS. The photographs were then stored in the relational database and the coordinates of the corresponding structure were imported into the files of photographs, with the number of the GPS points (**see Charloux et al., sector C, Fig. 6**).

1. The enclosure walls

In the 13th century, one Abû Sa‘ad al-Sakûnî, whose remarks were reported by the medieval geographer Yâqût⁵, mentioned the presence of a “fortified enclosure, and inside it, the Qasr Mârid” in Dûma. Later, in the 19th and early 20th centuries, Wallin⁶, Guarmani⁷, Musil⁸ and Philby⁹ again described a rampart surrounding the whole oasis. In 1878, Lady Blunt¹⁰ described it in greater detail: a wall 10 feet high, measuring 2 miles long and 1/2 mile wide defended the town and gardens. Conversely, Huber described the existence of walls separating each of the fifteen quarters of the oasis¹¹. The key issues regarding the study of the development of the site, and of how its occupation expanded and contracted over the course of its history rely on these often contradictory observations.

Following his field work in the 1980’s, al-Mu‘ayqil has brought some additional details to the earlier observations¹²; he suggests that there are two enclosures, an outer one around the oasis, and an inner one surrounding the “historic” area. The survey carried out in 2010 reveals an even less precise picture: the existence of several unconnected sections of rampart, which can be grouped into two distinct entities.

5. Yâqût 1995: 487.

6. Wallin 1854: 145, 153.

7. Guarmani 1866: 131.

8. Musil 1927: 150-160.

9. Philby 1923: 252.

10. Blunt 1881: 114.

11. Huber 1885: 140.

12. al-Mu‘ayqil 1994b: 305-306.

1. The western enclosure wall

This monumental structure, studied in 2010, is detailed hereafter, see **Charloux et al., sector C**.

2. The enclosure walls around Qasr Mârid

It is as a hypothesis based on old photographs, aerial views and our far from complete observations that we group together seven sections of rampart, that area found in the historic part of the site (**Fig. 2**). These walls, sometimes fairly thick, all line the sides of alleys. Another, thinner, wall lines the opposite side; the alleys are thus narrow and shady. The main difficulty lies in distinguishing the enclosure walls from walls that simply surround the private gardens.

1. The first wall, oriented east-west, called “al-Suhaym” by al-Mu‘ayqil¹³, bounds the north side of the ancient village (**Fig. 3**). It is still preserved in places up to 4 m high, and it can be followed for a length of about 300 m. An aerial photograph taken in 1964 (probably), courtesy of Husayn al-Khalîfâ, director of the Tourism Office of Sakâkâ, to whom we are most grateful, shows the wall over a much greater distance. One is struck by its monumental appearance and the quality of its stone masonry. Having apparently been rebuilt several times, the lower courses are perfectly aligned, composed of nicely squared stones. There is a second wall, of brick, against its south face forming the edge of this thick structure.
2. The second begins at the Sûq Khattâb, to the north-west of the Qasr Mârid, and goes northwards in a straight line, to the base of the al-Jâl mountain, along the side of the present-day asphalt road. It was noted on a photograph of Shakespear in 1914¹⁴ and on the 1964 aerial photograph.

¹³. al-Mu‘ayqil 1994b: 306, pl. LI-LII.

¹⁴. Carruthers 1922: 408b.



Fig. 2. Localization of ramparts in the historical area (in green : hypothesis; in orange seen on the field). GeoEye-1 © GeoEye; <2011>; Distributed by e-GEOS (for GE-1 and IKONOS)



Fig. 3. The “al-Suhaym” rampart (numbered 1 in Fig. 2)

3. Between the tower to the south of Qasr Mârid and the eastern side of the village there is a long section oriented north-east south-west bounding the eastern side of Qasr Mârid. This partially preserved wall has been restored several times.
4. The surveys and excavations in sector A have brought to light the existence of a long structure oriented north-south, which joins the previous section, the beginning of which coincides with the supposed location of al-Qusayr (see below). We can follow this massive wall for 140 m. It dates to the beginning of the Islamic period at the latest (**see Loreto, Sector A: Figs. 50-51**).
5. In sector A the beginning of a thick enclosure wall was exposed, which joins the previous section at right angles, towards the north-east (**see Loreto, Sector A: Fig. 51**).
6. A sixth section was noted, both on the ground and on aerial photographs, beginning at al-Qusayr and running southwards for about 240 m.
7. A photograph taken by Musil seems to show a seventh section of rampart, from al-Qusayr running eastwards this time¹⁵.

To sum up, numerous survey seasons in the historic area will be necessary to produce a clearer picture and to conclude about the likely existence of large enclosure wall surrounding the whole oasis.

¹⁵. Musil 1927: 460.

2. The castles

In 1883, Huber wrote of the existence of three fortresses at Dûmat al-Jandal¹⁶. From “Tell Soubbe”, to the north-east of the oasis, he located from the south-west to the north-west “*Qaçr Goar à 354°, Qaçr Mârid à 320°, Qaçr Farha à 305° et Rigm el-Burq à 258°*”. The first one corresponds to the palace of the Ibn Rashîd, the second is well known and still stands today in the heart of the oasis, while Qaçr Farha is more enigmatic. As we shall show, the last place mentioned, “Rigm el-Burq”, indicates the location of the ancient western fortifications of Dûmat al-Jandal. Wallin also mentioned the existence of “Alkuseir” (al-Qusayr), a small castle built to the south of Qasr Mârid¹⁷.

Qasr Mârid

Qasr Mârid (**Fig. 4**) was founded at an unknown date on a limestone hill which dominates all the surrounding palm groves. Although an unnamed fort was established at Dûma during the Nabatean Period¹⁸, it cannot surely be related to it. The first mention of Qasr “Mârid” (meaning “arrogant, rebel” in Arabic) seems to go back to the 8th century AD¹⁹, where it is associated with a citation “tamarrada Mârid wa ‘azza al-‘Ablaq” that was often quoted subsequently²⁰.

In the 13th century, Yâqût reports the words of Abû Sa‘ad as-Sakûnî who tells of the existence of a castle at Dûma, known as “Mârid”²¹, which would have belonged to the ruler Ukaydir. Most of the travellers described it in their accounts: Wallin²², Guarmani²³,

16. Huber 1891: 49.

17. Wallin 1854: 143.

18. Savignac & Starcky 1957.

19. al-Dhabbi 1981: vol. 1: 143-144.

20. e.g. Abû ‘Abd al-Qâsim bin Sallâm al-Baghdâdî 1980: vol. 1: 94; see **Charloux & Loreto, Historical Overview**, on this subject.

21. Yâqût 1995: 487.

22. Wallin 1854: 139, 142.

23. Guarmani 1866: 132.

Palgrave²⁴, Blunt²⁵, Euting²⁶, Forder²⁷ (**Fig. 5**), Musil²⁸, Winnett & Reed²⁹, but without furnishing any detailed information as to its structure, construction or date.

The castle consists of two parts (**see Loreto, Sector A: Fig. 1**)³⁰:

1. The main building, oval in shape (42 x 28 m) with four round towers. An entrance in the south-west leads to a large interior courtyard and to a long corridor on the south-east side protected by a wall and leading to a well and a second entrance. There are four rectangular rooms in the courtyard against the enclosing wall. This building was subjected to repeated destructions (in particular in 1853 and 1909) and reconstructions, as indicated by changes in masonry and the state of the ruins, notably the very high west wall which has horizontal anchor points indicating the start of walls and the existence of rooms at least 10 m above the courtyard. al-Mu'ayqil³¹ identifies five construction phases and dates the first one to the turn of the 1st century based on the quality of the masonry and the discovery of Nabataean pot sherds at the bottom of a sounding dug in the courtyard but which had no connections with walls.
2. A more recent annex to the south comprising a courtyard and mosque, dominated by a round tower to the south situated on a rocky outcrop. Another tower protects a well on the north-west side.

As in the case of the mosque of 'Umar, the results are still very imprecise. A complete architectural and archaeological study will need to be carried out on this monument in order to separate and date the various stages of its construction.

24. Palgrave 1866: 80-81.

25. Blunt 1881: 125.

26. Euting 1896: 125.

27. Forder 1905: 204-205.

28. Musil 1927: 471-472.

29. Winnett & Reed 1970: 17.

30. al-Mu'ayqil 1994b: 97-108.

31. al-Mu'ayqil 1994b: 100-101.



Fig. 4. Qasr Mârid, from the north, reconstructed at the end of the 20th century

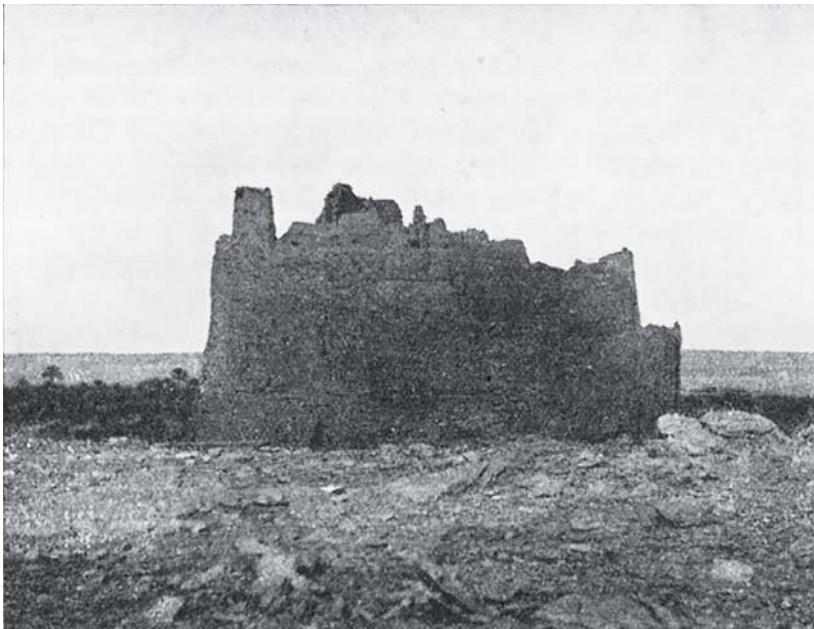


Fig. 5. Qasr Mârid, photographed in 1900 by Forder 1902: 623



Fig. 6. Qasr Jawhâr, photographed by Butler 1909: 527

The Ibn Rashîd “palace” - Qasr Jawhâr

The Ibn Rashîd “governor’s palace” (**Fig. 6**) at Dûmat al-Jandal was described by several 19th century western explorers³². Located outside the town walls, at the southern end of the oasis, it was built in its entirety at one time on a hill, apparently around 1856, by the Ibn Rashîd family of Hâ’il³³; that would be after the conquest of the oasis over the Ruwala of Syria. The name “*Qaçr Goar*” used by Huber³⁴ and Forder³⁵ refers to this edifice. It is, in fact, a military fort, rectangular in shape measuring 82 m long by 45 m wide. The solid exterior walls, built of stone and brick and without window, were 12 m high³⁶. Four round and square towers, located at the corners of the building and pierced by arrow slits, were more than 6 m higher than the adjacent walls. A blocked doorway is located in the south-east corner of the fort. A vestibule led to the courtyard (where two English canons were positioned in the 19th century) and on to the governor’s seat. Following the numerous political upheavals in the oasis, the fort was but “rubble and ruins” by 1923³⁷. A photograph published on the internet recently might, however, indicate that this small fortress could still be standing today, but that will need to be verified by in the field.

32. e.g. Euting 1896: 27.

33. Blunt 1881: 115, 117-118.

34. Huber 1891: 49-50.

35. Forder 1905: 210, 225.

36. Butler 1909: 526-527.

37. Philby 1923: 252.



Fig. 7. Qasr Farha (?), photographed by Musil 1927: 160

Qasr Farha

Huber clearly distinguishes “*Qaṣr Farha*” located to the north of Mârid from “*Qaṣr Goar*” to the south³⁸. Equally, Musil mentions the existence of the tower Farha³⁹. The precise description which Musil gave seems however to relate to the Qasr Jawhâr. It is of large square structure surrounded by a high wall whose south-west corner was reinforced by a rectangular tower and another, taller one in the north-west corner⁴⁰. The single entrance was through a door to the east of the latter tower, and it opened onto a large courtyard. The two photographs taken in 1905 show a castle comprising a large quadrangular dungeon with arrow slits, surrounded by high walls.

Future research should permit to clarify this point.

³⁸. Huber 1891: 49.

³⁹. Musil 1927: 467.

⁴⁰. Musil 1927: 159-160; Figs. 34-35.

Al-Qusayr

Wallin wrote of the existence of a castle known as “Alkuseir” located in the “Alsa’îdiyîn souk”⁴¹. Built later than Qasr Mârid, it stands a short distance away from it, “to the right” on the same outcrop. Wallin says that it was built of mud-brick by a clan opposed to that of Qasr Mârid. Euting tells us that the small castle “Kseir” located between the “Kasr” and Mârid was in ruins in 1883⁴².

It seems that the stone foundations of this monument are still visible today to the north-east of the museum of Dûmat al-Jandal; they will be mapped in the near future (**Fig. 8**). As a hypothesis, these foundations might represent a building constructed at the beginning of the Islamic period, after the destruction of “building A”, given that a wall of monumental stone on a north-south alignment that joins its northern side was found deep down in the sounding in area A (**Loreto, Sector A: Fig. 56**).

3. The isolated towers

When he came in 1900, Forder was impressed by the number of mud-brick defensive towers present in the oasis⁴³. Today, some appear in the field but most have been destroyed or are in ruins. It is possible to find mention of or the location of a few of them in travellers’ accounts, on old photographs⁴⁴, for example the al-Farha tower and to the north “al-Frejha” (al-Furayha)⁴⁵.

The towers seen have a stone base or basement and the mud-brick upper part (**Figs. 9-10**). Of circular form, they are all in ruins and will be studied during the next seasons.

41. Wallin 1854: 143.

42. Euting 1896: 126-127.

43. Forder 1905: 206.

44. Carruthers 1922: 408; Musil 1927: 460.

45. Musil 1927: 467; Philby 1923: 252.



Fig. 8. Supposed location of al-Qusayr. GeoEye-1 © GeoEye; <2011>; Distributed by e-GEOS (for GE-1 and IKONOS)



Figs. 9-10. Towers observed in 2010 in the Oasis

4. The 'Umar bin al-Khattâb Mosque

The so-called 'Umar bin al-Khattâb mosque, with its roughly rectangular plan (32.5 x 18 m) (**Fig. 11**), has been described several times⁴⁶. However, in the absence of written evidence⁴⁷, its attribution to Islam's second caliph, 'Umar bin al-Khattâb (634-644), remains uncertain.

It is bounded on the south by an alley separating a residential quarter below the Qasr Mârid, while the oblique western side and its northern wall are contiguous to the adjacent neighboring quarter with its accumulative groundplan. A space is now left empty behind the eastern wall and the enclosure of the village. Built in dry stone masonry with cut stone blocks coming from the area, the mosque consists of four entities:

1. The prayer room (32.5 x 10 m), open to the north, is rectangular and located against the *qibla* wall facing south southwest. It is reached by the door in the western wall of the mosque after climbing the stairs. Three rows of stone pillars (respectively 10, 10 and 9 pillars) support a reconstructed ceiling made of tamarisk wood beams and *khûr*. It is possible to climb onto the upper terrace from the entrance staircase. Two niches, arranged in the center of the *qibla* wall - both in the shape of an elongated triangle, but different in size, the right having two steps - are the mihrâb and the minbar⁴⁸. A small well is also located closed to the mihrâb.
2. The courtyard (8.4 x 31 m), empty and unpaved, gives access to the prayer rooms.
3. A second prayer room, long and narrow (18.5 x 2.5 m), is located against the north wall of the mosque. It is closed on all four sides and has a concave mihrâb, which is a recent addition⁴⁹. It seems that the prayer room was made up of small aligned rooms. A wall to the east shows that these rooms extended in this direction in the past.

⁴⁶. Wallin 1854: 141-144; King 1978; al-Mu'ayqil 1994b: 108-117; al-Mu'ayqil 1994a.

⁴⁷. al-Mu'ayqil 1994b: 109.

⁴⁸. King (1978: 120) observed that the two niches shaped the mihrâb, and had been added during the recent Wahhâbî restorations, whereas al-Mu'ayqil (1994b: 113) states that the Wahhâbî mihrâbs are semi-circular.

⁴⁹. al-Mu'ayqil 1994b: 114.

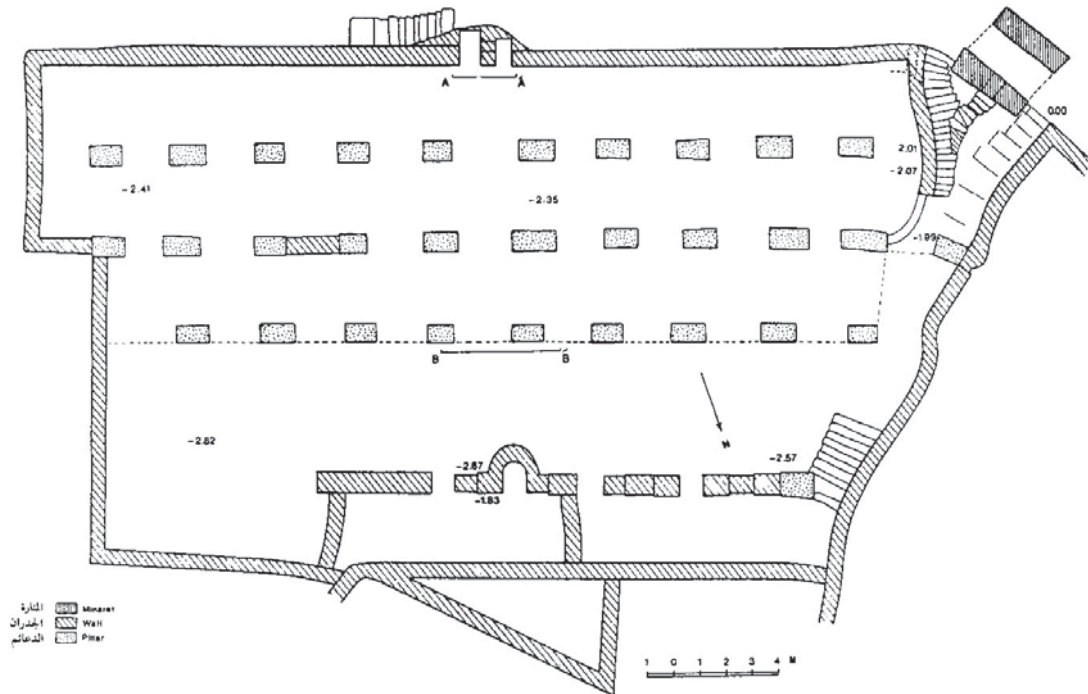


Fig. 11. Plan of the ‘Umar bin al-Khattâb mosque, from al-Mu‘ayqil 1994b: 209

4. The minaret, located in the west corner of the mosque, is unusual in that it does not form an integral part of the monument and because it does not follow the *qibla* wall, but rather is positioned diagonally in the west façade. The two oldest descriptions of the tower tell us that it was not associated with any form of worship nor with the presence of an adjacent mosque at the beginning of the 19th century: al-Mâlikî described the presence of a “strange” ancient monument (the minaret in question), a tower in the shape of an obelisk, whose height is two or three times that of the tallest minarets⁵⁰; Burchardt⁵¹ mentioned that a watchman lived permanently on the top floor to warn of the approach of strangers.

Pyramidal in shape, the minaret has five floors rising to a height of about 15 m, and ends with a kind of pyramidion. The top three are pierced by four large rectangular openings, while there are only two small square openings on the second level. The first floor is open on its two opposite sides (North-west and South-east): this

50. Seetzen 1808: 387.

51. Burchardt 1822: 663-664.

door is the only passage to the adjacent street⁵². A straight staircase made of wooden beams was added to the northwest façade of the minaret and makes it possible to reach the second floor of the minaret from the interior of the mosque.

The orientation and shape of the minaret led Wallin⁵³, then King⁵⁴ to suggest that it was the bell tower of an ancient church transformed for Muslim worship. The restorations carried out by the Wahhâbî after 1794 would have completed its transformation into a mosque. This hypothesis is refuted by both al-Sudairi⁵⁵ and al-Mu'ayqil⁵⁶. According to them, the plan of the mosque is similar to that of the Prophet's house in Medina, although smaller. The minaret would have been built later and its orientation could be explained by the orientation of the alley and the construction of the adjacent neighbourhood. al-Mu'ayqil⁵⁷, however, also considers the possibility that the mosque was built on the remains of an older monument: its last trace could be a pillar to the north of the mosque entrance, which is of a different style and made of particularly well dressed blocks. The present mosque would date to the Umayyad period. A small sounding carried out by al-Mu'ayqil in 1985 to the south-west of the minaret (trench 3; 3 x 3 m), revealed the presence of a wall going down 2 m below the surface (which corresponds with the level of the mosque courtyard), the orientation of which coincides with that of the north-west façade of the minaret⁵⁸. Nothing pre-Islamic was found associated with the remains uncovered. However, a firm chronological sequence cannot be established from the archaeological evidence since the base of the minaret was not reached.

From the preceding observations we can conclude that: either the tower was no longer used as a minaret at the beginning of the 19th century, perhaps following the Wahhâbî conquest at the end of the 18th century. It would regain its original use only

52. As shown in a photograph published in 1923 by Philby (Philby 1923: pl. 4). In 1914, a photograph taken by Shakespeare shows in fact two high walls abutting both sides of the minaret and reaching the fourth floor (Carruthers 1922, plate between pages 408 and 409).

53. Wallin 1854: 142.

54. King 1978: 122.

55. al-Sudairi 1995: 86-87.

56. al-Mu'ayqil 1994b: 114.

57. al-Mu'ayqil 1994b: 111.

58. al-Mu'ayqil 1994b: 440-444.



Fig. 12. The minaret of the ‘Umar bin al-Khattâb mosque

during the course of the 19th century; or the tower functioned as a minaret only later on. However, the presence of the adjacent mosque, built more or less in connection with this monument and apparently of ancient construction, seems to contradict this hypothesis.

In conclusion, the present data do not allow a dating of the minaret and adjacent mosque. Only targeted soundings would provide convincing results.

5. The hydraulic structures

“A thousand are the draw wells in al-Ğowf/A thousand are the flowing springs [...]”. Even if it is difficult to confirm the content of this text, taken from an inscription in the “Sûk al-Gharb” and told to Musil by the inhabitants of the village⁵⁹, it is true that the gardens and palm groves in the oasis are irrigated by a dense network of hydraulic features. A superficial survey of the centre of the oasis in 2010 found 25 wells in an area of 25 hectares. These wells generally measure between 3 and 6 m in diameter, even though they are not all perfectly round, and are not more than 13 m deep (**Fig. 13**)⁶⁰. Some - PU1, PU8 and PU11 for example - have the interesting attribute of a staircase integrated into their masonry (**Fig. 14**), which led to openings at regular heights that provided access for cleaning and necessary repairs (and maybe to the *qanât* system). The entrance is at the surface. A circular-plan spiral staircase goes down on the outside face of the well (**Fig. 15**). But this is not necessarily the rule since another well has a straight staircase, the entrance to which is about a dozen metres away from the main structure (**Fig. 16**).

The sides of the staircases are made of horizontal layers of medium sized stone blocks. The courses are horizontal before they become the vaults of the staircase. Each course ends, alternately, either by a large block installed perpendicular to both sides or by two almost perpendicular blocks each placed at an angle to the sides and supporting the large block above (**Fig. 15**).

Up to four openings in one well were counted. Arranged at different heights, they are wide enough for a person to clean or make repairs on the inside of the well. A large block is horizontally placed at the base and at the top of each opening.

The wells often show corbelled structure in their upper part. These are made of long blocks linked with one side of the well, standing over the central void (**Fig. 17**). These structures were likely to facilitate drawing water by using a system of ropes, as it is the case for example at Bi'r Hadaj, in Taymâ'. The wells of Dûmat al-Jandal differ sub-

⁵⁹. Musil 1927: 473.

⁶⁰. Wallin 1854: 140.



Fig. 13. Bottom of well PU1



Fig. 14. Openings in the interior masonry of well PU1, near Qasr Mârid, looking north-west



Fig. 15. Exterior staircae of well PU1, near Qasr Mârid, looking west



Fig. 16. Exterior straight staircase of well PU8, looking south



Fig. 17. Drawing structure in well PU11, looking east



Fig. 18. Well PU11 and the surrounding structures GeoEye-1 © GeoEye; <2011>; Distributed by e-GEOS (for GE-1 and IKONOS)

stantially from those found at Mâda'in Sâlih, by the presence of external stairs (and not simply steps cut in the walls of the well), and from those of the vicinity, like Bi'r Saysarâ at Sakâkâ known for its spiral staircase dug inside the well. Construction techniques of wells at Dûma remain, however, to be studied in detail.

The well discovered east of sector C, numbered PU11, is today located in an area not favourable to cultivation, at the edge of the desert (29.49597N / 39.49260E) (**Fig. 18**). It has the characteristic of being surrounded by a circular wall about 30 m distant from its center. The inner space is partitioned by a perpendicular wall, separating two east-west spaces: to the east an empty space leading to a quadrangular building in ruins, and to the west, an area with a straight path for the camels to draw water from the well.

These wells belong to a system of *qanât*⁶¹, of which there are many from the Middle East to Central Asia. Wallin, who visited the oasis in 1845, described the presence of very well-built underground aqueducts of stonework, big enough for a man to stand up in.

⁶¹. See on this subject Nasif 1987.

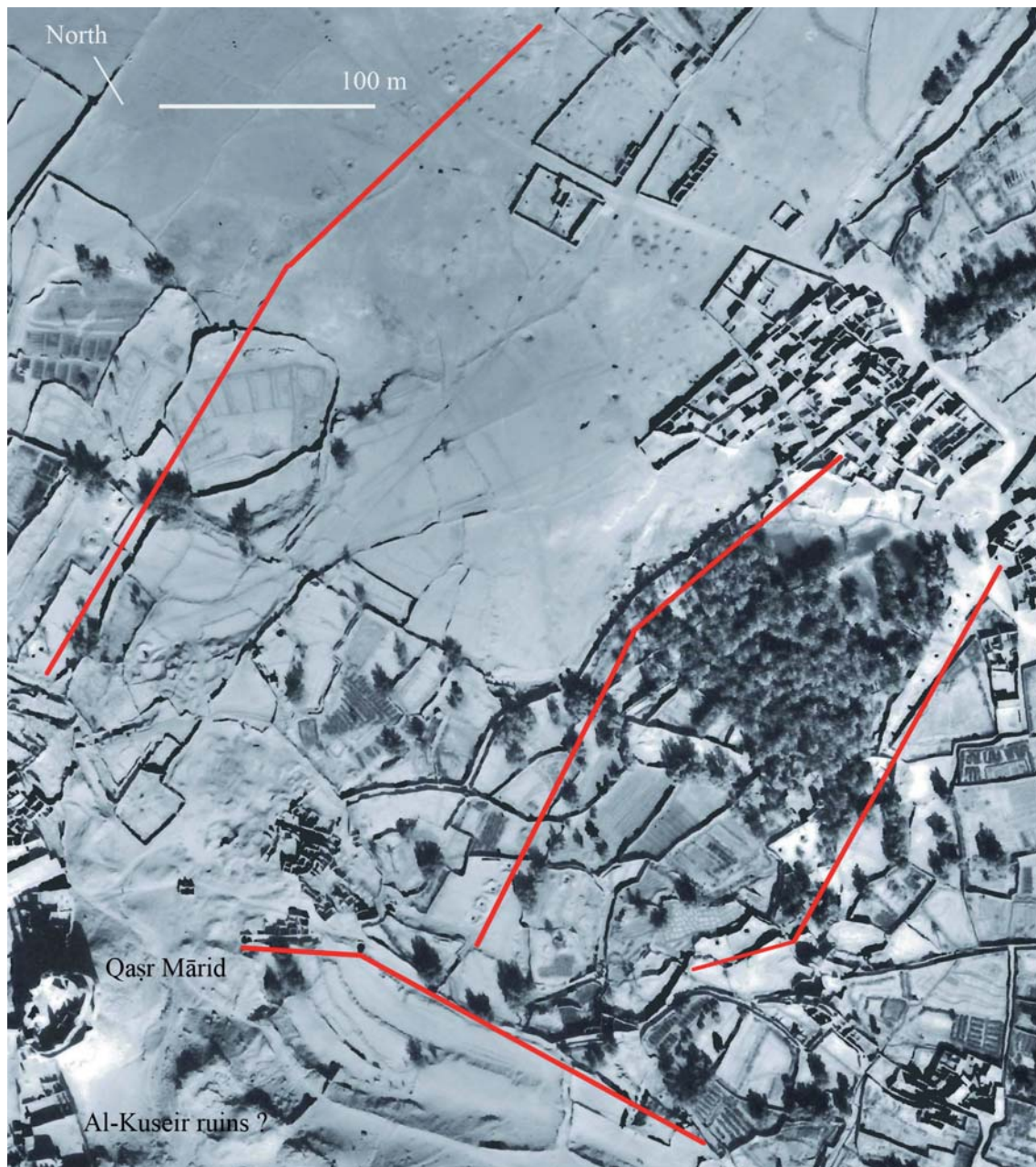


Fig. 19. System of *qanât* in the historic area of Dûma (note the regular distribution of holes near the red lines). Aerial photography of 1964 (?). Courtesy of Husayn al-Khalifâ, director of the Tourism Office of Sakâkâ



Fig. 20. *qanât* line, looking west



Fig. 21. *qanât* shaft, looking south-ouest

At that time they extended into areas devoid of cultivation or settlements⁶². The aerial photograph taken in 1964 indeed shows many *qanâts*, comprising dozens of roughly parallel lines oriented east-west in the direction of the dried lake (Fig. 19). The *qanâts* went towards numerous springs among them “Ain Umm Salim”, “Ain Zogba”, “*Alkubrâ*”, “Bard Zubeida”, “Ain Algamal”, “Al‘arous”, “Ghanarna”, “Khadhmâ”, in the travellers’ accounts⁶³.

A much smaller *qanât* was discovered east of Sector C in the field of Faiz al-Moin, who owns a nearby farm. It is parallel to the dike (?) wall which is perpendicular to M2006 (see Charloux *et al.*, Sector C, sounding 2), and is located slightly further south than the line of the latter (which no longer appears on the surface at this place). Four roughly circular shafts (diameter approx. 35 cm) are regularly positioned along the straight line of the *qanât*, at a distance of 30 m (Fig. 20). It is likely that the *qanât* is much longer, but only a portion is used by the farmer. Each shaft is built with stone blocks of medium size. Each block is placed sideways on top of two other blocks in order to create the masonry, which is therefore irregular. There is no mortar still visible (Fig. 21).

62. Wallin 1854: 145.

63. Wallin 1854: 142-143; Guarmani 1866: 132.

6. The graves

Necropolis and ancient graves

An inscription probably found in Dûma, known from an approximate aramaean *facsimile* dated to the 3rd or 2nd century BC⁶⁴, would mention both a cemetery organized in rows and the construction of an enclosure wall. Even if one ought to look into the link between Dûmat al-Jandal and the city of “Hor / Khaur” (“depression” in Arabic, in the same way as Jawf) and on the importance that should be given to this document, it is noticeable that the Saudi archaeologists apparently found monumental burial structures in rows in the quarter of al-Sunamiyyât (**Fig. 1, black dots**), as well as human skeletons associated with burial goods⁶⁵.

Another funerary inscription, Nabataean this time (incorporated into a wall in the neighbouring village and stolen in 2009-2010) was transcribed by Winnett & Reed⁶⁶. The text mentions the construction by Shulaitû son of Shalitû of a tomb for himself and his family in the year 35 of the reign of Aretas IV.

These documents attest to the presence of pre-Islamic necropoli at Dûmat al-Jandal which, after all, is logical. It only remains to locate them on the ground. If it turns out that the excavations carried out in 1985-1986 did indeed find one of them in the al-Sunamiyyât quarter, it will be necessary to question the choice of this location between the historic area and the western enclosure, since the Nabataeans, like the Romans and Byzantines, established their cemeteries *extra muros*.

64. Torrey 1934.

65. al-Dâyil & al-Shadûkhî 1986: 74-76; al-Dâyil 1988: 37-40.

66. Winnett & Reed 1970: 144-145.



Fig. 22. Illegal excavation of a cairn, looking north



Fig. 23. Circular stone structure, looking east

Pre- and protohistoric remains and Muslim cemeteries

The initial survey of the oasis revealed a significant number of pre- and protohistoric stone remains. The cairns, graves under a heap of stones, that dominate the hilltops in the oasis (**Fig. 1**), are mostly robbed (**Fig. 22**). Stone circles, perhaps delimiting dwelling areas or enclosures, were found near the cairns (**Fig. 23**). These sorts of remains are frequent in the region (“desert kites”, graffiti sites, etc.)⁶⁷. Finally, in 2010, four Muslim cemeteries were found to the west of Dûmat al-Jandal, and near Qasr Mârid (**Fig. 24**).

⁶⁷. See McC. Adams *et al.* 1977; Parr *et al.* 1978: sites 201-11,12, 13, 15,16.



Fig. 24. A muslim cemetery south-east of sector C, looking south



Fig. 25. Incised animal figures (bovids, ostrich, mounted dromedary)

7. Visits in the region

The region has more or less been partly surveyed in 1976-1977. The site numbered 201-17 has not been described in detail by explorers in *Atlal*, but it could be the site of al-Hamrâ Rock, 8 km west of Sector C, where we found the presence of amount of graffiti and pictures of animals (camel, ostrich, etc., **Fig. 25**) widespread on this type of Rock site.

Nearby, a prehistoric site where many were cut flint was also identified.

The mission also benefited from the day-off on Friday to visit the main archaeological sites around: at-Tuwayr (seemingly partly contemporary to Dûmat al-Jandal), Ar-Rajâjîl, a major megalithic site in Saudi Arabia, Qasr Za'bal at Sakâkâ.

Conclusion

This first overview of the archaeology of the area is, of course, very limited in comparison to the real richness of Dûmat al-Jandal. It is, however, indispensable for the work undertaken by the Italian-French-Saudi project, because the oasis is currently subject to intense construction activities, particularly linked to a large increase in population of 4% per year. Some of these archaeological remain must be recorded before their inevitable destruction. The next field surveys should complete our knowledge of the oasis, and will hope to answer the main questions about the environmental and archaeological evolution of the oasis over more than 2000 years and its role in the development of trade across Saudi Arabia.



Excavation in the Historical Area Sector A

Romolo Loreto



Excavation in the Historical Area

Sector A

Romolo Loreto (University of Naples, “L’Orientale”)

Sector A was excavated between 5 October and 4 November, in the presence of the author, Dr. Andrea Marcolongo, Thâmir al-Mâlîki and ‘Abdul ‘Azîz al-Dâyil. Excavation activities concerned the trench dug in 2009 (Sector A) and new extensions of the area in question, namely the eastern flank of the acropolis beneath Mârid Castle, presumably the site of the oldest Nabataean and Assyrian settlement. In the topographic grid drawn up in 2009, Sector A corresponds to Quadrant N6 (20 x 20 m), square I (10 x 10 m). The 2009 excavation focused in particular on sectors N6-Ib, c, d (**Figs. 1-5**).

The program of the second campaign in Sector A had the following objectives:

1. complete excavation of Quadrant N6-Ia and extend the limits of trench southwards, in Quadrant N6-II a, b, c, d. This extension was designed to bring to light the archaeological structures and Levels concerning wall M6, discovered during the previous campaign, whose construction technique and relative ceramic ware can be ascribed to the Pre-Islamic era, and more precisely to the Late Nabataean/Roman-Byzantine epoch (**Figs. 5-6**);

2. undertake a systematic definition of an extensive excavation area that goes beyond the exploratory and test digging carried out in the 2009 campaign and will bring to light the oldest structures that lie beneath the medieval village. This will yield more data concerning the site’s occupation phases and provide a first chronological sequence covering both the Islamic and the Pre-Islamic periods;

3. define a first typological classification of the Pre-Islamic ceramic ware of ancient Dûmat al-Jandal and thus of the north-eastern area of the Arabian peninsula.

The 2010 Campaign

It has been possible to delineate a provisional chronological sequence for ancient Dûmat al-Jandal (**Table 1**). Our urban excavation has revealed a series of periods and different occupation phases during which new buildings were erected on top of older structures, just as older buildings were reoccupied and reused in later epochs. Thanks to the stratigraphic relationships between the architectonic structures and differences in the construction techniques of the excavated buildings and above all in the ceramic material found *in situ*, it has been possible to reconstruct an occupational sequence covering various periods with respect to the Islamic *facies* and at least two periods for Pre-Islamic *facies*.



Fig. 1. Archaeological map of the site of Dûmat al-Jandal at the end of the 2009 campaign. General layout of the medieval village of Hayy ad-Dira' beneath Mârid Castle

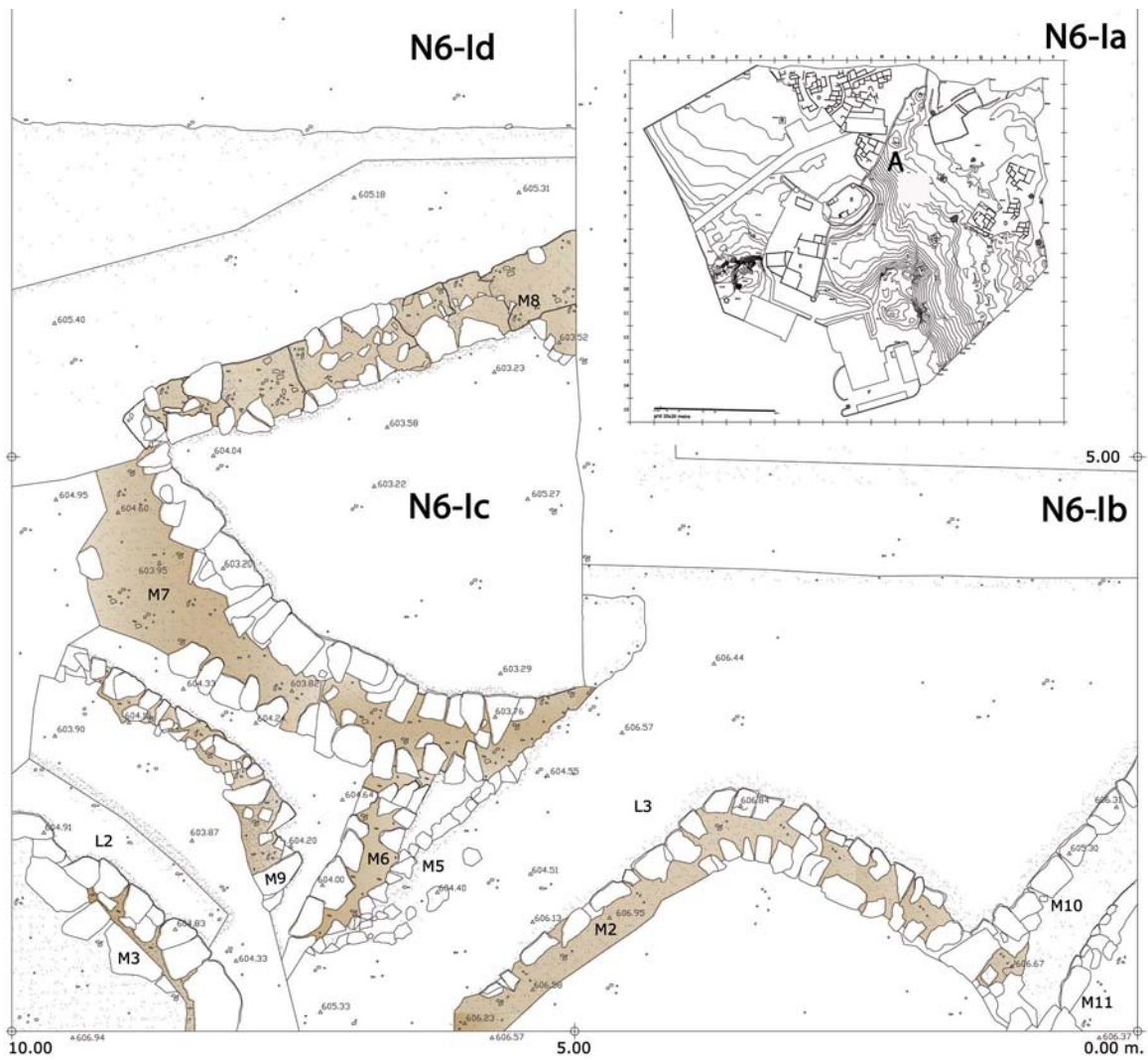


Fig. 2. Layout of the excavation trench at the end of the 2009 campaign and location of Sector A in the archaeological map. Quadrant N6-Ia-d



Fig. 3. Sector A. Excavation trench to the east of Mârid Castle during the 2010 campaign



Fig. 4. Sector A. The core of the medieval village. View from the Mârid Castle



Fig. 5. Overview of the structures excavated during the 2009 campaign



Fig. 6. Sector A during the dig. Seen from the west. Size of trench 17.50 x 10m. From Quadrant N6-Ia, b, c, d to Southern Quadrant N6-IIa, b, c, d

Preliminary Archaeological Phases from Dūmat al-Jandal	Structures and Materials	Archaeological Levels	Provisional Dating
Late Islamic	M1	level 1 (surface) - level 2 (wind-borne sand) (Figs. 10-11)	15th-18th century AD
Middle Islamic I	Building L6, L2, M3	level 2b (M10 collapse) (Fig. 53)	8th-15th century AD
Middle Islamic II	M10		8th-15th century AD
Middle Islamic III	Level 3a-b	level 3a-b (stone rubble) - (level 4, part of level 3 gravel) (Figs. 33-35)	8th-15th century AD
Early Islamic I	M8, M27, M28, L10, L10a	level 6 (occupation deposit above L10-L10a) (Figs. 66-67) - level 11 (wind-borne sand above the collapse of building A in Locus 9) (Figs. 55-56)	8th century AD
Early Islamic II	M7, M15, M16, M11, M22, M23, M21 (?), L8a (?)	level 7 (collapse of building A above Locus 8) (Fig. 51) - level 11 (wind-borne sand above the collapse of building A in Locus 9) (Figs. 55-56) - level 8 (life deposit above Locus 8) (Fig. 51)	7th century AD
Roman/Byzantine	M21 (?), L8a (?) Building A construction	level 8 (life deposit above Locus 8) (Fig. 51)	2nd-6th century AD
Late Nabataean	Building A construction	level 5 (life deposit outside building A, between M6 and rocky-colluvium) (Fig. 53) - level 9 (building A floor) (Fig. 57)	2nd century AD
Early Nabataean	Materials from Building A foundation trench	level 10 (re-used pottery items) (Fig. 57)	1st century BC-1st century AD

Table 1

By the end of the 2009 campaign a preliminary occupation sequence had been outlined identifying a long period of Islamic occupation during which various structures had been built on top of one another, probably preceded by a Late Pre-Islamic phase for the ceramic ware found in Level 5, associated with wall M6 (**Fig. 5**).

Following the 2010 campaign, thanks to the extension of the trench (**Fig. 7**) and removal of the more recent Islamic structures, we have been able to be more specific about the phases of Islamic occupation, associating pottery and objects with the stone structures (**Figs. 8-9**). Furthermore, having reached wall M6 it has been possible to bring to light a series of relative structures comprising Building A. This is a first Pre-Islamic monumental edifice which, on the basis of the construction technique and the ceramic ware found here, enables us to speak of a long period of Pre-Islamic occupation. Occupation extended



Fig. 7. Sector A at the end of the dig 2010, seen from the west. Size of trench 17.50 x 10 m. From Quadrant N6-Ia, b, c, d to southern Quadrant N6-IIa, b, c, d

from the 4th-6th century AD (dating based on the ceramic ware found in the reused Levels of Building A) back to the 1st century BC, i.e. to the Early Nabataean period indicated by the pottery found in the foundation Levels of Building A (luxury *eggshell* and *sigillata orientalis* ceramic ware)¹.

Thus we shall proceed by analysing the structures and material that can be ascribed to the various archaeological phases identified using a classification of the periods that is still preliminary and subject to future modification. Here it is convenient to separate the various occupational sequences identified, even though the dating has only as yet been established in a relative rather than an absolute sense.

¹. See the study of Pre-Islamic Pottery from sectors A and C.



Fig. 8. Pre-Islamic jars from Level 5 (2009 excavation)

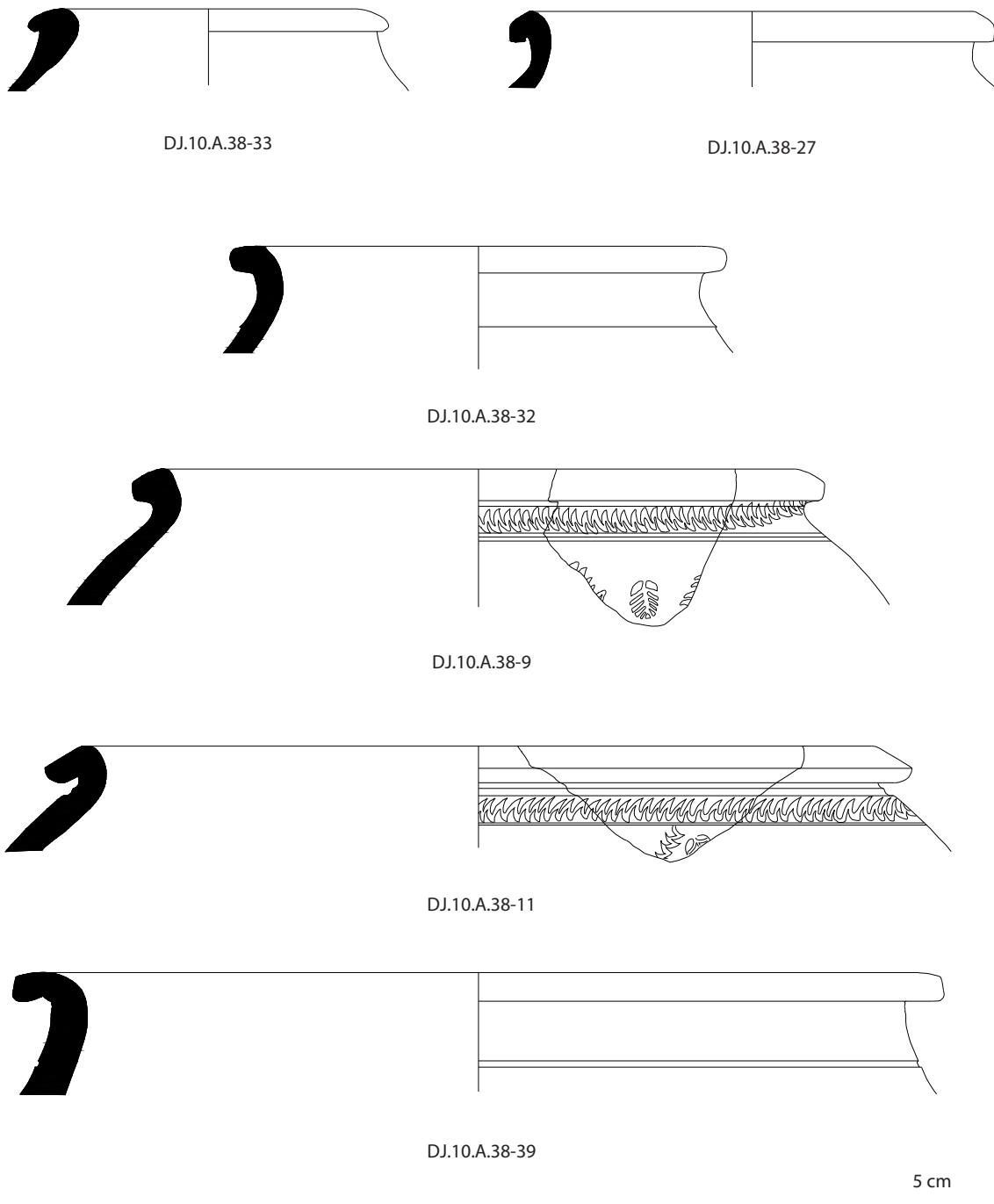


Fig. 9. Nabataean pottery (jars) from Level 5 (2009 excavation)

Late Islamic

The first archaeological period we identified corresponds to the construction of wall M1 (**Fig. 10**), the first structure to be excavated in 2009. It is a small stone wall, measuring 0.40 m in width, built on the surface of the hill (Level 1). It comprises only two courses of stone blocks laid on top of a layer of wind-borne sand (Level 2). Various ceramic fragments were picked up on the surface of the hill of the acropolis, both of Islamic and Pre-Islamic manufacture (Hellenistic, Nabataean and Byzantine). Among the surface finds we can mention a heavily oxydized bronze coin whose weight and size link it to a Pre-Islamic period, specifically the Hellenistic-Roman era.

This ephemeral structure, called M1, can be associated with a Late Islamic period relating to the last occupation phase of the village of Hayy ad-Dira' in the 18th century AD.



Fig. 10. Wall M1. Late Islamic

Middle Islamic

The second archaeological period we identified corresponds to a small oval building (L6) located to the north of wall M2, west of wall M12, south of wall M13 and east of wall M10 (**Fig. 11**). L6 was partially excavated in the first campaign and has now been completely brought to light. A layer of wind-borne sand (Level 2) had accumulated, being deposited against and on top of walls M2, M12, M13 and M10 to a depth of 1.60 m. Building L6 was thus completely covered up by a thick abandonment layer. Various objects were found in this layer of wind-borne sand: stone pestles, mortars and grindstones, fragments of Islamic pottery (**Figs. 12-19**) and two small stone pipes of Ottoman manufacture, dating from the 15th-18th centuries AD (**Figs. 20-21**).

Once we had established the perimeter of building L6 it was possible to see

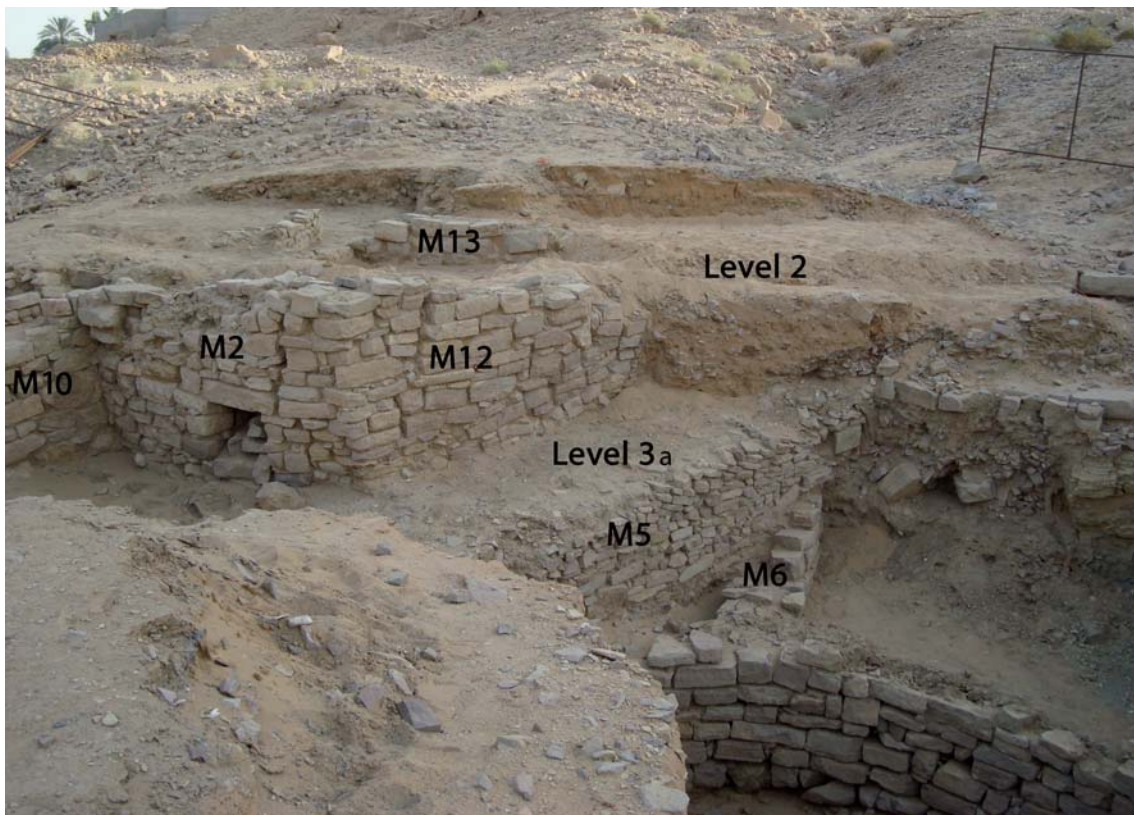


Fig. 11. Accumulation of wind-borne sand in Level 2 against and above walls M2, M10, M12 & M13



Fig. 12. Examples of common Islamic ceramic ware from Level 2. Bowls with handle and rounded rim



Fig. 13. Examples of common Islamic ceramic ware from Level 2. Bowls with handle and rounded rim



Fig. 14. Examples of common Islamic ceramic ware from Level 2. Bowls with flat bottom



Fig. 15. Examples of common Islamic ceramic ware from Level 2. Bowls with flat bottom



Fig. 16. Pestle from Level 2



Fig. 17. Mortar from Level 2



Fig. 18. Grindstone from Level 2



Fig. 19. Grindstone from Level 2



Fig. 20. Fragments of Ottoman pipe from Level 2 (17th-18th century)



Fig. 21. Fragment of Ottoman pipe from Level 2 (17th-18th century)

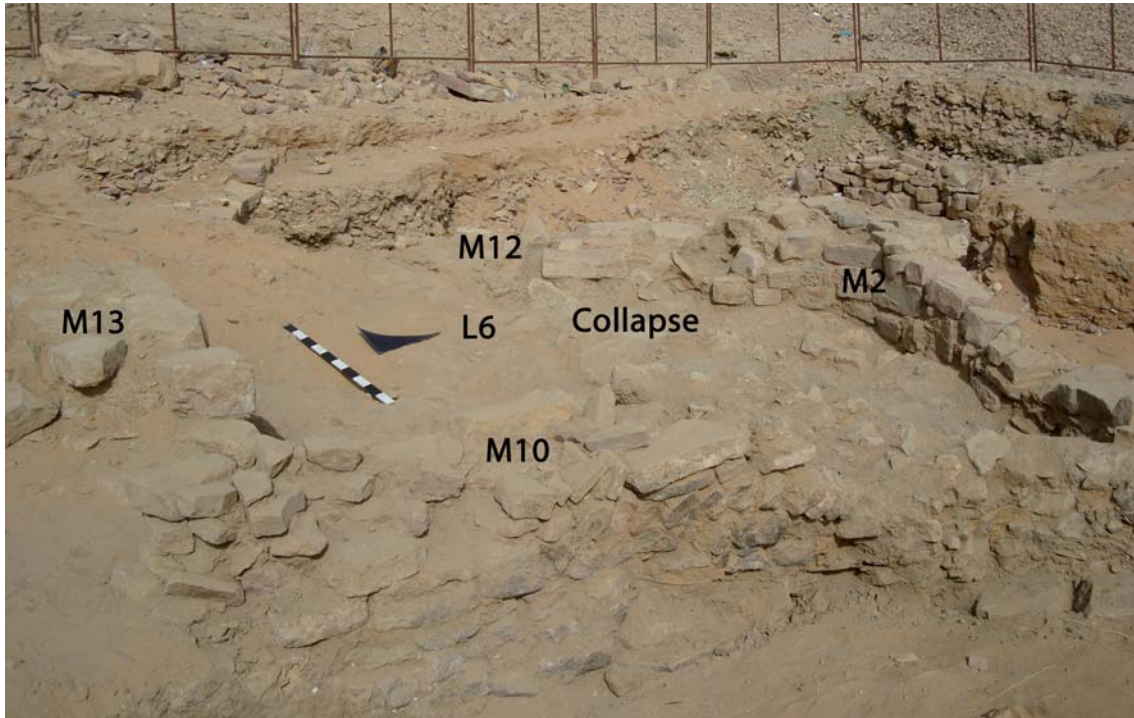


Fig. 22. The collapse of the external walls inside L6. Seen from the east

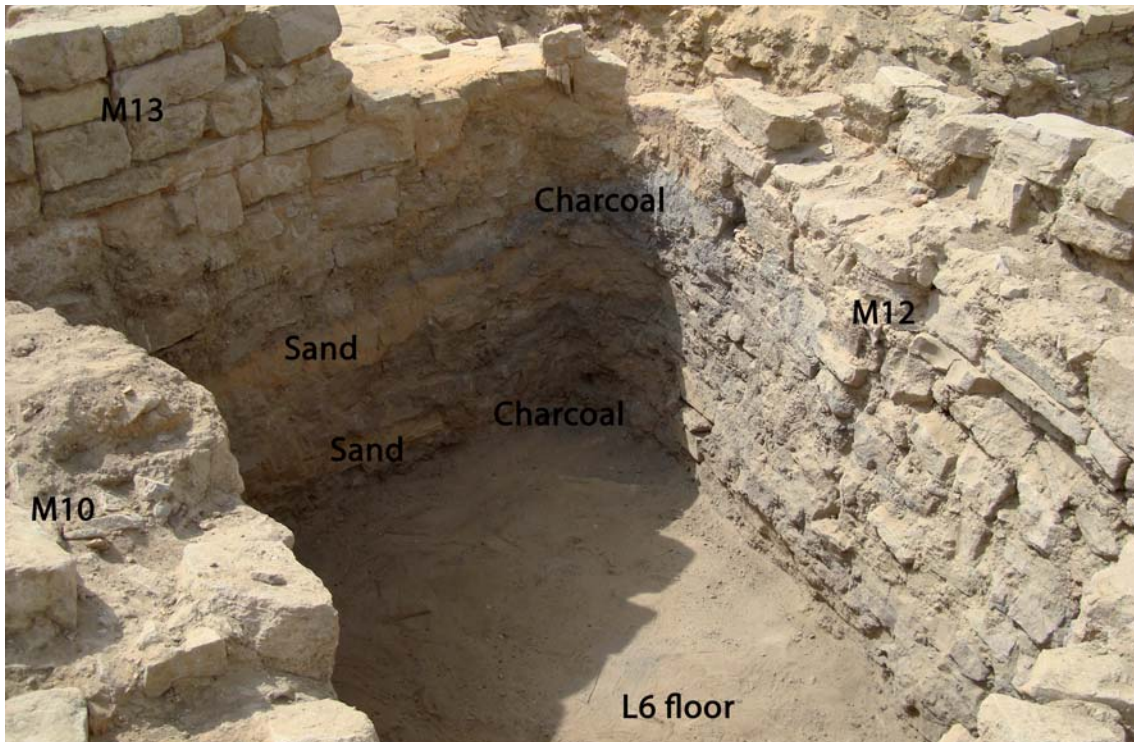


Fig. 23. Sequence of inhabited levels inside L6

how the external walls had collapsed, partly outside the structure but largely inside. Removal of the debris from inside the perimeter allowed us to observe a series of levels of deposited charcoal, ashes and bones (above all camel bones) interspersed with thin layers of wind-borne sand denoting periods of abandonment, down to a final level of ashes and bones lying on the surface of L6 (**Figs. 22-23**).

Thus building L6 is a small structure measuring 3 x 4 m constructed on top of a level of irregularly hewn stones (Level 3b which covers all the older structures) and against M10 (**Figs. 24-25**). Its walls, 0.45 m in width, are conserved to an average height of 2.30 m if measured from the internal surface of L6 and 1.60 m when measured from the open space L3. The walls were built using reused blocks of different sizes laid in an irregular fashion. The walls M2, M12, M13 and M10 must have comprised an upper part in mud-bricks (18 x 30 x 7 cm), found collapsed both inside L6 and outside the building's perimeter (Level 2a).

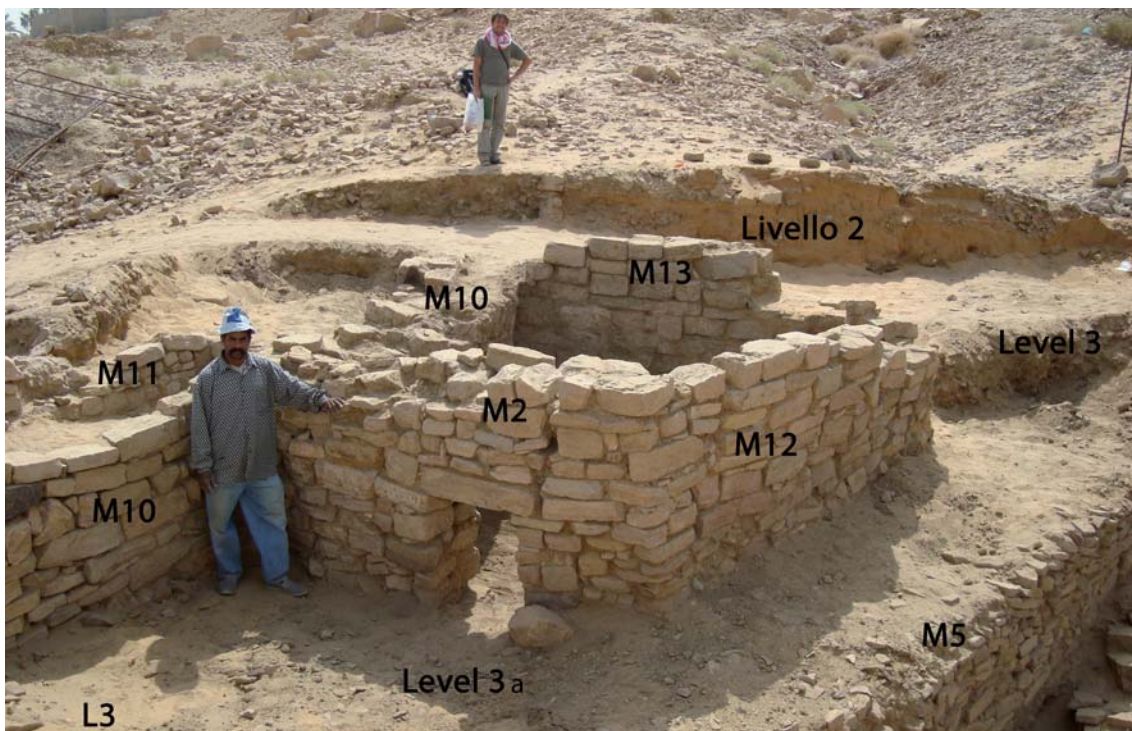


Fig. 24. Building L6 constructed on Level 3a and the open space L3 on top of M5



Fig. 25. Building L6 built on Level 3a and the surface L3 on top of M5

There is a small doorway, 1 x 0.50 m, complete with architrave, in M2, giving access to the room from the external surface L3, which stood 0.50 m higher than the ground surface L6. Both surfaces were in beaten earth mixed with small stone fragments, laid immediately on top of Level 3a (**Fig. 26**). A wall, M5, which may predate the structure L6, was probably used as the basis for a path (L3).

Numerous grindstones used in oil production and small stone door jambs were found among the irregular courses in the walls M2, M12, M13 and M10, while various objects came to light on the floor of L6: a bronze chisel, fragments of bracelets in glass paste that occur in all the Islamic Levels (many were found in the 2009 campaign) and a pendant also in glass paste (**Figs. 27-31**). The ceramic ware found on the surface of L6 and in the accumulation levels have not yet been studied, but the fabric and forms denote a production from the Islamic epoch of pottery in daily use.



Fig. 26. L6 seen from inside. Its foundation courses are laid on a level of gravel (Level 3b)



Fig. 27. Grindstone from M2



Fig. 28. Grindstones from M12



Fig. 29. Bronze chisel from surface of L6



Fig. 30. Fragments of bracelets in glass paste from surface of L6



Fig. 31. Pendant in glass paste from surface of L6

Considering the great quantity of wind-borne sand that had accumulated, covering the whole structure L6, a number of centuries must have elapsed since the Building and open air surface L3 were in use. Thus building L6 could be associated with a Middle Islamic period relating to the medieval phase, whether middle or early, of the village of Hayy ad-Dira', which has not yet been dated more precisely than to some time between the 8th and 15th century AD.

On the basis of the relative stratigraphic relationships we can hypothesise a **Middle Islamic I** period which would include L6. M3 and L2, excavated in the 2009 campaign, can also be dated to this phase, since they were built on bare rock and covered only by Level 2 (**Fig. 35**).

A third archaeological period could be identified thanks to the presence of a long wall M10, oriented north-south, running down from the top of the hill. M10 was also built on Level 3 (a, b) and is visible from the southern end of the trench all the way to the north/north-eastern end. It was not very high, comprising 1.40-1.60 m of irregular courses of stone blocks, erected without mortar, and a section in mud-bricks that had collapsed, south of M13 (Level 2b, **Fig. 33**). Building L6 was built against M10, which must have served as the eastern perimeter wall between M2 and M13, raised to a level matching the crest of M2, M12 and M13 (**Fig. 32**). Thus M10 was also covered by Level 2 and can be associated with a **Middle Islamic II** period, only slightly predating the construction of L6.

A fourth archaeological period is identifiable in two massive levels of waste gravel (Level 3a-b) which run along the whole surface of the trench, covering both the southern (Level 3b) and northern parts (Level 3a). It was in fact a single huge deposit of waste gravel deriving from the shaping of stone blocks used in the construction of the buildings of the early medieval village. The distinction between Level 3a and Level 3b is due to the respective compactness of the fragments.

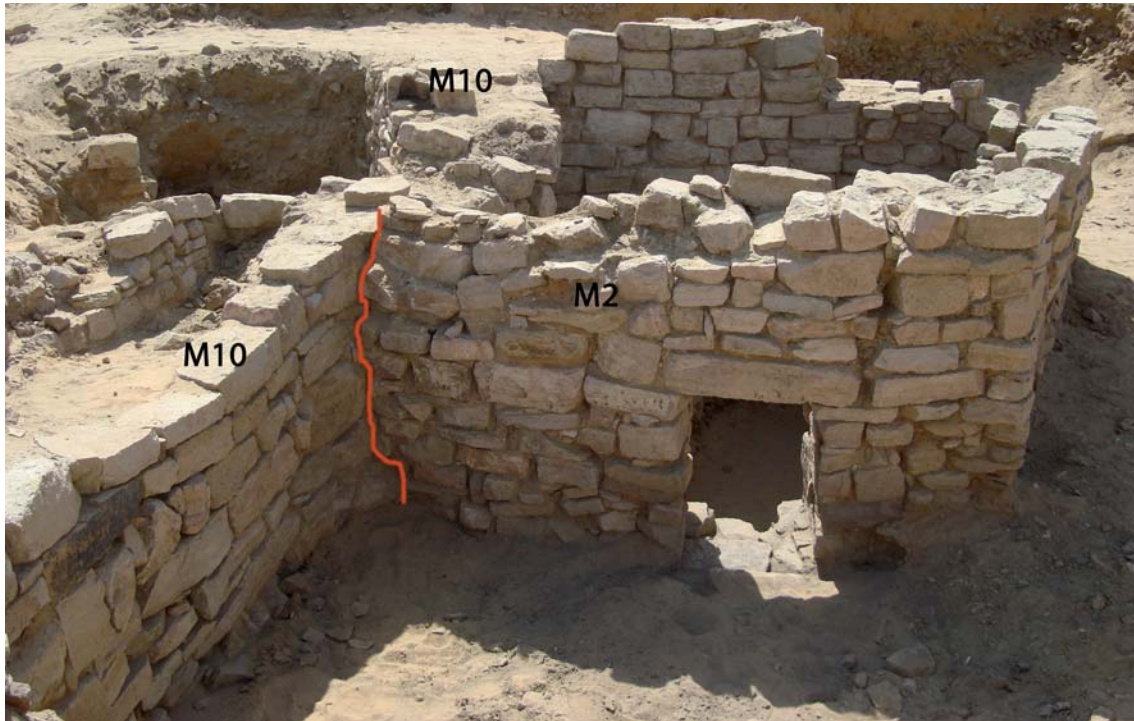


Fig. 32. Building L6 built against M10



Fig. 33. Building L6 built on top of Level 3 and M5. Seen from the west

Level 3a is not at all compact, with gravel mixed with sand, whereas Level 3b has been compacted by the weight of building L6, M5 and L3 on top of it, and is mixed with soil rather than sand. These levels can be ascribed to a **Middle Islamic III** period that preceded the construction of L6 and M10.

Level 3a stretches over the whole of the north side and the south-west corner of the trench (**Figs. 33-34**). To the north it covers the structures relating to an older Islamic phase, and in the south-west corner Level 3b. The latter is located in the southern half of the trench and covers the structures (including M6) relating to a Late Pre-Islamic phase (**Fig. 35**). Thus Level 3 sealed up a series of Late Pre-Islamic and Early Islamic structures. Observing the southern section of the excavation trench one can see how the accumulation of gravel was deposited against the hillside, covering up structures which were no longer in use, and sloped off from west to east (**Figs. 34-35, 45**).

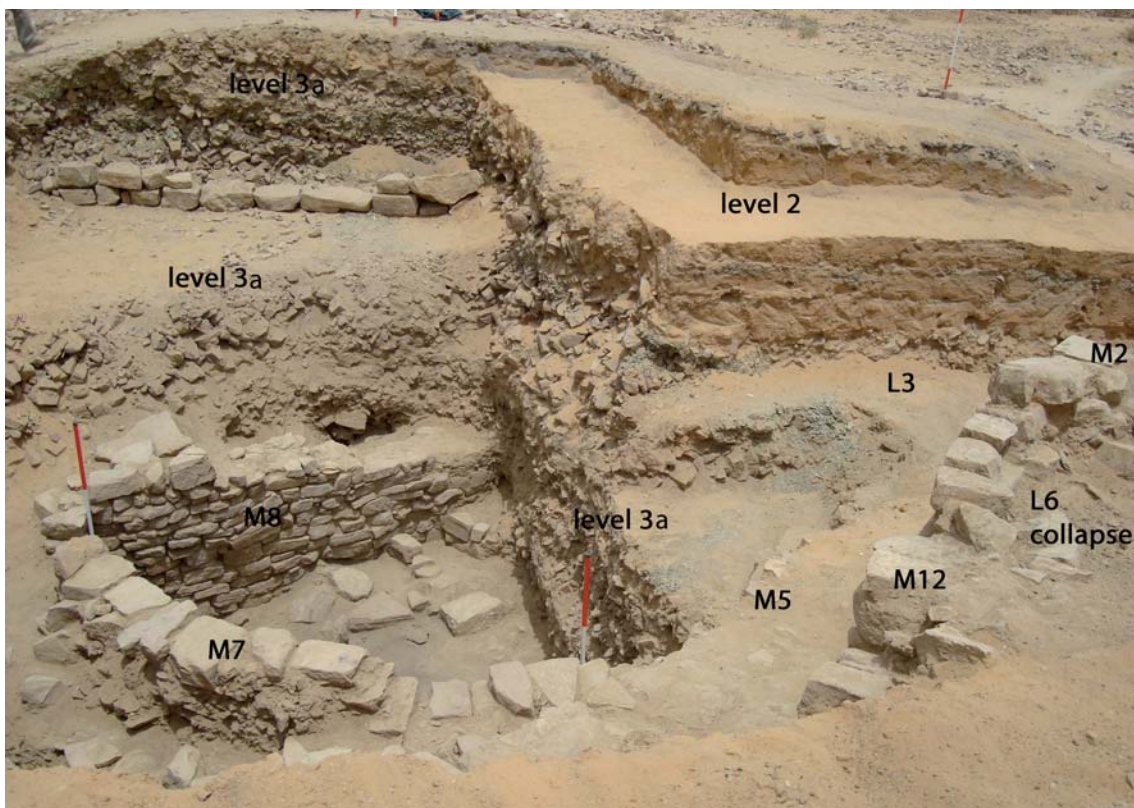


Fig. 34. Level 3a covers the oldest Islamic structures (north half of trench, Quadrant N6-Ia-d). Seen from the south



Fig. 35. M5 after the removal of L6. Level 3b covers the Late Pre-Islamic structures relating to M6

Wall M5, identified during the 2009 campaign and now entirely brought to light, could also relate to this phase (**Figs. 33, 35**). It is a single wall, “west facing”, made of irregular stones held together by mortar to a height of 1 m. Only the first course has more regular blocks. This wall was built on Level 3b and the west-facing wall in irregular blocks is integrated with Level 3a and thus appears to contain Level 3a facing east, as well as defining an open space relating to building L6 (L3). M5 runs north-east to south-west for 7.50 m, where it was erected right on the crest of M6 (Late Nabataean structure) and M7 (Early Islamic structure). Thus M5 may have been built during the accumulation of Level 3a, or perhaps, together with L6, in order to shore up the irregular and instable bank of gravel, creating a solid surface (L3) for building L6.

The material found in Level 3a-b is extremely varied. In particular numerous fragments of everyday Islamic pottery came to light, mixed up with elements of Hellenistic, Nabataean and Roman-Byzantine ware (Figs. 36-44). We continued to find grindstones, pestles and mortars, typically Islamic bracelets made of glass paste, at least one terracotta figurine in the shape of a camel (a common type in the Pre-Islamic Levels of Dûmat al-Jandal and Thâj, close to the western shore of the Persian Gulf) and some bronze objects (bracelets and a ring). One very interesting find was a bronze coin, made illegible by oxydization but clearly Islamic from its weight and size. It came to light in the lowest part of Level 3b, above the last reoccupation phase (Early Islamic) of the Pre-Islamic Building A.



Fig. 36. Everyday Islamic pottery from Level 3. Flat bases



Fig. 37. Everyday Islamic pottery from Level 3. Flat bases



Fig. 38. Everyday Islamic pottery from Level 3. Bowls with handle and rounded rim



Fig. 39. Everyday Islamic pottery from Level 3. Bowls with handle and rounded rim

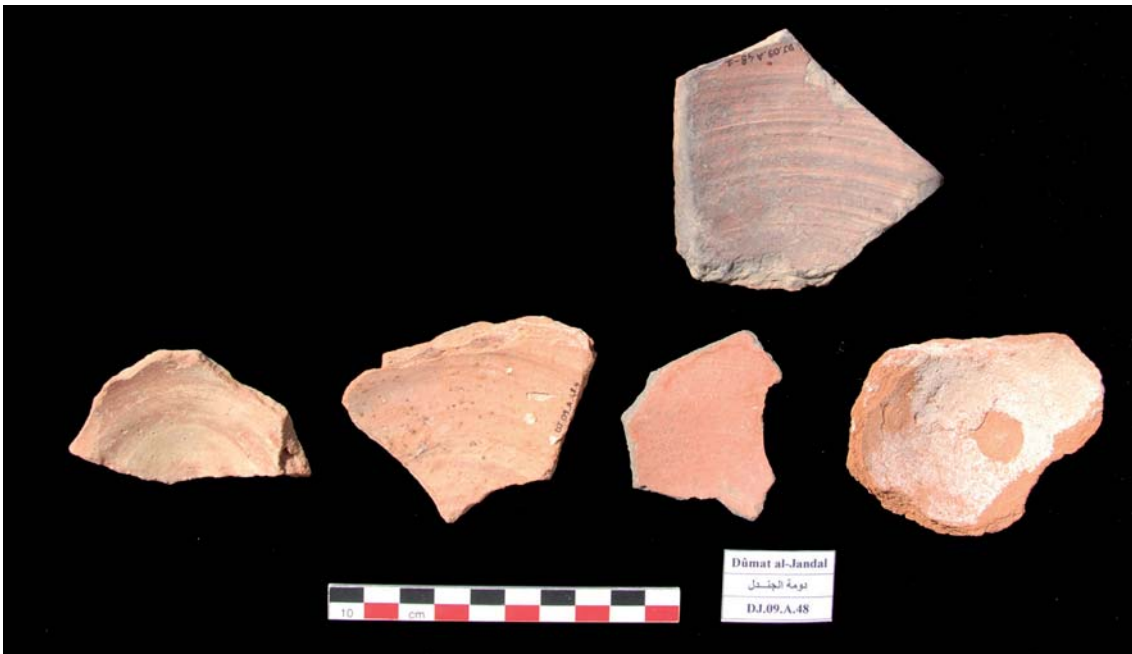


Fig. 40. Pre-Islamic pottery from Level 3b



Fig. 41. Pre-Islamic ceramic ware from Level 3b. Bottom right a flat base, orangey-red fabric, white interior, external polished surfaces, very common in Pre-Islamic Levels at Dūmat al-Jandal and at-Tuwayr (20 km east of Dūmat al-Jandal)



Fig. 42. Fragments of jars of Nabataean manufacture from Level 3. Jars with everted rim, orangey-red fabric, polished surfaces, with white, beige, pink or natural surface. Decorations incised or impressed with vegetal, palmette, geometric or wave motifs



Fig. 43. Fragments of jars of Nabataean manufacture from Level 3. Jars with everted rim, orangey-red fabric, polished surfaces, with white, beige, pink or natural. Decorations incised or impressed with vegetal, palmette, geometric or wave motifs



Fig. 44. Fragment of terracotta figurine. Camel. From Level 3b

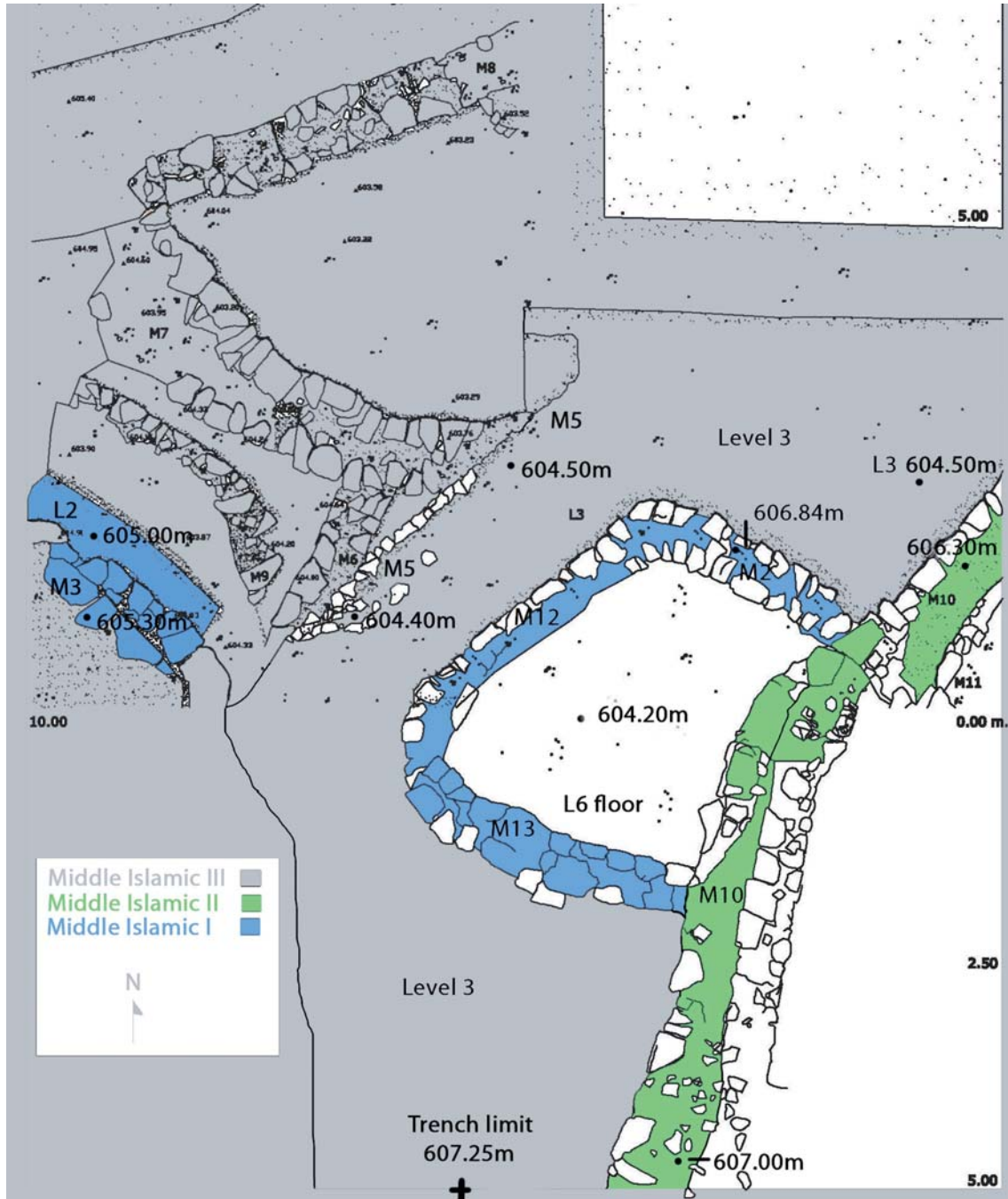


Fig. 45. Map of Middle Islamic structures and phases

Early Islamic – Late Pre-Islamic (Late Nabataean/ Roman-Byzantine) - Early Nabataean

A fifth archaeological phase was identified with the structures lying immediately beneath Level 3, corresponding to an **Early Islamic** period. This period is closely linked to a sixth, earlier phase forming a **Late Pre-Islamic** or **Late Nabataean/Roman-Byzantine** period, whose structures (Building A) were reused repeatedly in the **Early Islamic** epoch.

In order to proceed with the excavation it was decided to remove building L6, M10 and M5. After their removal, in Quadrant Ib and IIa the whole of Level 3b was brought to light, comprising compacted gravel and soil. As digging progressed on this Level it proved also to cover another, older wall, M11/M19, built with irregular blocks laid in irregular courses (**Figs. 46-47**). M11 runs north-south and comprises a stone wall standing 3 m high and 0.90 m wide, with courses of mud-bricks laid on top of it, most of which had collapsed and were found along the east-facing side of M11. Two transverse walls, M15

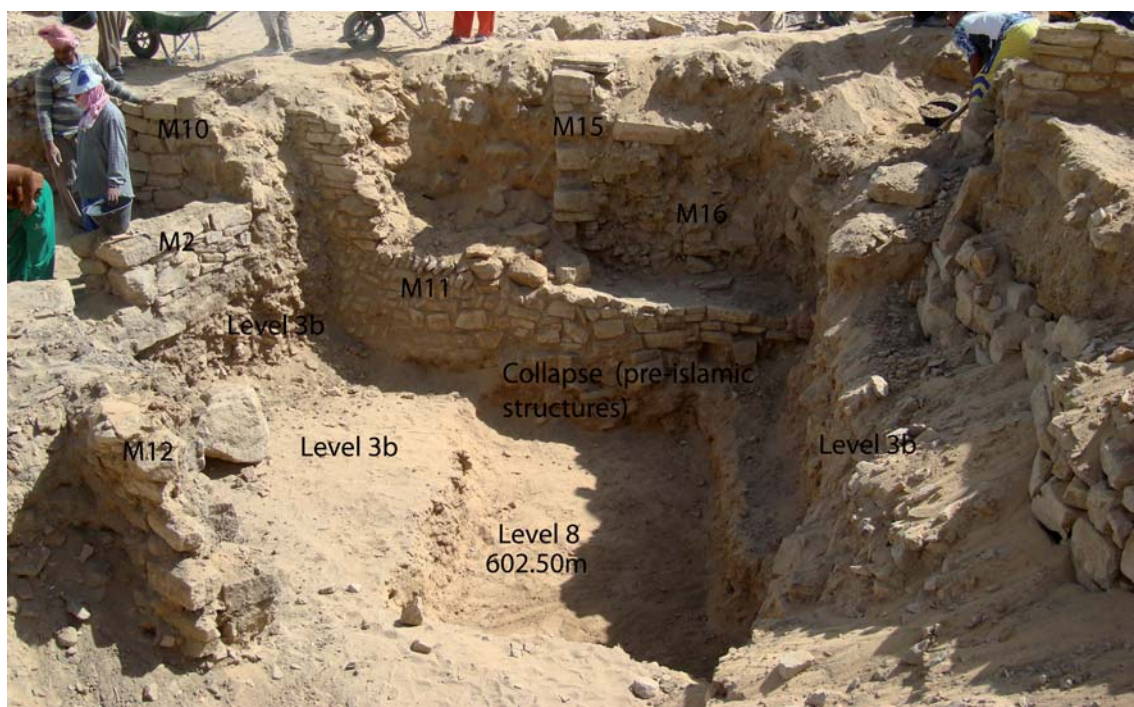


Fig. 46. Quadrant Ib-IIa during the removal of building L6, M5 and M10



Fig. 47. Quadrant IIa. M11 (Early Islamic). M10 still visible in cross-section above Level 3b (Middle Islamic II-III)

and M16, are joined to M11 on the west side. These structures, M11, M15 and M16, dating from an Early Islamic period, were built on top of a layer of debris (Level 7) relating to an older structure (Late Pre-Islamic), Building A. This layer of debris in turn overlaid a layer of human accumulation of brown earth and ceramic fragments (including Abbasid type glazed pottery and Roman-Byzantine elements) dating from the first centuries of Islam.

Similarly, Level 3b and M5 were built on top of earlier structures in Quadrant II d. In this sector of the trench the architectonic remains relating to Pre-Islamic times appear to be well preserved.

Having reached wall M6, the removal of Level 3b and M5 enabled us to uncover a series of structures: M17, a perimeter wall which, like M6, ran round the hill's rocky flank, and M20, a partition wall, parallel to M6, which bounded a small paved area (L7) (**Figs. 48-51**). These structures overlie a ground surface (L8) identified as Level 8, a layer of human accumulation containing Early Islamic pottery.

Thus we can identify all the structures relating to M6 as belonging to a single large complex called "Building A" (**Figs. 48-52**). In view of the construction technique of its walls this is clearly distinct from the Islamic buildings on the higher Levels and from Mârid Castle or the mosque of 'Umar bin al-Khattâb.

Debris from the collapse of Building A (Level 7) was found between M6 and M20, beneath the foundation courses of M11 (visible in cross-section) and in L9, a chamber to the south of L8 relating to Building A (**Figs. 48, 50-51**). This suggests that the Early Islamic structures M11 and M7 were built reusing blocks from the Pre-Islamic building. Moreover Building A must have been reused on several occasions during the Early Islamic phases. Above L8, and covered by Level 8, a small irregular partition wall was found (M21), 0.40 m wide, made from blocks that were not square hewn laid on top of L8. M21 delimits a small chamber to the west of M11 (L8a, **Fig. 48**). This shows that Building A was reused in the **Early Islamic** epoch, with ephemeral structures like M21. In fact there are no differences in the ceramic ware collected from L8 and L8a.

This first reoccupation of Building A in the Early Islamic epoch must have been followed by the collapse of the complex and the construction of M7, specifically to shore up the collapsed structure on the flank of the hillside, and M11, built directly on top of the debris of Building A together with M23, a small pseudo-circular wall with only two courses above ground (comprising high quality blocks relating to Building A) lining a ditch between itself and M11 (north-east edge of M11, **Fig. 50**).



Fig. 48. Removal of the Middle Islamic structures made it possible to reach the structures relating to M6: M17, M20 pertaining to a building of impressive size and made using construction techniques which were more technologically advanced than the buildings in the medieval village



Fig. 49. Building A, Late Pre-Islamic (M6, M17 & L8) and first phase of reoccupation as shown by M21 & L8a



Fig. 50. Second reoccupation of Building A as shown by M11 & M23, both built on top of Level 8 and the debris of Building A

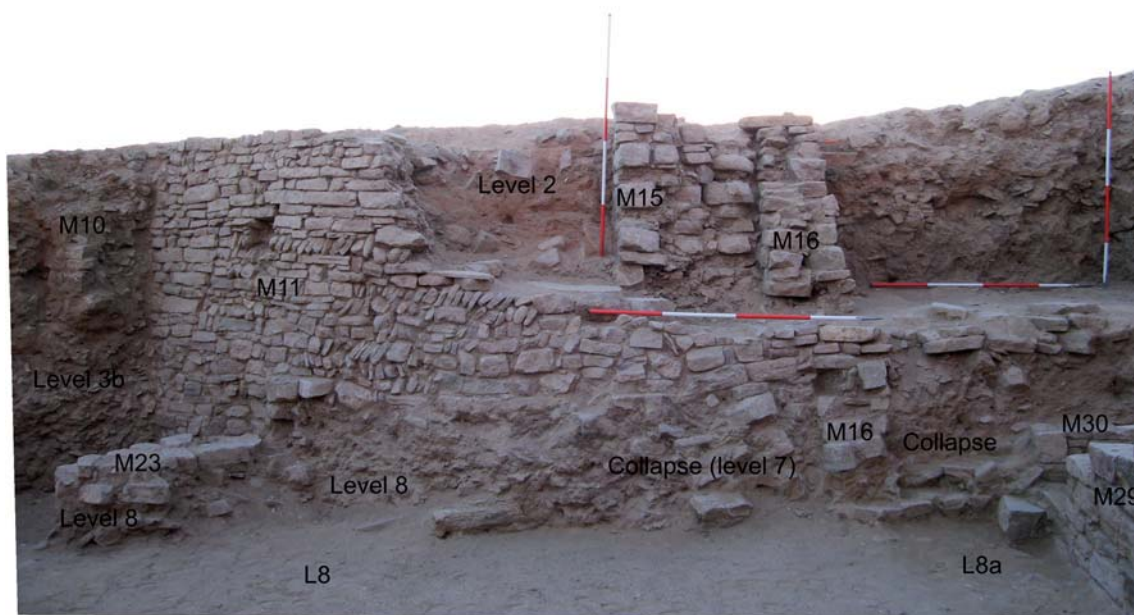


Fig. 51. Ortho-rectified eastern section of the trench



Fig. 52. M26, current northern edge of Building A

After bringing to light the first structures corresponding to wall M6, identified during the 2009 campaign, work proceeded to the north and south to delimit the perimeter of Building A and any further rooms or outbuildings, as well as L7 and L8 (**Fig. 62**). To the north, in Quadrant Ia-d, the remains of a wall, M26, were brought to light, oriented east-west and comprising two courses of high quality square hewn blocks of the same type as M6. Moreover M26 proved to rest directly on the surface of L8, like all the walls of Building A. Hence its construction technique suggests that it was the northern edge of L8. M26, in fact, is also covered by Level 8 and by the Early Islamic structures which bisect and rest on M6, M7 and M22 (**Figs. 52-56**).

Moving southwards, the architectural remains are much better conserved. To the south of L8, new structures have come to light relating to Building A (**Figs. 42, 62**), notably a chamber, L9, bounded by M29 to the north and M25 to the west. M29 and M25 are connected to M17 respectively to the east and south (**Figs. 53-56**). A small doorway lies between M29, to the west, and M30, to the east. A single step gave access from L8 to L9. In both cases the flooring comprises compacted earth with gravel and few ceramic fragments. M29 and M25 were also built directly on top of L9, as M6, M20, M17 and M26 were on L8.

The stratigraphy of L9, visible along the southern cross-section, shows that not all Building A was reused in the Early Islamic epoch, and also that following the collapse a certain length of time must have elapsed before the construction of M11. Above the ground level L9 presents the debris of wall structures. The debris lies directly on L9, without any abandonment layer (unfortunately we have no ceramic ware from L9). Above the debris layer there is a layer of accumulated wind-borne sand, testifying to a phase of abandonment (Level 11). On top of this layer lies Level 3b (Figs. 54-55).



Fig. 53. Building A and southern trench section, seen from the north



Fig. 54. Southern section of L9



Fig. 55. L9, seen from the north

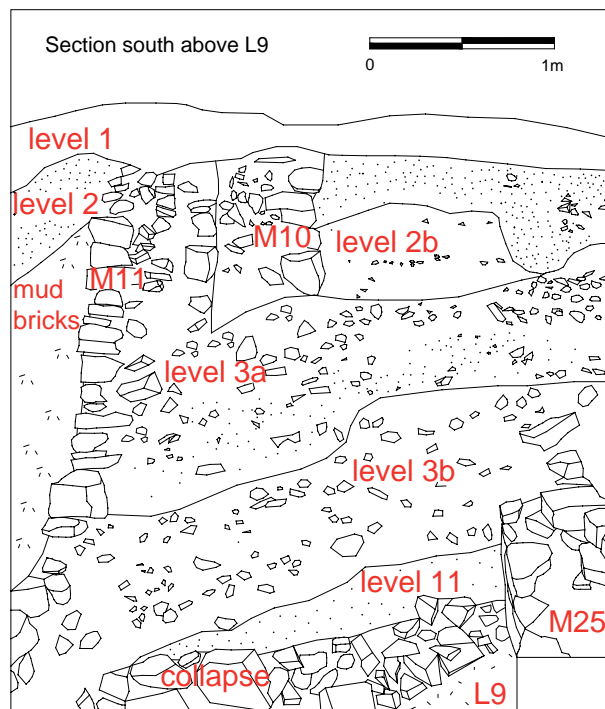


Fig. 56. Building A. L9, seen from the east

Having identified a first Pre-Islamic or Early Islamic building, and so as to proceed with excavations in order to establish a chronological sequence going as far back as possible in the Pre-Islamic centuries, we decided to undertake a test dig (3 x 4 m) inside the area of L8 (**Fig. 57**).

The first level we came across in the test dig corresponded to L8 (Level 9), i.e. the surface of compacted earth, measuring 0.20-0.30 m in depth, which constituted the ground level of Building A. L8, or Level 9, features a series of small stone blocks compacted with soil and some ceramic fragments. It is interesting to note that among the fragments used to compact L8 there were rims and walls of jars decorated with moulded motifs showing palmettes, clearly from the Nabataean tradition, and some bases and walls of elements of the *sigillata orientale* type. It appears possible that the builders of Building A used older materials when they laid the flooring of L8 (**Figs. 58-59**).

As the test dig progressed a new level emerged (Level 10) composed of a massive deposit of fine gravel and a very large quantity of ceramic ware, both in fragments and complete. This level was 1.30-1.50 m deep and lay directly on the bare rock on the eastern flank of the acropolis. It was clearly a technical expedient for creating a homogeneous surface, evening out the irregularities of the rocky outcrop, providing a horizontal base for Building A.

The most interesting feature was the large quantity of ceramic ware (30 containers, each weighing 4 kg). All this ceramic ware can be dated to a Pre-Islamic period covering a lengthy time span: the oldest elements are *eggshell*-type fragments, luxury Nabataean ceramic ware imported from Jordan (**Fig. 60**). This is vase ware painted with plant motifs, in orange fabric which is very thin (0.3 cm) and made on a wheel. We also found further fragments of *sigillata orientale* dating from the 2nd century AD, and classic Nabataean elements (impressed palmettes and incised geometric decorations) also from the 2nd century AD (**Fig. 61**). A small test dig done in L7, between M6 and M17, to verify the depositional and construction sequence observed in L8 gave the same results both for construction techniques and for the material found.

The ceramic ware from Level 10 will be studied during next season. In view of the great variety of decorations, forms and manufacturing techniques preserved whole, it will enable us to draw up a preliminary typological repertory of the vase ware in use in the Nabataean epoch. For the moment we can merely note that it included blue and green glazed elements belonging to the Partho-Sasanian tradition, differing from the exclusively blue glazed fragments which are Abbasid found in Level 8. However, these are merely preliminary observations which need to be verified with an accurate study of the ceramic ware.

In conclusion, Building A can now be seen to have been a large-scale structure, built along the eastern flank of the hillside, apparently at the foot of the acropolis. During the next campaign it should be possible to extend the trench eastwards, revealing whether the building continues along the steeply sloping hillside and whether there are older structures beneath the Nabataean levels. In this area there are a number of wells which go down some 15 m from the level of L8. This should enable us to identify a long sequence of underlying levels before getting down to the rocky bed of the wâdî which ran along at the foot of the acropolis well before the Nabataean settlement.

Although Building A was built following the profile of the rocky outcrop, its walls are very regular, always forming exact right angles. Moreover the pseudo-isodomic technique with which the blocks were put in place is much more accurate than that used in all the other structures dating from medieval times. The perimeter walls M6, M17 and M25 adhere closely to the rocky outcrop, and in some places the ancient builders removed some rock to maintain a regular groundplan. At the moment the northern edge of the building seems to be M26, which delimits the open space of L8. The southern edge corresponds to L9, a chamber measuring 3 x 2 m accessible from L8. The only partition walls to have been identified correspond to L9 (only partially excavated) and L7. The latter is partly covered by flooring (M20b). Its dimensions, 0.90 x 5.5 m, are indicative not so much of an enclosed room as of a flight of steps or portico relating to L8. In fact M20 has only two stone courses, joined to M17. Thus M20 could constitute a system of foundations for a series of pillars or columns (in wood?) supporting a roof and bordering a



Fig. 57. Test dig in L8 (3 x 4m). The dig revealed the system of foundations for Building A: a massive layer of fine gravel and discarded pottery (Level 10) was used to even out the irregularities of the rocky outcrop. Level 9 was then built on this base



Fig. 58. On the bottom right *sigillata orientalis* from Level 9



Fig. 59. On the bottom right *sigillata orientale* from Level 9



Fig. 60. Luxury Nabataean ceramic ware: *eggshell* type from L7, Level 10, dating from 1st century BC - 1st century AD



Fig. 61. Nabataean jar rim with typical decorative motifs from L7, Level 10

portico accessible from L8. No traces of wooden components or elements pointing to the existence of an upper storey were found, even though the walls are conserved to a height of 2 m at their highest (on the corner between M6 and M17).

The building measures up to 10 m between M26 and L9 by 7 m between M6 and M30 (the latter being the eastern edge of L9, disappearing beneath M11). All the building's walls are 0.50 m in width apart from M17, which measures 0.40-0.45 m. Here there is a double wall made of blocks which are squared off at the front and wedge-shaped at the rear, laid on a pseudo-isodomic alignment. The system of foundations has a single course of larger blocks laid on top of Level 9 (L8, ground surface), measuring 0.20-0.30 m in width. There is no foundation trench or courses sunk into the surface of L8-L9 consisting of compact earth. In fact this thick base layer lies on a preparatory level of gravel and discarded ceramic ware used to even out the rocky outcrop on the eastern flank of the acropolis.

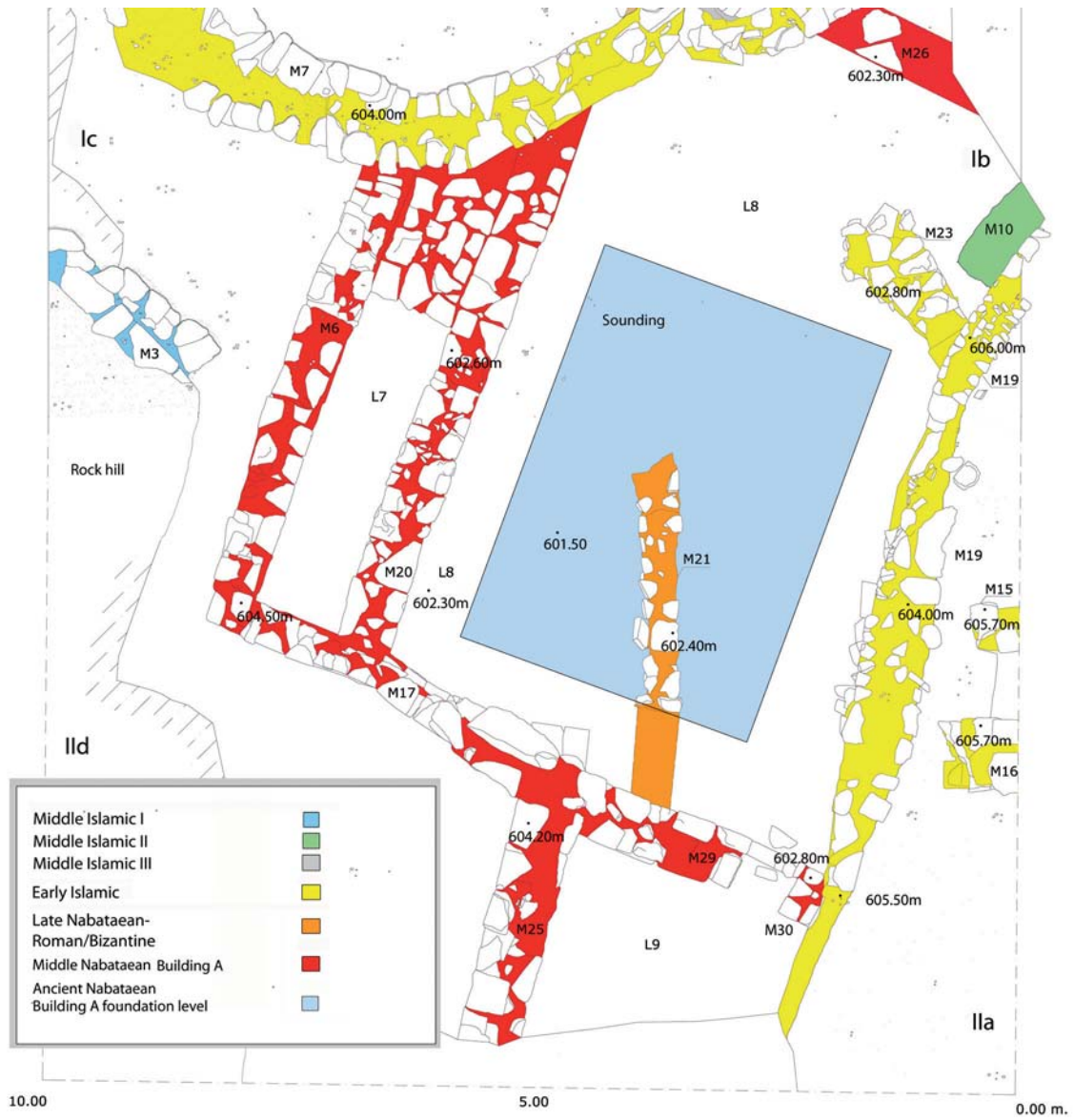


Fig. 62. Plan of the structures excavated in Quadrants Ib, Ic and Ila, IId



Fig. 63. Nabataean pottery from Level 5



Fig. 64. Nabataean pottery from Level 5



Fig. 65. *sigillata orientale* type sherd

The presence of ceramic ware dating from between the 2nd century BC and 1st century AD in the foundation level and the flooring of L8 and L7 suggests that Building A was built reusing older materials. In all likelihood by extending the trench eastwards and probably also northwards, where the rock continues to fall away and does not have an even profile, we will be able to identify more ancient archaeological levels.

Finds of Pre-Islamic materials were not limited to the foundations and ground surface of Building A. In Level 5 (excavated in 2009), located between M6 and the flank of the hillside, we found fragments of Nabataean decorated ceramic ware (Figs. 63-65) and a *sigillata orientale* type sherd dating from between the 1st century BC and 1st century AD. This was probably a level relating either to the first phase of the building's existence or to the laying of the foundation level which is rich in ancient materials.

Having reached the rocky outcrop on the flank of the hillside and established a preliminary sequence of occupation covering several Islamic levels and at least two which are clearly Pre-Islamic (materials from Level 10 and Building A), it was decided to continue excavating northwards, revealing the Early Islamic structures relating to M7 and M8.

To the north of Building A the most ancient structure identified corresponds to M7, already partly brought to light in 2009. This semicircular wall can be attributed to an **Early Islamic II** period, coming shortly after the time when Building A was abandoned, since it was built reusing blocks from the Pre-Islamic structure, and above all because it bisects wall M6 and overlays M20 and M20b (**Figs. 66-67**). Moreover M7 was found immediately beneath Level 3a. Its semicircular shape, reflecting the pre-existing structures, seems to suggest that M7 served to contain the debris from a collapse located on the flank of the hillside.

M7 is bounded to the east by M22, a wall which is contemporary with it. In fact the two walls are joined and vary in width between 0.60 and 1 m. Both comprise a double wall with re-used blocks laid in irregular fashion, the inner cavity being filled with mortar and fine gravel. M22 does not reproduce the semicircular shape but continues straight in a north-easterly direction, beneath Level 3a and M5.

To the west M7 proceeds in a straight line northwards (**Figs. 66-68**). M7 and M22, which are probably contemporary to M11, were reused in an **Early Islamic I** period during which M8, M27 and M28 were built against M7 so as to form two chambers: L10 and L10a. These chambers have a ground floor in compact earth, already identified in the 2009 campaign near M7, which has yielded Islamic ceramic ware with some fragments of typical glass paste bracelets. M8, M27 and M28 are all characterized by a rather poor quality construction technique. They comprise irregular stone courses to a height of 0.50-0.80 m, 0.50-0.65 m thick, surmounted by mud-bricks which are in part still visible in the eastern half of M8.



Fig. 66. M7. Early Islamic structures. Seen from the north-west

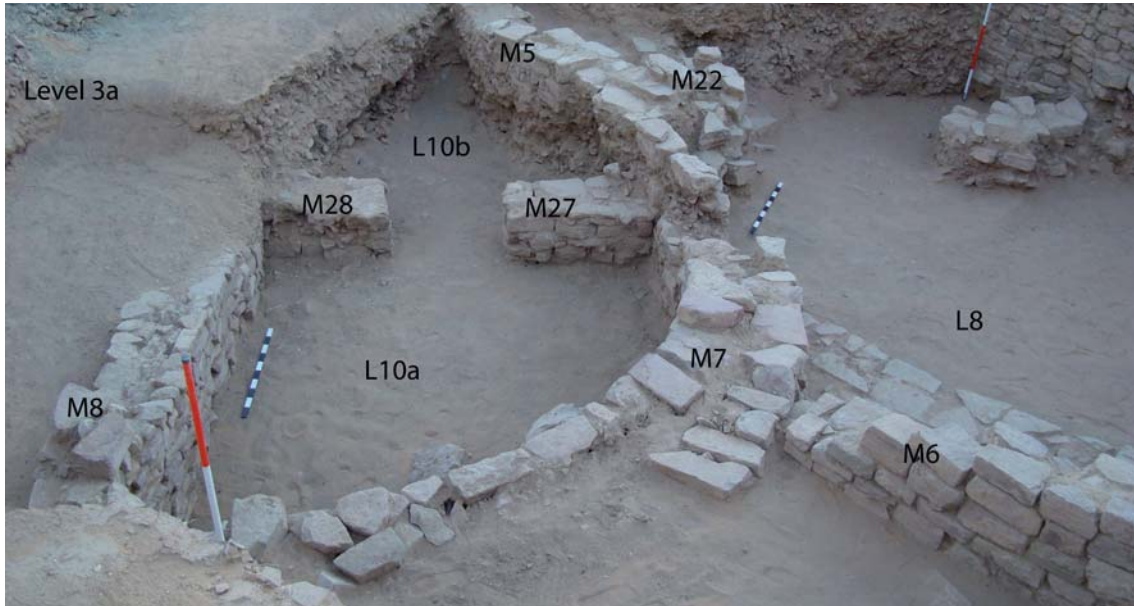


Fig. 67. Early Islamic structures relating to M7. Seen from the south-west. M5 is still visible on top of M22 and M7

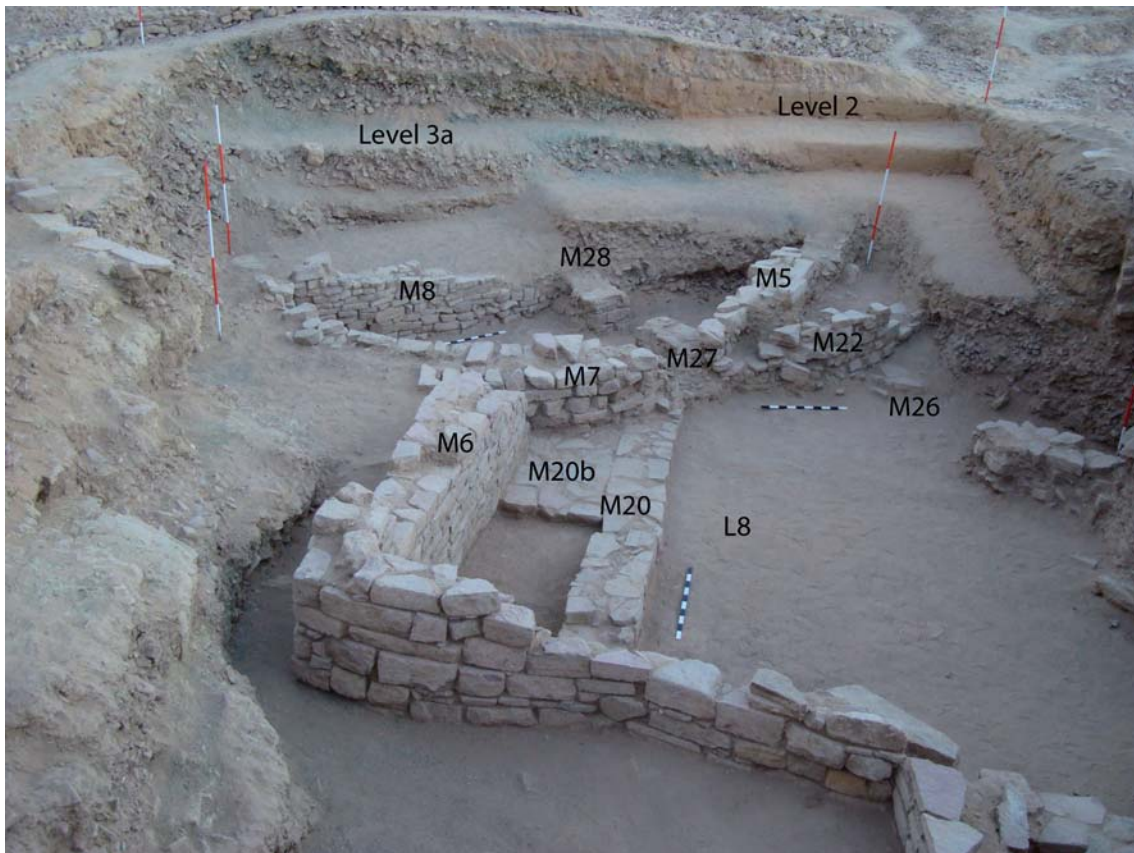


Fig. 68. North section of trench

A first hypothesis for a relative chronological sequence

To conclude we can attempt to outline a relative chronological sequence based on the ceramic ware and archaeological evidence found to date (**Fig. 69**).

The most ancient period identified is testified by the presence of luxury Nabataean ceramic ware and fragments of *sigillata orientale* in the foundation levels of Building A. This material can be attributed to an Early Nabataean period even though no corresponding structure has come to light. This phase can be dated to between the 1st century BC and 1st century AD.

The following period saw the construction of Building A. The complex was built directly on the rocky eastern flank of the hillside, reusing previous materials to create a solid system of foundations for a large scale building involving high quality construction techniques. The ceramic ware found in Level 8, testifying to a phase in which the structure was reused (see M21), makes it possible to date the last occupation of Building A to the 6th-7th century AD (traditional Abbasid glazed ceramic ware). The construction of Building A can thus be attributed to a Late Nabataean or Roman/Byzantine period dating from between the 2nd and 6th century AD. It remained in use over a long period and was reoccupied on various occasions during subsequent centuries.

After the collapse of Building A and the build up of wind-borne sand (Level 11) visible in L9, the blocks that had been used in the Late Nabataean building were reused in the construction of M7, M22, M23, M11, M15 and M16. These structures represent the first period which clearly corresponds to Islamic times on account of the ceramic ware and a coin found above Level 8, which we can designate as the Early Islamic II period.

While M11, M15 and M16 seem to be fortification walls, M7 was built in a semi-circular shape to contain the collapsed structures of Building A and, in all probability, the mud and debris that would have washed down the hillside. This semicircular shape of M7 was exploited in the Early Islamic I period to create small chambers bordered by M7 itself, M8, M27 and M28.

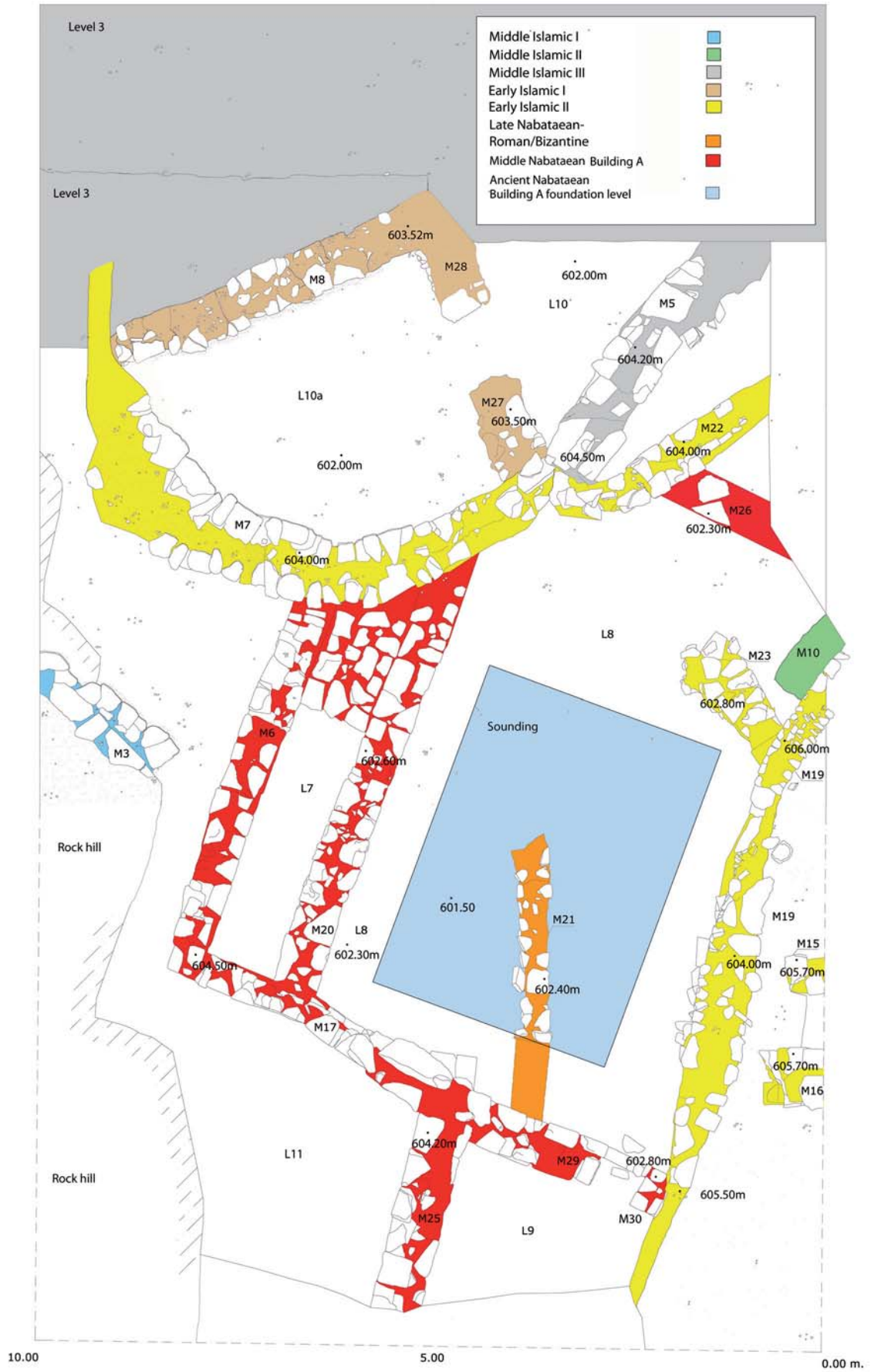


Fig. 69. Plan of the structures excavated and the relative chronological phases

The ceramic ware found to date does not allow us to give a comprehensive dating of the Early Islamic levels; they have to be provisionally dated to the very ample chronological span stretching from the 7th to the 16th century AD.

The oldest levels identified to date can be clearly separated from the more recent structures thanks to the presence of a large accumulation of discarded gravel which covered up all the Early Islamic structures. This deposit, Levels 3a and 3b, sealed off all the earlier levels and acted as the foundation for the later structures. We can thus attribute the substantial deposit of gravel to a Middle Islamic III period.

The new structures built along the eastern flank of the hillside are much more modest than Building A and the Early Islamic structures in both their proportions and construction techniques. The first structure to be built on top of Level 3 was M10, a long wall probably put up to contain the gravel deposit. In fact M10 runs north-south parallel to the flank of the acropolis. We can date M10 to a Middle Islamic II period, followed immediately by the construction of a small building L6, probably to house cattle or perhaps a hearth. This little structure was built right on top of the layer of gravel, against M10, denoting a very modest occupation employing the existing structures. L6 can thus be ascribed to a Middle Islamic I period. M3 and L2, and also M5 and L3, can all be dated to this period. These were ground surfaces outside L6 built on top of the layer of gravel as paths along the flank of the hillside and round the little building. We can date these Middle Islamic phases to a period between the 15th and 18th century AD on the basis of the presence of two Ottoman pipes found in the accumulation of wind-blown sand (Level 2) which covered all the Middle Islamic (and hence older) structures buried in the sand.

The most recent period we have identified, relating to wall M1 built on Level 2, can be dated to a Late Islamic period. It is interesting to note that the oldest photos of the site of Dûmat al-Jandal and Mârid Castle, taken at the beginning of the 19th century, show the eastern flank of the hillside with none of the structures we have excavated visible.

The Western Enclosure Wall

Sector C

**Guillaume Charloux, ‘Abd al-Hâdî K. al-Tirâd,
Ahmad ‘A. al-Qa‘îd, ‘Abd al-‘Azîz I. al-Dâyil,
Thâmir ‘A. al-Mâlikî, Andrea Marcolongo,
Quentin Morel, Dar‘ân M. al-Qahtânî,
Mansûr H. al-Qahtânî, Jérémie Schiettecatte
& Pierre Siméon**



The Western Enclosure wall

Sector C

Guillaume Charloux (CNRS, UMR 8167), ‘Abd al-Hādî K. al-Tirâd (SCTA),
Ahmad ‘A. al-Qa’îd (SCTA), ‘Abd al-‘Azîz I. al-Dâyil (SCTA),
Thâmir ‘A. al-Mâlikî (SCTA), Andrea Marcolongo (CNR),
Quentin Morel, Dar‘ân M. al-Qahtânî (SCTA), Mansûr H. al-Qahtânî (SCTA),
Jérémie Schiettecatte (CNRS, UMR 8167) & Pierre Siméon (CNRS, UMR 8167)

Sector C is located roughly 3 km west of Qasr Mârid, historical center of Dûmat al-Jandal, where the Saudi-Italian Project concentrated its efforts in 2009 and 2010.

The site is a large bottle-neck about 340 m wide and 2.5 km long, representing the mouth of a branch of the wâdî al-Sîrhan. The corridor is lined to the north by a blue-grey limestone plateau (**Figs. 1-2**) and to the south by an impressive orangey outcrop which dominates the area, 70 m above the structures in the valley (**Fig. 3**).

Southward lies a depression of a few meters between the rocky outcrop and a broad flat desert plateau. It is also worth mentioning here the presence of a rocky limestone hill ten meters high in the southeast corner of the valley.

Research begun in 2010 by the Saudi-Italian-French project has revealed a wall more than 2.5 km long, in places preserved to more than 4.5 m high, which closes off the bottom of the valley and goes up onto the adjacent plateau. This is probably the rampart mentioned by Wallin in 1854¹: made of mud-brick, it was according to the author built by “*Alukeidir*”, hence its name “*Amarat el-Okeidir*”². The itinerary used by Huber to reach the fortifications and his description correspond to those of Euting³. The latter noted that the rampart was built of stone and that there was a narrow doorway (**Fig. 4**).

1. Wallin 1854: 145.

2. Huber 1886: 48.

3. Euting 1896: 125.



Fig. 1. Satellite image of Sector C (north on top, **see fig. 7**), GeoEye-1 © GeoEye; <2011>; Distributed by e-GEOS (for GE-1 and IKONOS)



Fig. 2. Sector C (rempart units 2-3 and 8), looking north-west



Fig. 3. Sector C, looking east

The place names provide some additional information.

The basin to the west of the enclosure is called Hasîa (or al-Hasja'/Hasiya)⁴: according to Musil⁵ there were ruins here identical to those of Qasr Mârid.

The high limestone outcrop to the south is called “Rijm el-Burj”, the “ruins of the tower”⁶. Logically one can assume the presence of such an edifice on the rocky outcrop. The initial survey of the area in 2010 did indeed note the presence of thick stone walls belonging to a large structure on the edge of the outcrop, which we will study in the next season (**Fig. 35**). Additionally, al-Jâsir reports a local tradition that mentions the existence of two gateways in the oasis: the first called al-Nuqayyib and the second al-Burj, which confirms the previous observations⁷. There was a chain which when pulled by visitors warned the guards of Qasr Mârid, then those in the area. A third gateway, known as “al-Husseïn’s”, mentioned by Guarmani⁸, provided access to a village of the same name to the west of the oasis.

The enclosure was noted in 1976 by the Mc. Adams team (site numbered 201–18)⁹. Archaeologists describe a dry stone masonry wall with a mud-brick superstructure of approximately 750 m x 400 m, emerging on the surface. The surface sherds dated to the Nabataean or Roman period, according to the excavators.

In 1986, a segment was exposed by the Saudi team directed by al-Dâyil¹⁰. They called the site “Bâb al-Rawdha”, probably from the name of the area of origin of the inhabitants of the neighbouring village. Only an axiometric projection (**Fig. 5**), a schematic section and plan, and three photographs of the area have been published so far. The surface pottery collected dated to the Nabataean period, according to the excavators.

4. Huber 1886: 48; Carruthers 1922: 414.

5. Musil 1927: 467.

6. Huber 1886: 49; Euting 1896: 125; Musil 1927: 467.

7. al-Jâsir 1981: 144 (personal communication of ‘abd al-‘Azîz bin Sâkit Âl-Wârid).

8. Guarmani 1866: 134.

9. Mc. Adams *et al.* 1977: 38, pl. 9.

10. al-Dâyil 1988: 40–41.

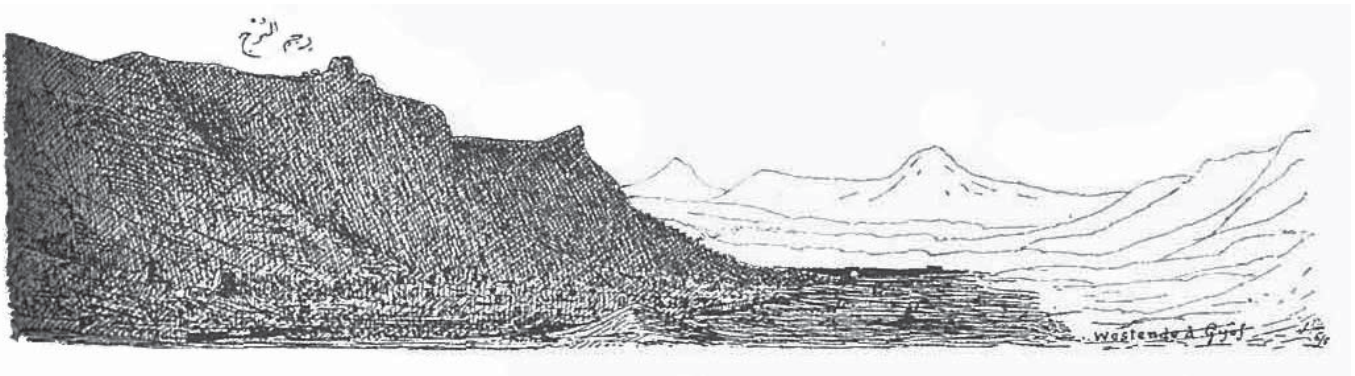


Fig. 4. Drawing of the Western Area of the Oasis (Enclosure wall at the bottom of the valley) by Euting (1896: 139)

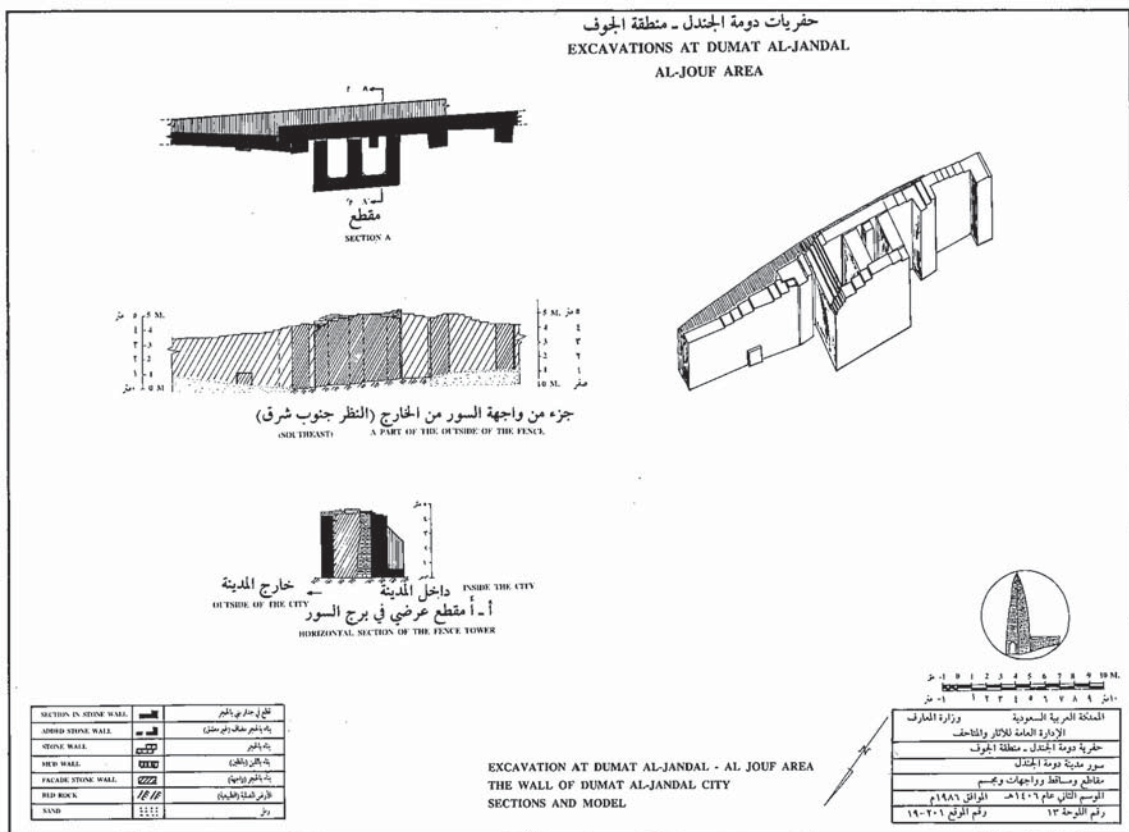


Fig. 5. Study of a segment of the enclosure in 1986 (Atal 11, 1988)

Methodology

In view of these preliminary data, the archaeological project of Dûmat al-Jandal set itself four objectives for the study of Sector C:

1. Drawing the enclosure wall in plan for the first time, and surveying the encircled area and immediate surroundings;
2. Studying the wall: techniques, function and dating of its construction;
3. Identifying archaeological remains in the area surrounded by the enclosure, and conducting chrono-stratigraphical soundings;
4. Clearing segments of the enclosure for promoting tourism development, at the request of the Department of Tourism and Antiquities of Saudi Arabia.

Five projects attempted to meet these objectives in 2010:

1. Topography of the site with a differential GPS;
2. Archaeological sounding 1: study of the enclosure section;
3. Archaeological sounding 2: cleaning up of a long water retention wall (?) located west of the enclosure wall;
4. Archaeological sounding 3: opening of a chrono-stratigraphic survey inside the enclosure;
5. Clearing of north-south facades of an enclosure segment on a distance of about 80 m.

Registration System

The registration system used in the excavation of Sector C was adapted from that established in 2009 by the Italian team (Sectors A and B). It is therefore very close to it. Together with Romolo Loreto, we decided that the entire sector C will be numbered 2000. We chose the following numbering to correspond as closely as possible to the system already used by the Italian team:

- . The walls are numbered from M2001 up to M2XXX.
- . The loci (any type of structure other than wall) are recorded from L2001 up to L2XXX.
- . The identified layers are numbered DJ.10.C.2000 (DJ for Dûmat al-Jandal, 10 for 2010, C for the sector and 2XXX for the layer number) up to DJ.10.C.2XXX [note that, in the surveys and descriptions that follow, we have only indicated the final number for convenience]. It is important to add that the number of the excavated layer (DJ.10.C.2XXX) corresponds to the number of so-called “Zanbil” (or bucket) in sectors A and B (DJ.10.B.2XXX). All important layers were sieved with an 7 mm mesh.
- . Similarly, diagnostic ceramic sherds were numbered DJ.10.C.2XXX-1 up to X, depending on the number of the layer in which they occurred.
- . An O. was added to the objects (DJ.10.C.O.2XXX-1 up to X), while P denotes the samples (DJ.10.C.P.2XXX-1 up to X).

The descriptions of 19 walls, 16 loci, 49 layers, 85 diagnostic ceramic sherds, 2 objects and 10 samples were recorded in 2010 in four databases File Maker Pro (Walls, Locus, Individual sherd, Objects) plus a relational database (Zanbil-layer, **Fig. 6**). All these data can be imported into Access format, so as to integrate the different databases (Sectors A and C). The 742 photographs taken on the field were also entered into a relational database FMPro (**Fig. 6**), based on those established at Madâ'in Sâlih and Najrân using an original model developed by Jérôme Hacquet (CNRS, UMR 9993, Musée Guimet).

After cleaning by a workman, the ceramic ware from sector C was classified, photographed, drawn and stored by P. Siméon, ceramologist and archaeologist. The drawings were checked by G. Charloux. Descriptions were entered into the database by G. Charloux.

The plans of the three soundings of sector C were made by photogrammetry, by Andrea Marcolongo, architect, using vertical photographs taken from a metal rod. The benchmarks were taken on the field by G. Charloux and A. Marcolongo, with a total station Leica TCR 407. The import and calculations were performed by G. Charloux on *Autocad* and *Covadis*. The readjustments and drawings were made by A. Marcolongo, with verifications by G. Charloux.

The topographic survey of Sector C and the enclosure was completed by Quentin Morel, surveyor, using a differential GPS Leica 500 (**Fig. 5**). The drawing was carried out on *Autocad*, and then verified on the field by G. Charloux, who also drew a number of cross sections of the enclosure.

Recorded by (name): SCHIETTECATTE

Layer DJ.10.C/ 2 022

Square:

Top levels (in m):

Bottom levels (in m):

RELATION TO OTHER layers:

This layer is under:

This layer is over:

It equals layer:

It is contaminated by layer:

It is a sublayer of:

It has sublayers:

This layer is part of locus:

This locus abuts wall or locus:

Shape number	Paste	Form	Part	Diam
2022-1	P2	Jarre	Bord	14
2022-10	P2	Jarre	Bord	8
2022-11	P2	Bol	Bord	13
2022-12	P2	Bol	Bord	13
2022-13	P2	Bol	Bord	13
2022-14	P2	Cruchette	Bord	4
2022-15	P2	Coupe	Panse	20
2022-16	P2	Coupe	Bord	17
2022-17	P1	Jarre petite ?	Base	6
2022-2	P6 ?	Jarre	Bord	12
2022-3	P2	Coupe	Bord	23
2022-4	P2	Coupe	Bord	23
2022-5	P6 ? Marron gris	Coupe basse	Bord	20
2022-6	P2	Jarre	Bord	18
2022-7	P2	Bassin	Bord	21
2022-8	P2	Bassin grand	Bord	40
2022-9	P2	Bassin	Bord	22

Material

18 shapes (+ 2 handles not drawn)

+ 56 sherds

3 sherds with decoration

6P1 + 28P2 + 2P4? + 3P3 + 14 P2B

Bones : 1 bag (os carbonisé, esquilles)


Object number total **Material** **Function**

DESCRIPTION and other comments:

Located in the S half of the 10m-large sounding ; this layer has been partly disturbed by the digging of a square whole for the setting up of a concrete block and pipes (approx. 1m large x 1 m height = UF 2023).

Aeolian accumulation of sand mixed with fallen stones and mudbrick fragments.

This layer covers a melted mudbrick *massif* on the southern half of the SW quarter, a east-west trench in the middle (UF 2023), aeolian and ashy sand in the NE (UF 2025). It merged with aeolian sand layer UF2024.




Dûma

N°image: Région: Année: a,b,c...:

DJ 2010 a 0284 = DJ2010a0284 284

Auteur photo: Fiche saisie par: Photo type:

Actualiser le lien Images



Date & heure de création: 19:13:16

Légende Pierre and Quentin near a monumetal wall in the oasis around 300 m west of area A

Catégorie Oasis

Description complémentaire:

Dimensions

Longueur:

Hauteur:

Largeur /haut. lettres:

Inscription

Arabe:

Thamoudeen:

Sud-arabique:

Hébreu:

Point GPS le plus proche:

Nom du site Dûma

N° inscription:

Latitudes (y):

Longitudes (x):

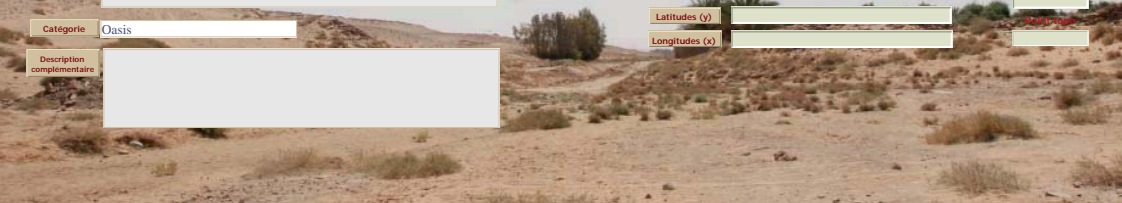


Fig. 6. FMPro Database of layers (top) and images (bottom)



Fig. 7. Simplified plan of sector C

Description of the enclosure wall

The enclosure wall is composed of 9 units (**Fig. 7**), divided more or less arbitrarily based on a visible break or “bend”.

Its western part (units 2–3) was built in the depression formed by the valley, at an average elevation of 611 m above sea level, and it follows the edge of the limestone plateau (unit 4) to the north at an elevation of 619 m (**Fig. 1**).

To the south (units 1, 6 & 7), the wall divides and goes diagonally up the east and west slopes of the limestone outcrop, climbing from an elevation of 620 m to an average of 664/668 m. The two walls meet again at the top, for a distance of about 500 m, but they do not enclose the whole outcrop. In the centre of the outcrop, a tell seems to form the very top of the archaeological site, at an elevation of 683 m.

To the east of Sector C we found no trace of a north-south wall limiting the enclosure. On the contrary, since we exposed the stone foundation of a wall measuring 1.2 m thick running eastwards beyond the area studied, this could indicate the continuation of the enclosure eastwards as well as the inclusion of a much larger zone than previously thought.

An interior enclosure wall (unit 8) follows the base of the outcrop, running east-west, thus subdividing the enclosed space: to the south, a sort of naturally defended acropolis, and to the north, a more or less flat and very extensive lower town. The whole covers an area of about 36 ha.

This monumental enclosure is composed of two abutting walls, apparently contemporaneous, one of cut stones and the other of mud-bricks on stone foundations, both of which display structural creativity and much variety in the masonry. The enclosure seems to have been built in sections, according to a technique well known in the Arabian peninsula (**Figs. 80-81**). Seven quadrangular bastions and about fifty buttresses, which complete the defensive system, were found in 2010.

A. The western wall (units 1-3)

The western wall, between the outcrop and the limestone plateau, is divided into three units:

Unit 1

The first unit (**Fig. 8**) consists of the oblique wall ascending the rocky outcrop on its north side (**Fig. 9**). Although badly damaged due to the steep slope - the slope is indeed extreme: 44 meters in altitude over a horizontal distance of 82 meters, an average of 54% - the wall still stands at up to a height of 1 m in some areas. It measures between 90 cm (bottom of the slope) and 70 cm (top) in thickness and 113 m in length.

The wall is easily identified from the base of the outcrop, where it seems to reach the south face of the inner wall (unit 8), a few meters east of the angle formed with the second unit. It also makes the connection with the unit 7 on top of the rocky outcrop.

Like the descending wall to the eastern end of the outcrop (unit 6), it is composed of a single wall without a second structure added internally. The wall is made of courses of limestone blocks recovered nearby, then cut. The courses are positioned horizontally and not in the direction of the slope (**Fig. 10**). The angle of what appears to be an exterior buttress was identified half way down the slope.

Unit 2

The second unit consists of a wall measuring 101 meters in length, approximately with the same north-south orientation and in the same alignment as the previous unit (**Fig. 11**). We have identified only the top of the emerging wall and a few portions, due to the sand dune in the area (**Fig. 12**).

The segment, slightly curved, is formed by two abutting walls, but with strong variations of masonry, like what was observed further north.

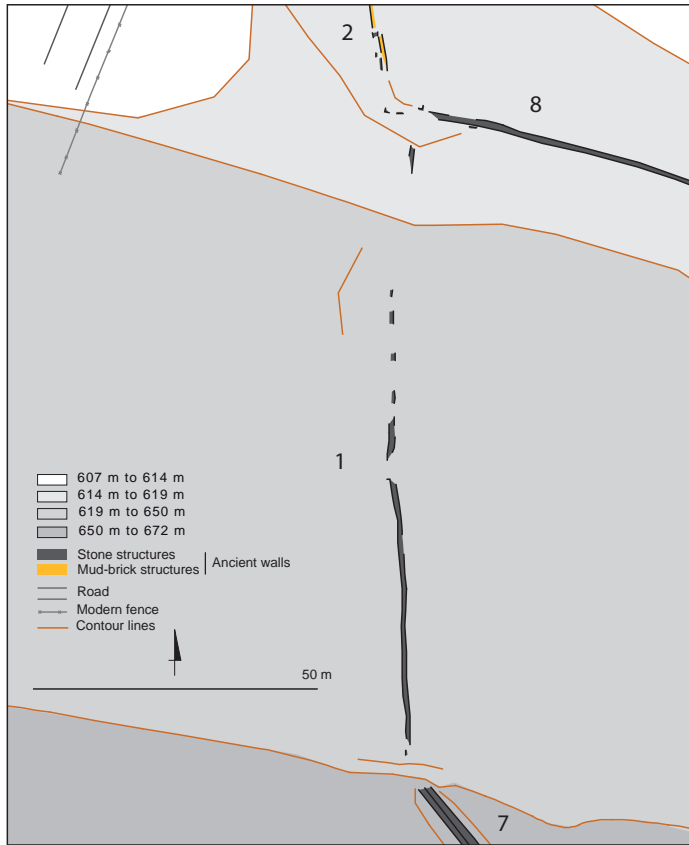


Fig. 8. Topographic plan of unit 1, looking south



Fig. 9. Unit 1, looking south



Fig. 10. Masonry of unit 1, looking west



Fig. 11. Alignment of units 1 and 2 of the western wall, seen looking north

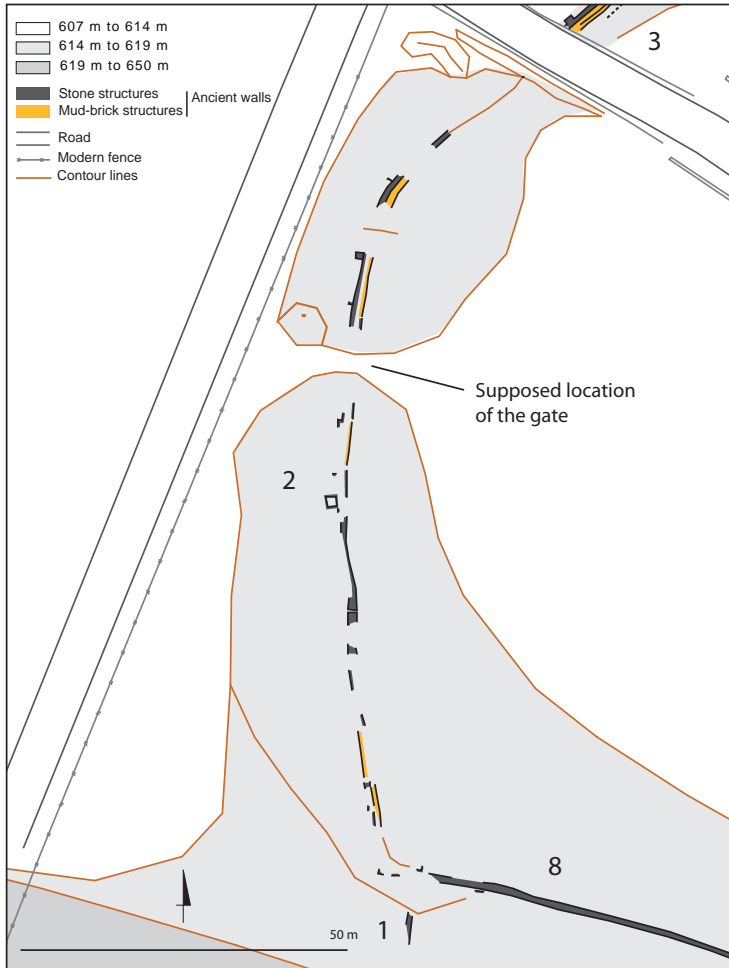


Fig. 12. Topographic plan of unit 2



Fig. 13. Depression (gate?) located in unit 2, looking south-west

At least three buttresses and a stronghold - a type which will be detailed below - were identified.

In the central part of the unit, a strong depression marks the site of a former passage (**Fig. 13**). It could be the location of the western gate of the oasis.

Unit 3

The third unit (**Fig. 14, Figs. 80-81**) is connected to the second, but is set at a significant angle (61°). The wall here is oriented south-west north-east (**Fig. 15**). About 320 m in length, it is not quite straight but curves slightly to the west. Pierced in two places - in its southern part by a modern asphalt road running east-west and in its northern half by the wādī and a deep pit dug by mechanical diggers - a stretch 80 m long was cleared this year and each break of the masonry was carefully studied (**Fig. 16**).

In general, the enclosure wall is composed of two adjoining walls, one entirely in stone (limestone), the other in mud-brick (brick size average: 37-39 x 23-25 x 11-12 cm) with a foundation in stone (limestone) (stones size: small = 8 x 4 cm; medium = 33 x 9 x 16 cm; large = 67 x 26 x? cm). However, these general features are often distorted by architectural modifications, orientation changes or the addition of structures such as strongholds and staircases.



Fig. 14. Western wall unit 3, looking east

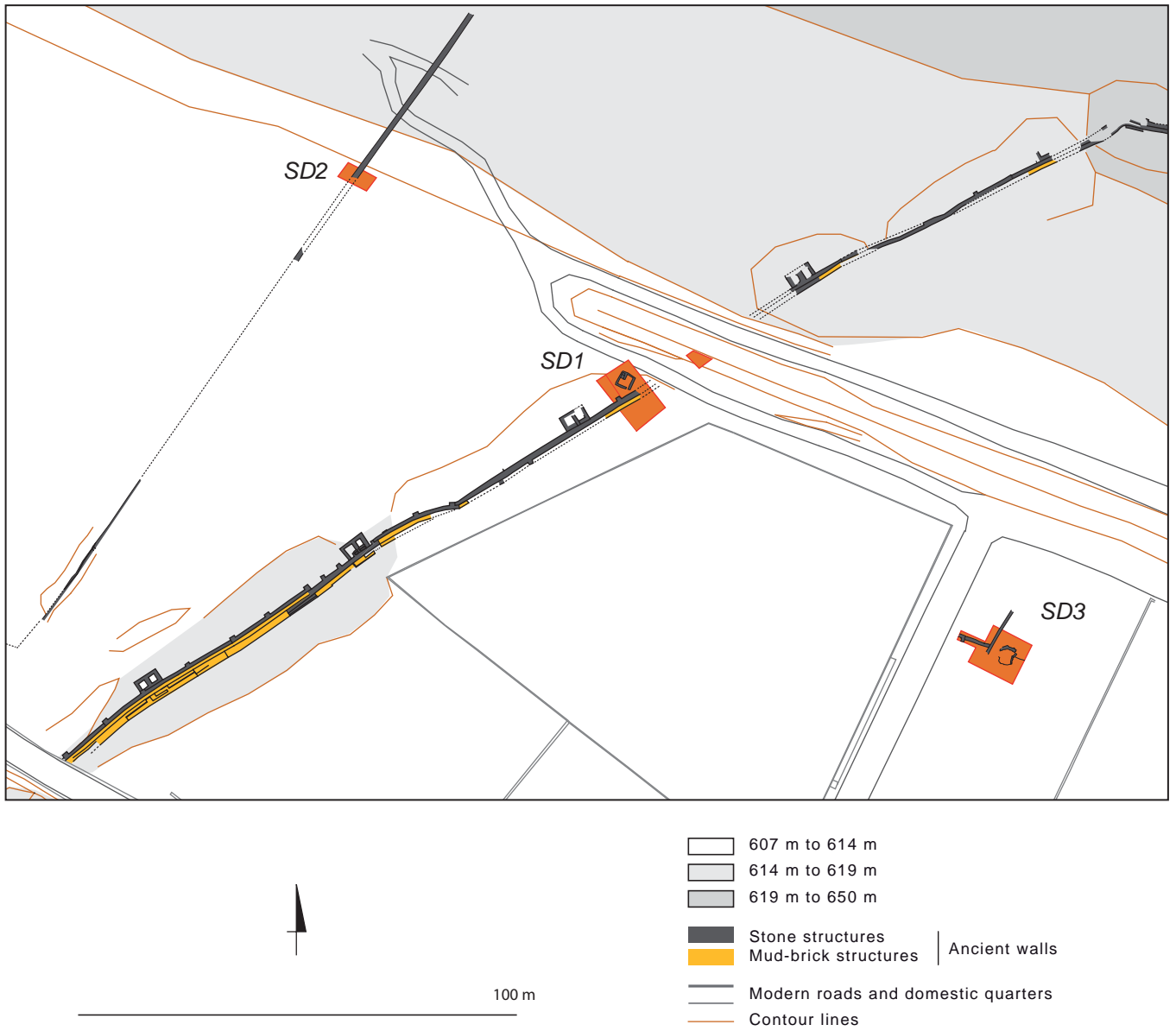


Fig. 15. Topographic plan of unit 3



Fig. 16. Western wall unit 3, looking south



Fig. 17. Strongholds of the western wall

Both walls appear to have been constructed in sections rather than continuously. This seems to be indicated by the many architectural cuts in masonry, seen both in the brick wall and in the stone wall - when cuts are observed, they never come at the same place across the whole thickness of the wall. This is also suggested by the many changes in masonry at strategic locations: a stone wall is added in the mud-brick wall elevation, or two sections of stone wall are overlapping, etc.

The face of the exterior stone wall is mostly vertical, except when there is a *inner-batter* probably due to pressure exerted against its inner face. The eastern face of the mud-brick inner wall has however a marked *batter* (up to 15 cm by 1.50 m).

Thirteen exterior buttresses, one interior buttress and six strongholds were identified during our survey.

The stone buttresses have variable dimensions (thickness by length: 1.20 m x 0.50 m up to 0.90 x 1.00 m). They are preserved on the same height as the stone wall, and are very often linked to it, either by a linking foundation or by adding slabs obliquely positioned forming triangular « shelves » in the gap between the two structures (**Fig. 17**). The buttresses seem more numerous in areas where the wall is fragile. They do not seem to be regularly positioned along the architectural unit.

The study concerned primarily four of the six strongholds which are more apparent and better cleared. The strongholds are arranged approximately uniformly along the exterior of the wall, every 50 to 57 m. There is no doubt that an impression of regularity was desired, although the distances are approximate. They measure about 6 m long and 3 m to 3.50 m thick. Four walls constitute the sides of each stronghold; the fourth is often directly contiguous to the face of the exterior stone wall of the enclosure. Sometimes the sides of the strongholds meet directly the enclosure face without the addition of a fourth face to the stronghold. An interior wall, linked perpendicular to the outer face of the stronghold, creates a subdivision of space within the structure into two approximately square (1.50 m) or rectangular (2.80 m x 2 m) boxes (**Fig. 18**).



Fig. 18. Stronghold's box cleared in 1986, looking east



Fig. 19. Architectural cut between a stronghold and the western enclosure wall unit 3



Fig. 20. Staircase in the eastern face of the western wall unit 3, to the left, looking west

These strongholds are usually located at positions of weaknesses of the enclosure wall masonry which presents marked *batters*. Thus the strongholds reinforce the exterior face of the enclosure wall, with a *inner-batter* which abuts the *batter* of the enclosure wall (**Fig. 19**). They are also sometimes added to a buttress already in place.

The strongholds were always added to the enclosure wall in a second stage of construction, as indicated by the long architectural cuts visible between the two structures. No stronghold is therefore linked to the enclosure.

The presence of large blocks positioned horizontally between the walls of the stronghold, held above the empty boxes show that the floor level of the first floor (?) of the stronghold was probably at the height 616.80 m in this sector. It is therefore 4.40 m above the level of the clearing of the base reached to the west.

We observed signs of recent restoration (cement) on the two strongholds cleared in 1986.

Two mud-brick staircases located on the inner side of the enclosure wall, behind two strongholds, were cleared this year. The first remained in the open air since the excavations of al-Dâyil, and suffered much from erosion. The second, to the south, has been better studied, although we have not fully reached its steps under a mixed layer of mud-brick and eolian sand, preferring to await the development of a preventive conservation program (**Fig. 20**).

The construction of staircases required major adjustments, as the south staircase (the only one whose faces have been cleaned) was installed on a kind of large mud-brick step on top of a stone foundation. This step belongs to the masonry of a large wall that appears contiguous to the enclosure wall. In this location, the mud-brick elevation of the enclosure was removed, creating two regular steps and freeing space for the implementation of the staircase. The staircase is 4 m long and 1.25 m thick. It abuts the eastern face of the mud-brick enclosure wall. Its exterior wall is 50 cm thick, and the steps are mud-brick.

B. The northern wall (unit 4)

The northern wall (unit 4, **Fig. 21**) was joined by the western one (unit 3) on the crest of the northern limestone plateau, with a strong slope going from 608 m to 624 m in altitude (**Figs. 22-23**). The two walls form a bend, not a marked angle.

The north wall has unfortunately not been studied in detail, since it is still covered by tons of rubble and sand. We can however easily follow it over a length of 740 m, where it is built in a straight line (**Fig. 21**). The exterior stone walls, and few segments of the interior mud-brick wall, as well as some connected structures, emerge to the surface. At this stage of the study we have identified 27 buttresses (26 rectangular and one curved) linked to the exterior face of the enclosure wall, and 7 buttresses facing the inside wall. Plus two large rectangular structures, perhaps staircases, on the inside.

According to the topographic map of the site, the wall is preserved here to a height of only 2 or 3 meters.



Fig. 21. Northern wall line (unit 4), from the west

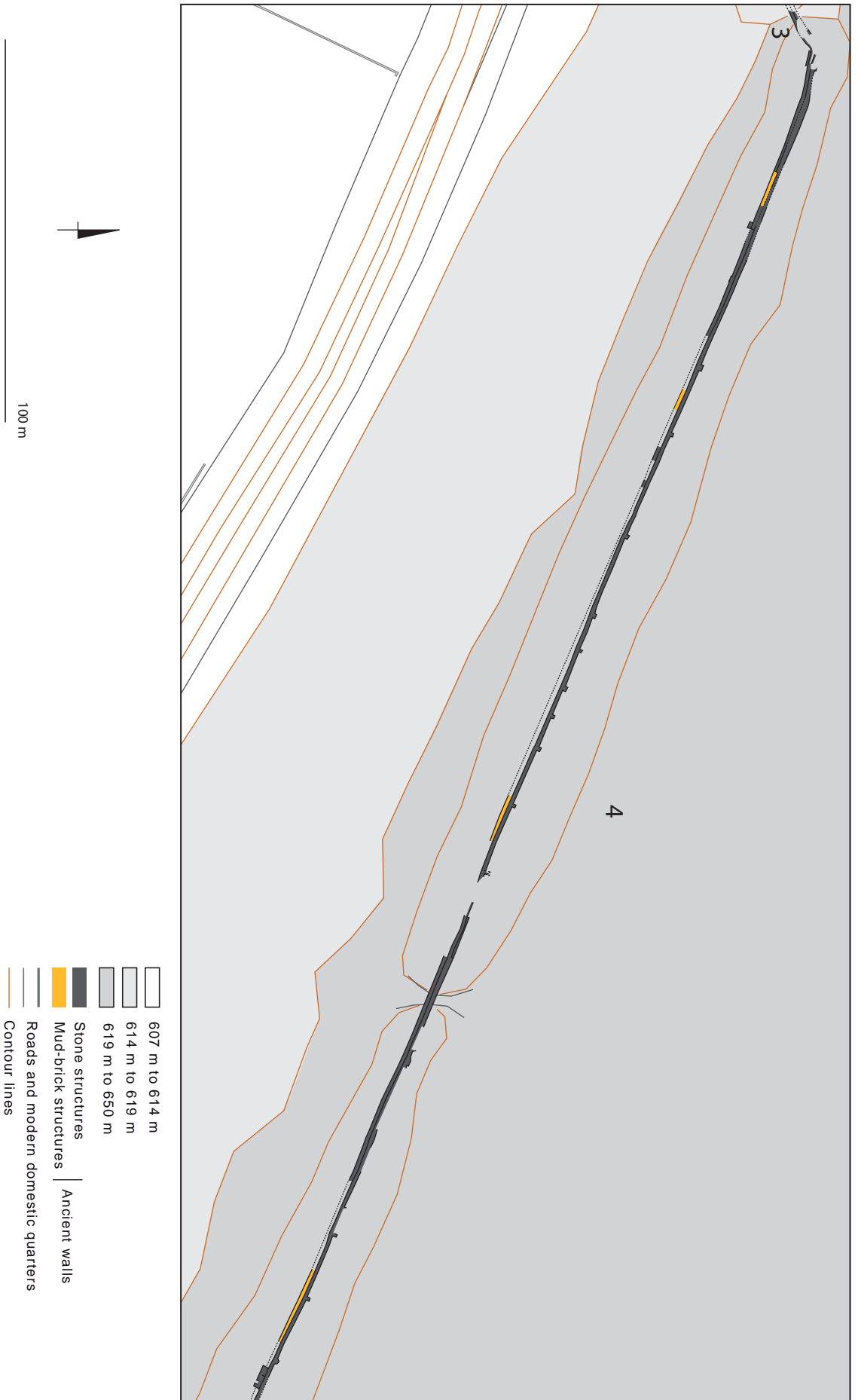


Fig. 22. Topographic plan of unit 4 (western part)

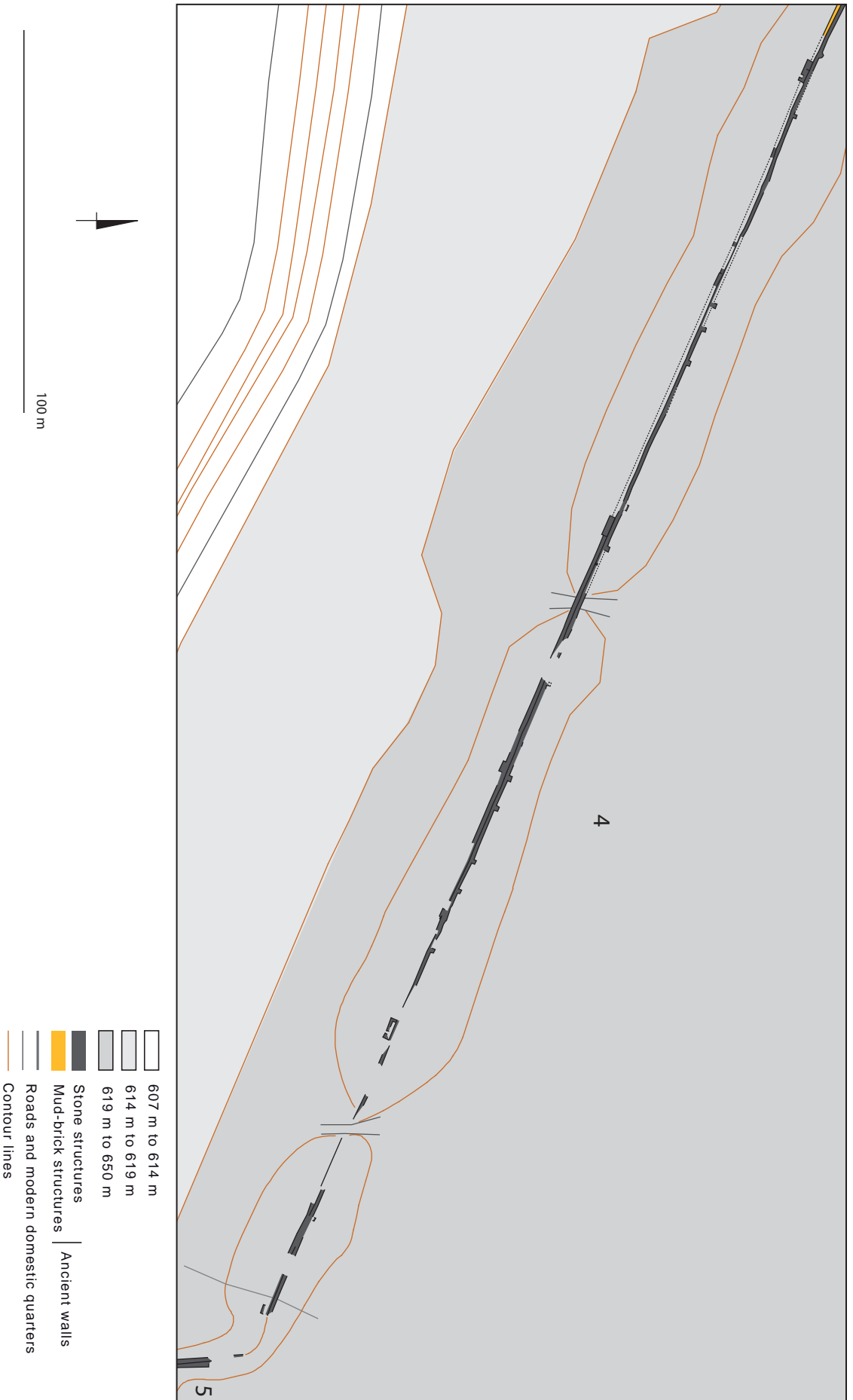


Fig. 23. Topographic plan of unit 4 (eastern part)

C. The southern wall (unit 7)

The southern wall (unit 7) has been observed over a length of about 490 m on top of the orangey rocky outcrop overlooking the oasis (**Fig. 24**).

Here it is difficult to ascertain the location of the wall as it appears as a linear cluster of blocks of stone (**Figs. 25-26**). Two adjoining walls (1.20 m thick internally and 1 m thick outside) were nevertheless identified in this area, as in the previous ones. It is possible that the elevation of the interior mud-brick wall disappeared; the height of the surviving wall is no more than two meters. Only one buttress has been registered.

Contrary to what one might expect, the wall does not follow the edge of the cliff and does not surround the whole of this strategic position (**Fig. 27**). Only three quarters of the top surface of the outcrop come inside the enclosure. This latter is not straight but slightly curved in this area; it joins the western wall (unit 1) to the north-west and the eastern wall (unit 6) where the flank of the outcrop begins to fall away.



Fig. 24. Southern wall line (unit 7), on top of the promontoire, looking west

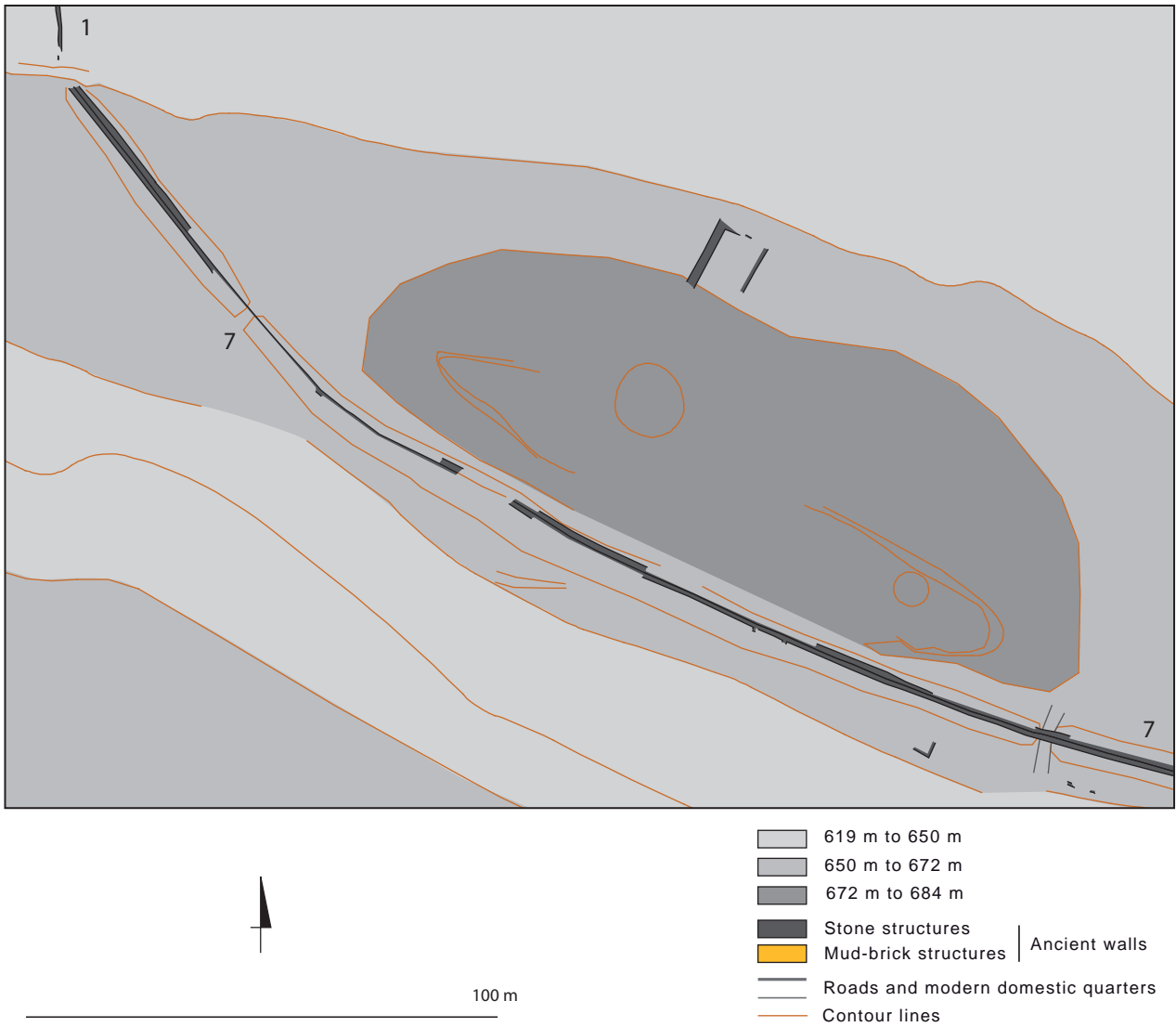


Fig. 25. Topographic plan of unit 7 (west)

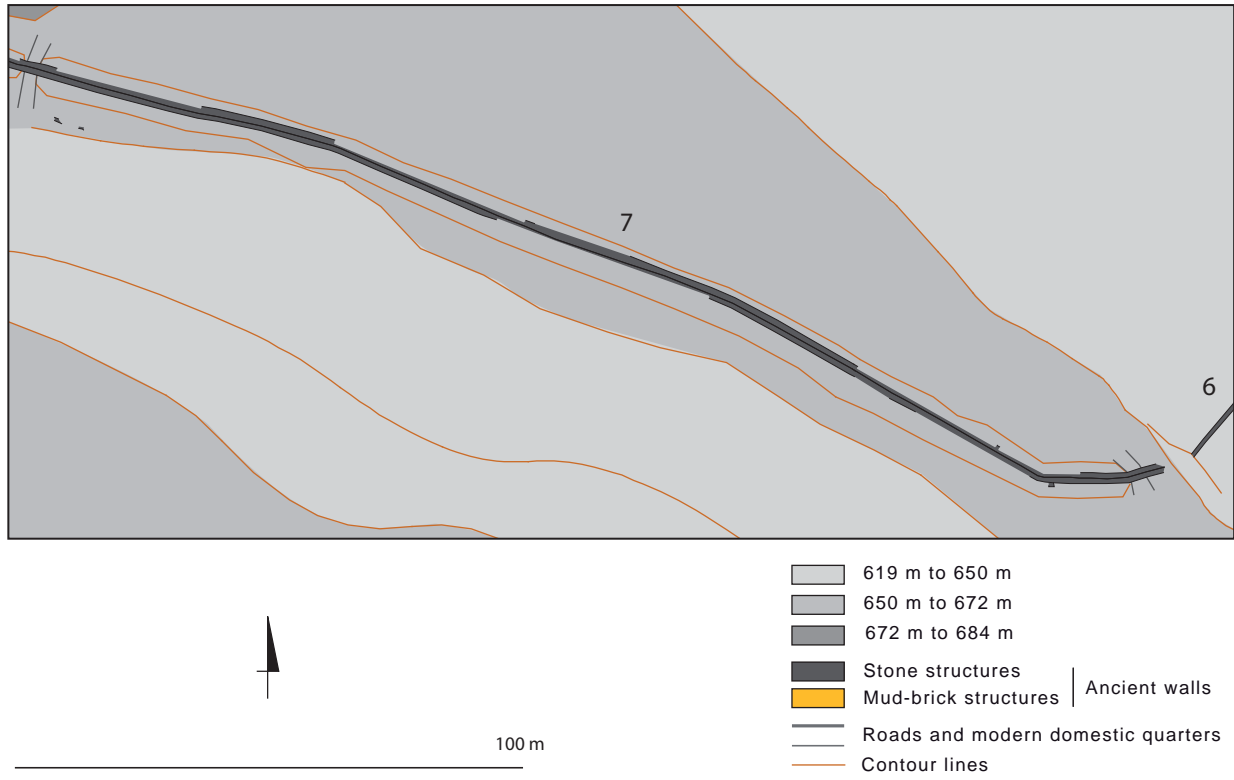


Fig. 26. Topographic plan of unit 7 (east)



Fig. 27. Southern wall line (unit 7), on top of the promontory, looking west

D. The interior partition wall (unit 8)

Before addressing the problem of the eastern wall (units 5-6), we should mention the existence of an internal partition wall (about 522 m long), skirting the base of the limestone outcrop (unit 8, **Fig. 28**). This long wall consists of two adjoining structures of which only the crests were observed (**Figs. 29-30**). It is widely covered by rubble, and we lose sight of its extension to the east before it connects hypothetically with a eastern wall down the flank of the outcrop (unit 6).

It seems to be conserved for more than 4 or 5 m at its junction with the western wall (unit 2), but no more than 1 m at its eastern end.



Fig. 28. Inner partition wall (unit 8), seen from the west



Fig. 29. Topographic plan of unit 8 (west)

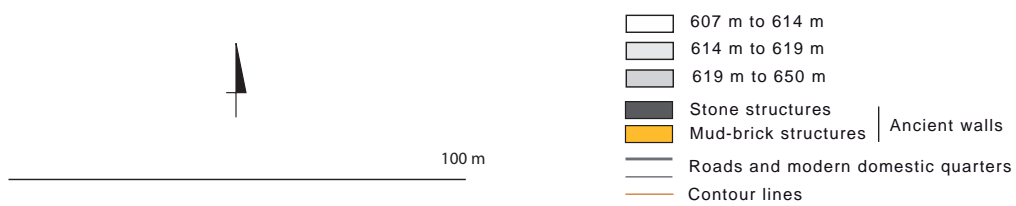
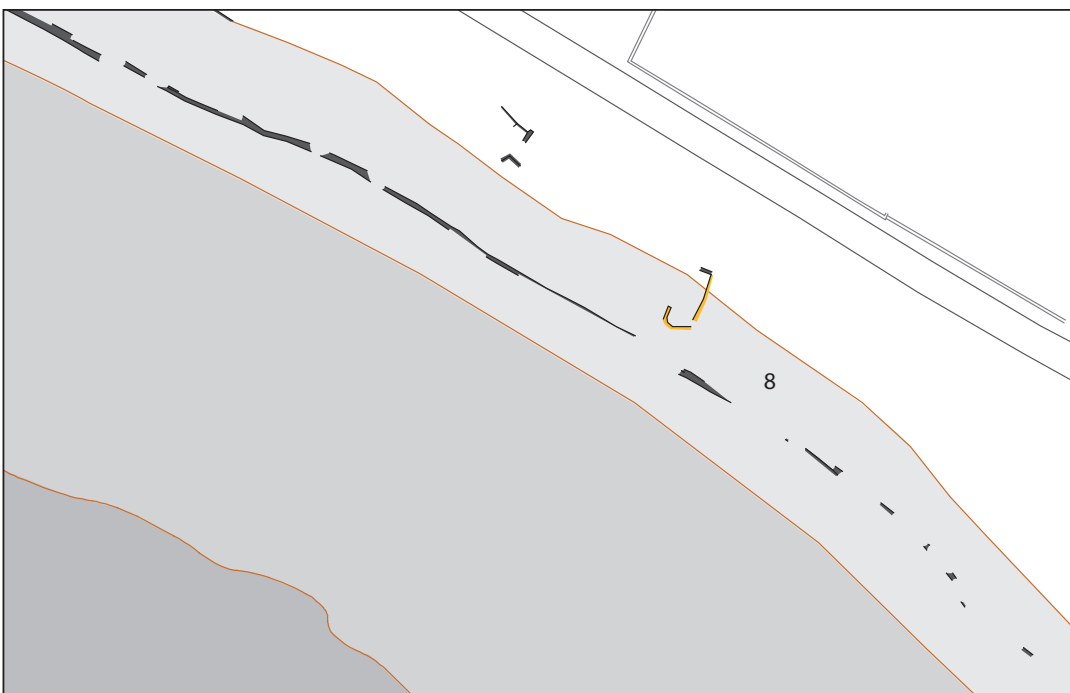


Fig. 30. Topographic plan of unit 8 (east)

E. The eastern wall (units 5, 6 and 9)

North and south of sector C, two walls go down the slopes of the plateau and of the outcrop obliquely with an obtuse angle:

Units 5 and 9

Unit 5 (**Fig. 31**), oriented north-west south-east, is connected to the northern enclosure wall (unit 4) with which it shares a similar building technique. One external buttress was observed. The segment is cut to the south after 56 m in length. However, on the last day of the study another segment of a broad east-west oriented wall came to light (unit 9, **Fig. 31**). Hidden by dense vegetation, it was cut by the modern north-south asphalt road. It measures 1.10 - 1.20 m thick, and extends over thirty meters to the east (**Fig. 32**). Its structure and its massiveness clearly correspond to that of other parts of the enclosure wall we observed to the west, although no mud-brick wall was seen. This discovery suggests a return of the enclosure wall at least 90 m to the east.

Unit 6

The 73 m long unit 6 descends the slope with a south-west north-east orientation, after being linked to the southern enclosure wall (unit 7, **Fig. 33**). This is a single wall, like its counterpart (unit 1) located north-west of the outcrop (**Fig. 34**). Its state of conservation is rather bad. We observe no more than a linear heap of stones; only one buttress was identified. The wall stops abruptly towards the north; and we searched in vain for any trace of extension. In contrast, about 20 m east (on private land) eight aligned stones emerge, that could well belong either to an internal partition wall, which would therefore extend towards the east, or to the extension of the eastern wall to the east, or again to a wall with no relation to the two previous ones. This seems to correspond to the situation seen north of the valley (units 5-9).

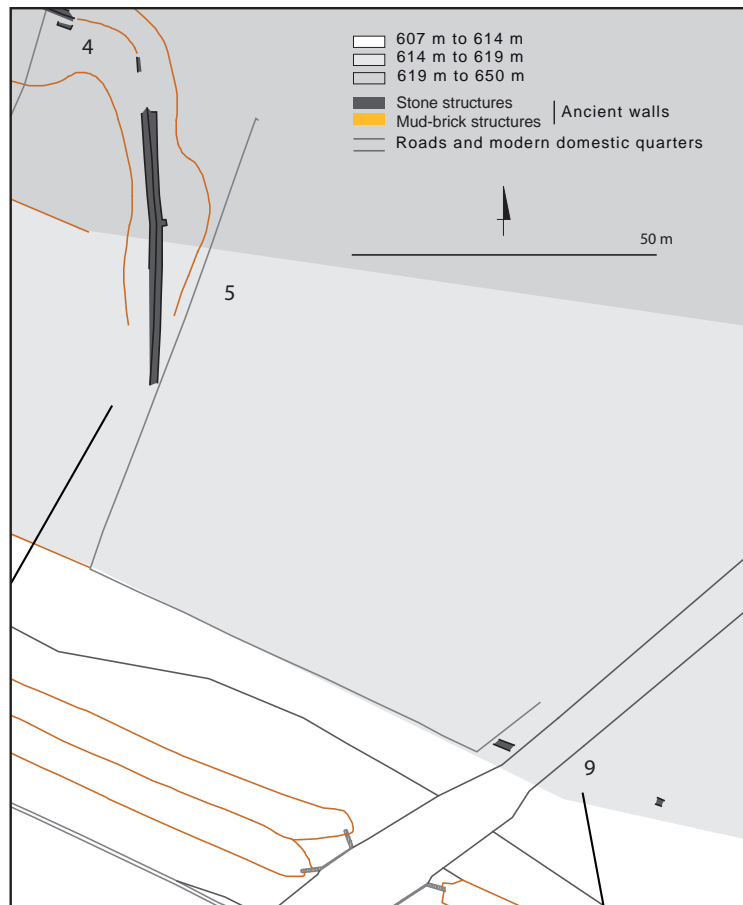


Fig. 31. Topographic plan of units 5 and 9



Fig. 32. Wall (unit 9) cut by the modern asphalt road, looking west



Fig. 33. Topographic plan of unit 6



Fig. 34. Eastern wall, unit 6, descending the promontory, looking south

F. The scattered architectural remains in sector C

A number of scattered architectural remains emerge from the surface in the enclosed area. Four concentrations of remains in particular were recorded:

The first concentration is located in the western end of the southern orangey outcrop. Illegal excavations were conducted in the past which revealed broad walls measuring 1.90 m across (**Fig. 35**). It could be a large tower or fort, as the term “*Rijm al-Burj*” would suggest. This area will be studied next year.

The second is located in the southeast sector, near the internal partition wall. Mud-brick elevations on stone foundations are here remarkably preserved.

The third appeared in the centre of the oasis in an empty space between farms. Five walls were visible under heaps of modern waste.

Finally, a few stone structures were observed in sections in the northwest part of sector C; they had been entirely cut by bulldozers during the construction of the road located near the water channel (**Fig. 36**).



Fig. 35. Large structure visible on top of the promontoire, looking north



Fig. 36. Stone walls in section (to the right) cut by loader's trench, looking west

Sounding I

The location of sounding 1 (**Fig. 37**) in the northern part of the site, in a sector that suffered severe floodings of the wâdî (**Figs. 7, 38**), was jointly decided with the local authorities (al-Jawf Museum, Regional Department of Antiquities). Here, a segment of the enclosure wall had been washed away. Any remains were irretrievably destroyed by the digging of a large (9-12 m) and deep (2-3 m) east-west oriented water supply pit which was recently excavated by mechanical diggers and bulldozers on the length of the entire site. A path, used by some cars, runs north along the sounding, while a farm closed by high fences prevents any extension of the excavations to the west.

The opening of a sounding (10 m side, then extended) at this location had a simple objective: to study the enclosure in section, firstly by examining the foundation technique and the masonry of the wall, and secondly by identifying the layers connected to the wall (destruction, floor, geological substrate, etc.) (**Fig. 40**).

The presentation of the results of sounding 1 follows five steps:

1. The geological substratum

Besides the clearing of geological eolian layers underlying the rampart, we performed a cleanup of the southern face of the recent water supply pit, in order to verify the nature of the substratum at this location. It appears that the bedding layers (**Fig. 39**) are natural, consisting of a succession of three thick homogeneous sedimentary formations, without archaeological material, each separated by thin layers of yellow sand (from bottom to top):

1. Greenish compacted sandy silt (2020, alt. sup.: ca. 609.30 m)
2. White limestone, dense and crumbly (2019)
3. White limestone, dense but crumbly (2019) below the surface

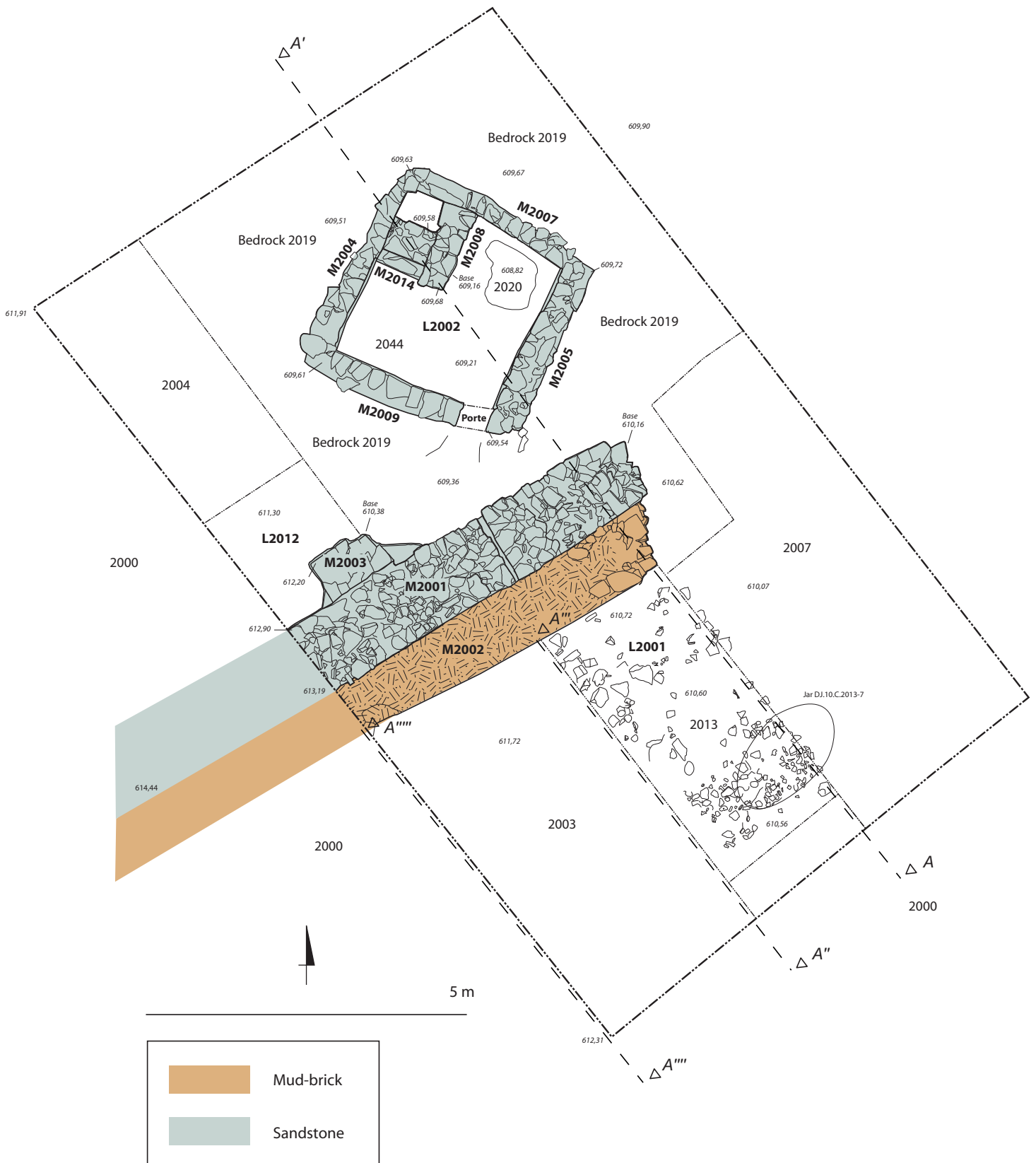


Fig. 37. Sounding 1 plan, sector C



Fig. 38. Sector C before opening of sounding 1, looking south



Fig. 39. Geological substrate, near sounding 1, looking south

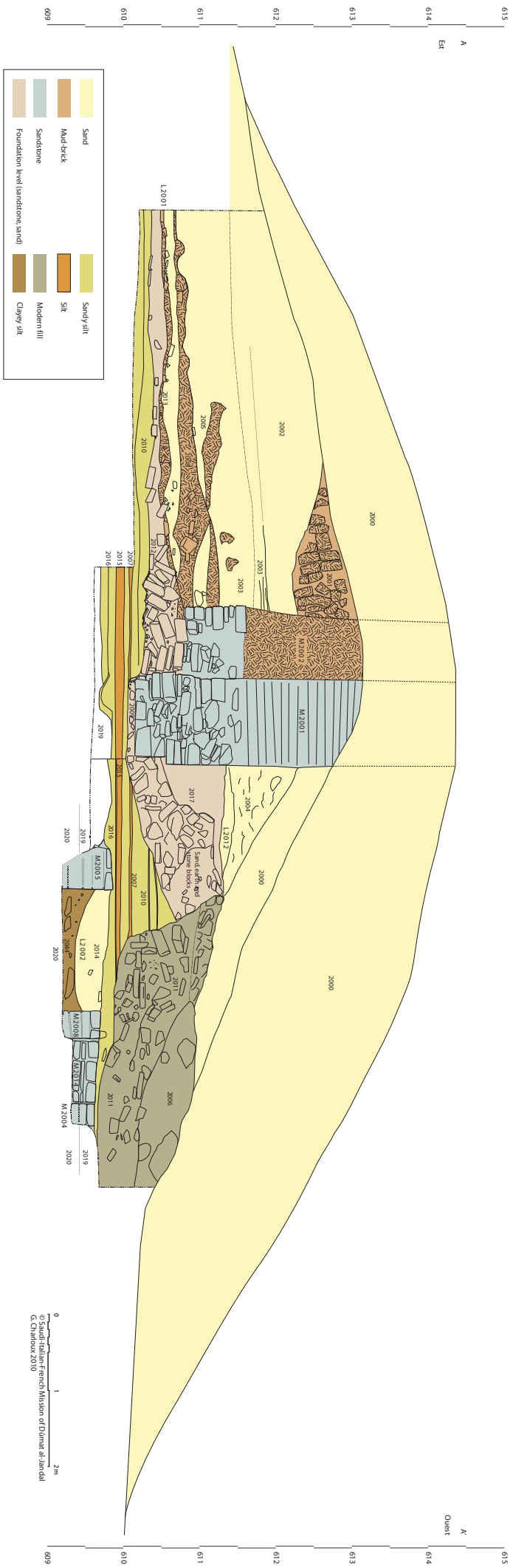


Fig. 40. Sounding I, transversal south section

2. The semi-buried building

One of the surprises during this first campaign was the discovery of a square-shaped building (L2002), that lies semi-buried in geological substratum (inf. alt.: 609.14 m) (**Fig. 41**).

A preliminary digging was conducted in hard layer 2019, and the walls of the structure were implemented at a similar altitude above horizontal layer 2020. Four dry stone masonry walls (M2004, M2005, M2007 and M2009) are linked at right angles, except in the southeast corner where the masonry stops, leaving a 47 cm gap for a door at a location where the geological substratum is absent (**Fig. 42**).

Within the rectangular space, the walls have a straight inner face, well built on 4 to 6 courses of blue-gray limestone. The descent of a few centimeters into geological substratum 2019, east of wall M2005 permitted however to highlight the highly irregular outer faces of the walls which abut the limestone substratum at a depth of 62 cm. The interior space, filled with two layers 2014 (eolian sand filling the above locus) and 2044 (mixed silty clay with few limestone blocks), is therefore located below the surface.

A square structure in the northwest quarter of building L2002 consists of two perpendicular walls M2008 and M2014, based on silt 2020 (**Fig. 43**). The structure looks like a staircase with two steps (although the former is significantly elevated compared to the level of foundation construction) and an empty space in the corner of walls M2007 and M2004. This function seems to be confirmed by the clearance of large thin blocks in layer 2033, which can be compared to cover slabs of a floor or a roof. The building could therefore resemble a sort of tower-house. All of the layers were sieved, but delivered only two sherds in the eolian sand 2014, giving a *terminus ante quem* for the construction, but not clarifying its function.

The southern part of the building appears to have suffered slightly more from erosion than the northern part, the latter being better protected by the limestone geological substratum. The entire surface elevation has disappeared.



Fig. 41. Building L2002, sounding 1, looking south



Fig. 42. Building L2002, sounding 1, looking north



Fig. 43. Base of a stairshaft, in room L2002, sounding 1, looking south

3. The eolian and alluvial accumulations

A large accumulation of eolian sand and alluvial silt deposited by the wâdî, about 1.50 m in height, covers the top of room L2002 (**Figs. 40, 44**).

We distinguished, from bottom to top, four sets of layers without material (alt. inf.: 609.58/ 36 m):

2016: compact yellow eolian sand on rock 2019, following the slope of the latter

2015: series of thin horizontal orange-yellow eolian sands, of fine gray gravel layers, and of 12 cm thick beige-brown silt.

2007: thin horizontal layer of beige-brown silty clay, on top of which wall M2001 was founded.

2010: series of thin horizontal layers of orange-yellow eolian sand.



Fig. 44. Accumulation of silt and eolian sand above building L2002 , sounding 1, looking south

It is impossible at this stage of the study to establish the duration of the hiatus of occupation between the destruction of the semi-buried building and the construction of the enclosure wall. The upper layer 2010 was partly removed in antiquity, and we do not know the maximum height of the alluvial and eolian deposits prior to the building of the enclosure wall. The two sherds of ceramic discovered in room L2002, compared to the vessel found in connection with the enclosure wall seem, however, to indicate a relatively short interruption.

4. The foundation of the enclosure

The eolian layers were dug prior to the installation of the enclosure (**Fig. 40**).

To the west, layer 2017, composed of blocks, stone chips and sand altogether mixed and of a brick layer which is melted in its upper part, has a fairly sharp slope. Only a few ceramic forms were recovered.

The foundation of stone wall M2001 lies at altitude 610.16 m above a few centimeters of stone chips and sand (2012, inf. alt.: 610.06 m).

The same is true on the east side of the wall (**Fig. 45**): M2002 (mud-brick wall forming the eastern part of the enclosure) is unusual in being based on a cluster of blocks located in the extension of the filling of the foundation pit. The western part of this cluster is relatively well organized and properly prepares the installation of wall M2002. Therefore the filling of the foundation pit of M2002 abuts against the eastern face of wall M2001.



Fig. 45. Enclosure composed of two walls M2001 (right) and M2002 (left), sounding 1, looking south-west

5. Description of the western enclosure

As previously noted, the enclosure wall is composed of two main entities: an outer stone wall M2001, and an inner mud-brick wall on top of a stone basement (foundation and lower elevation) M2002 (**Fig. 45**).

In sounding 1, we tried to identify an entire section of it (**Fig. 46**). Wall M2001 maintains a height of 4.57 m (max. sup. alt.: 614.73 m). In contrast, 115 meters to the south-west, its summit is 617.94 m, 3.21 m higher. However, the topography of the site probably explains this difference and it cannot be assumed that the wall measures 7 m high at this location.

The dry-stone masonry of wall M2001 consists of horizontal courses of hewn gray-pink limestone blocks, but with an irregular height. The visual effect is however great since regular lines of the courses contrast with irregular features of colour and size of blocks.

Wall M2001 has some original peculiarities:

1. The presence of quadrangular buttresses linked to the masonry (this is the case of M2003 in sounding 1, about 0.70 m x 1 m, **Fig. 37**). The addition of triangular stones between two structures was probably to improve the wall connections. Note that buttress M2003 is installed one course above the base of the enclosure wall.
2. A vertical empty space of about 12 cm is visible across the thickness of the masonry of wall M2001 (**Fig. 44**), about halfway through the cleared segment. A stone of the lower course positioned at the base of the space marks the end of the rectilinear cut. This occurrence looks like a “loophole”. However, since the elevation of mud-brick wall M2002 covers the eastern side of wall M2001, this hypothesis cannot be valid. It may be preferable to assume that this is an architectural development related to the drainage of water from the top of the enclosure wall.



Fig. 46. Sounding 1 at the end of the 2010 season, looking south

3. A series of stone strongholds, with similar masonry, are regularly placed - about every 52 m - along the exterior face of stone wall M2001 (**Fig. 46, see description of unit 3**). They measure approximately 6 m by 3.50 m; the distances vary somewhat from one stronghold to another and from one side to another. The strongholds are composed of four (or five) walls, literally leaning against the face of M2001.

The architectural study is just beginning, but it seems that there is no junction between these two structures (stronghold and M2001). At the centre of the stronghold, the space is divided by a stone wall. Some slabs covering the empty boxes remain on the top of one stronghold, which may indicate the occupation level. In addition, a buttress was found inside a bastion; it therefore shows the existence of at least two construction phases of the enclosure, however probably made during a single large development event. This is also shown by the multiple changes in the masonry: late enhancement of the wall, abrupt stop of the masonry (vertical cut), turn without obvious reason, uneven thickness of the wall, etc.

All these clues seem to show both human and technical efforts in this structure (monumentality, aesthetic effects of masonry and regularity of strongholds and buttresses) but also a certain lack of planning prior to construction. It is therefore likely that the strengthening of the western enclosure can be linked to heavy floods from the wâdî, as well as the need for ostentation.

Inner wall M2002 also presents many interesting features. It can be followed on most of the western and northern segments. It is also found in other segments, where only the stone base is sometimes preserved.

In sounding 1, the mud-brick elevation of wall M2002, placed on a stone foundation, has a fairly strong *batter*.

6. The floors connected to the enclosure wall

Floor L2001 (**Fig. 47**) which abuts the oriental face of M2002 was cleared in the eastern part of sounding 1. It consists of clayey-silty soil 2018, resembling melted brick with medium sized stones emerging from the base layer underneath. It has a slight slope from west to east (22 cm over 5 m), and rises a bit more as we approach wall M2002.

In order to gather maximum dating clues, the whole layer was removed and sieved. Its compacted surface probably suffered from water flows and passages (**Fig. 48**).

Many small stones, as well as bones and sherds, had fallen on top of it. These were grouped under number 2013. A small complete jar DJ.10.2013-7 on this floor L2001, was probably shattered following the collapse of small stones (**Figs. 49-50**).



Figs. 47-48. Floor L2001, before and after clearing, sounding 1, looking west



Fig. 49. Jar rim DJ.10.C.2013-7 found above floor L2001, sounding 1, looking south



Fig. 50. Floor L2001 and sherds belonging to jar DJ.10.C.2013-7, sounding 1, looking west

West of the enclosure, the situation is less clear. A horizontal hardened melted brick surface is noticeable on the foundation pit surface, which could approximately correspond to the ground outside the enclosure (L2012) (**Fig. 51**). However the area in question, exposed on a very small surface (2-3 m²), was devoid of material.

7. The abandonment and collapse of the enclosure wall

Above floor L2001, the thin layers of eolian sand and melted mud-brick, remnants of the first abandonment, are numbered 2008. They show a pronounced east-west slope (**Fig. 51**). Then follow a succession of significantly larger, almost virgin layers (from bottom to top):

- . 2005: two layers of yellow orange eolian sand and greenish clayey silty melted brick.
- . 2003: compact yellow orange eolian sand, whose muddy beige surface had been hardened by a water flow.
- . 2002: homogeneous orange yellow eolian sand.
- . 2001: collapse layer of wall M2002, made of greenish mud-bricks fallen towards the east.
- . 2000: surface layer composed of sand and other.

Outside the enclosure, that is to say on the western side, floor L2012 lies immediately beneath a wind-blown sand filling and beneath the collapse of the stone elevation (2004) (**Fig. 52**).



Fig. 51. South section (exterior); hardened surface L2012 on the mud-brick layer abutting the buttress M2003, sounding 1, looking south



Fig. 52. South section (interior), destruction layers and eolian sand fillings, sounding 1, looking south

Sounding 2

Sounding 2, situated 130 m west of the previous sounding 1, aimed at clearing a long north-south oriented wall, numbered M2006, which was identified over a length of 160 meters. The wall is approximately perpendicular to the slope of the limestone plateau on which it stands (**Fig. 53**).

The location of sounding 2 was chosen at a place where the wall has been cut by the wâdî flooding, as is also the case for the enclosure wall in this area (**Fig. 54**).

The operation was conducted quickly, since simple cleaning made it possible to reach the base of the wall and to draw both the archaeological section (**Fig. 55**) and the top plan of the excavated structure.

Wall M2006 is made of limestone blocks coming from the neighbouring plateau, arranged in a dry stone masonry (**Fig. 56**). It is kept in elevation of 5 stone courses in sounding 2 and up to 7 courses more to the south (where it was seen to have a fairly strong *batter* in this last area).

The wall is 1.30 m thick. Its foundation lies at altitude 611.35 m directly on the eolian sand in sounding 2 (**Fig. 57**). The situation does not seem to be the same to the south.

A similar wall was discovered during our survey of the area, 132 m away in a private garden located approximately 330 m west of its southern end (**Fig. 58**). Given its position and its masonry, it could be a return of wall M2006 towards the west, thus defining a wide space limited south and east by the wall and also north by the plateau. It is suggested that this wall served for the retention of water coming from the wâdî, against the strong flooding which occurs regularly in this area.

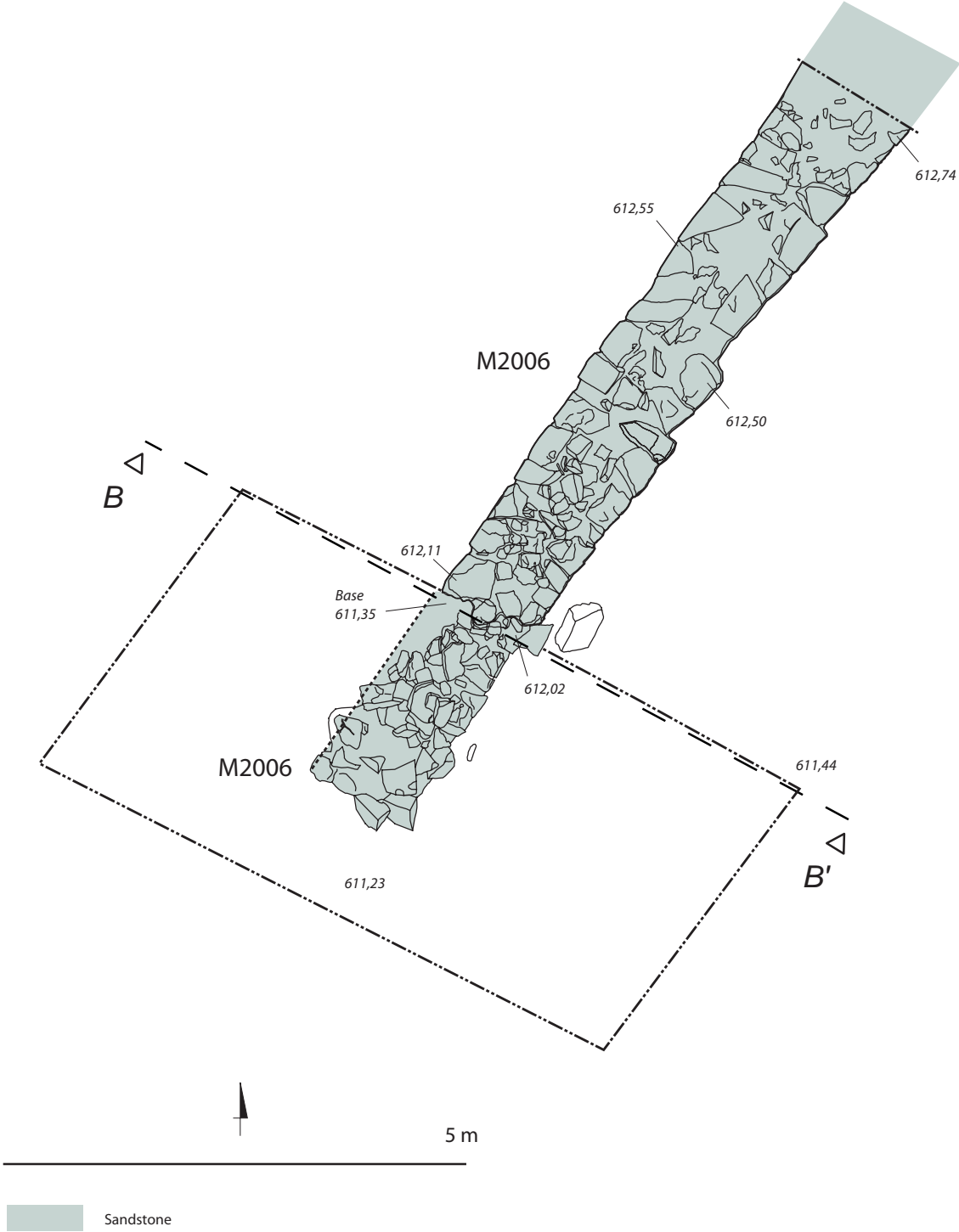


Fig. 53. Sounding 2



Fig. 54. Wall M2006, sounding 2, looking south

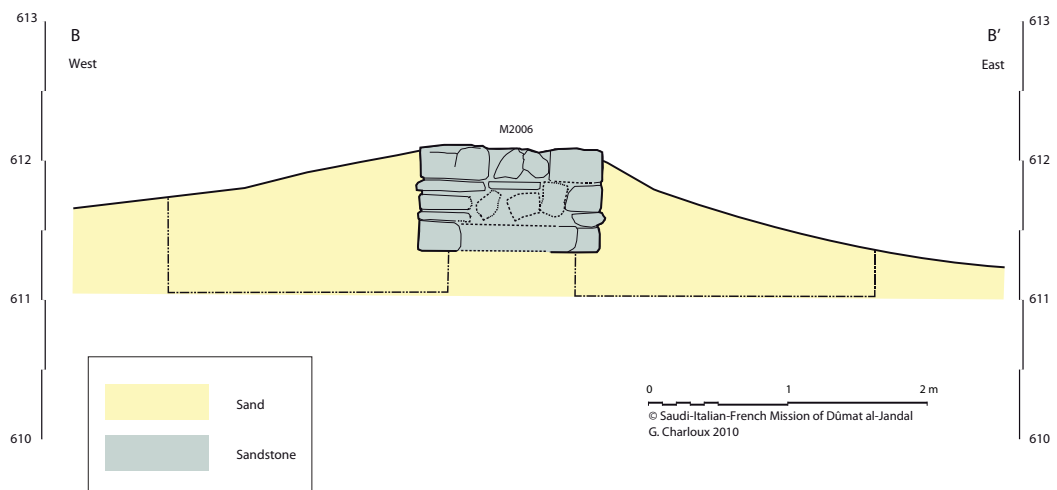


Fig. 55. Sounding 2, north section



Figs. 56- 57. Wall M2006, sounding 2, looking south (left) and looking north (right)



Fig. 58. Topographer Quentin Morel surveying the dike (?) wall perpendicular to M2006, found in the nearby farm, looking west

Sounding 3

Sounding 3 was opened on October 16th 2010, ninety meters east of sounding 1, in order to determine the nature of the occupation of the intramural space (**Figs. 59-61**).

The sounding is located on an unoccupied plot of land, surrounded to the south and to the west by a paved road, to the north by an asphalt road and a ditch, and to the east by a farm enclosed by a high fence.

The plot on which we started our excavation appears to have been flattened years ago by a bulldozer. In the northeast corner of the sounding are currently few heaps of rubble and of wood (tree trunk, roots and branches).

This area was chosen because of the presence of one long stone wall emerging from the ground in places. We chose to study this structure not only to determine its nature and the kind of occupation within the fortifications, but also to inform local farmers about the presence of archaeological remains to protect. The modern habitations tend in fact to spread over the oasis, destroying the evidence of its rich past.

Preliminary Operations

Initially, surface cleaning (UF2021) was carried out by a small team: removal of sparse vegetation, of garbage littering the ground, of scattered stones and mounds of eolian sand accumulated at the foot of plants.

The presence of a bulldozer on site helped to push back wood which invaded its eastern part in the north-east end of the sounding.

Following the surface cleaning, we started clearing the top of emerging wall M2010. It stretches from north to south over a dozen meters.

An excavation square 10 x 10 m was then implanted to begin digging (**Fig. 62**). It is oriented in the direction of the asphalt road and is crossed by M2010.

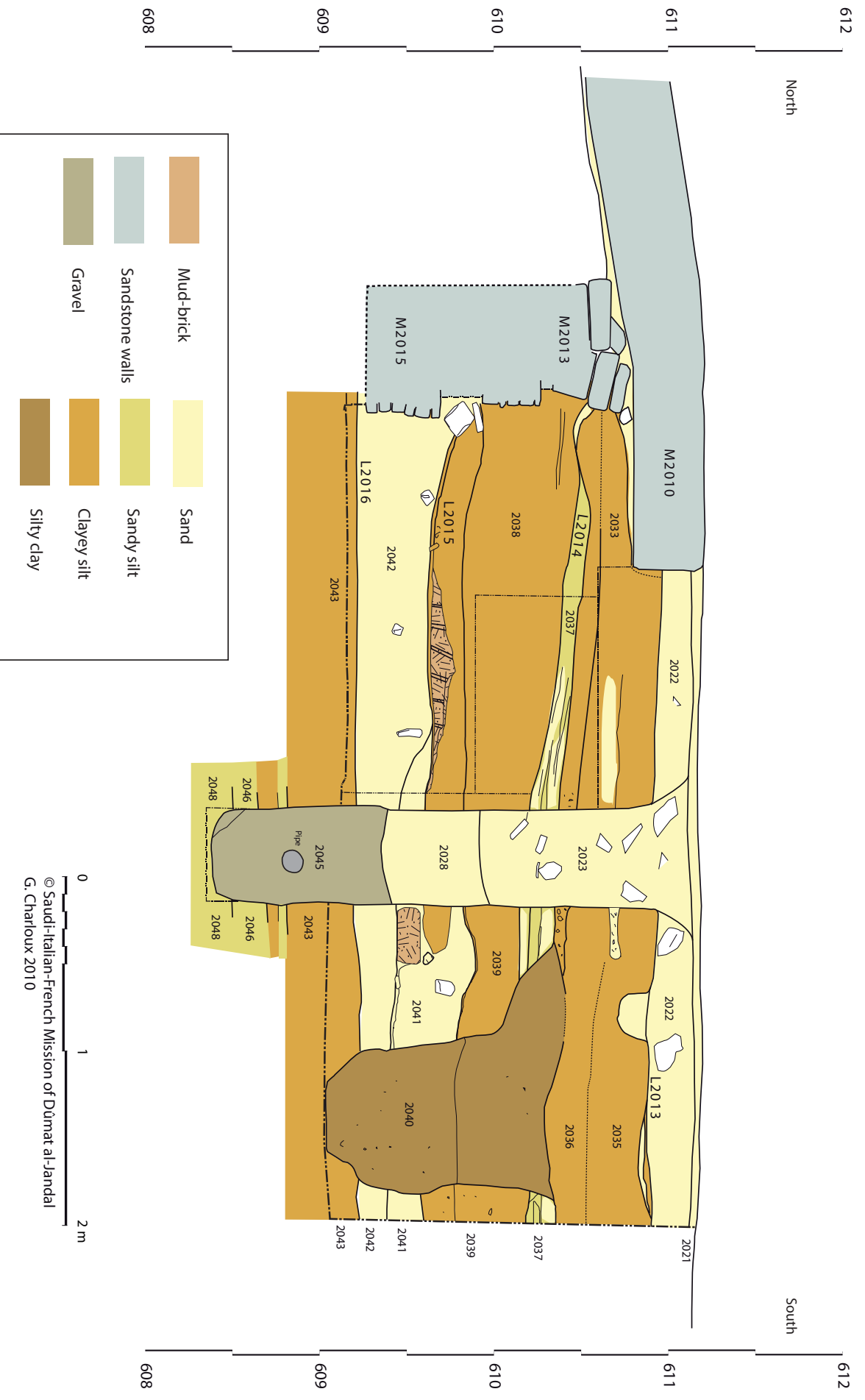


Fig. 60. East section D, sounding 3

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G. Charlux 2010

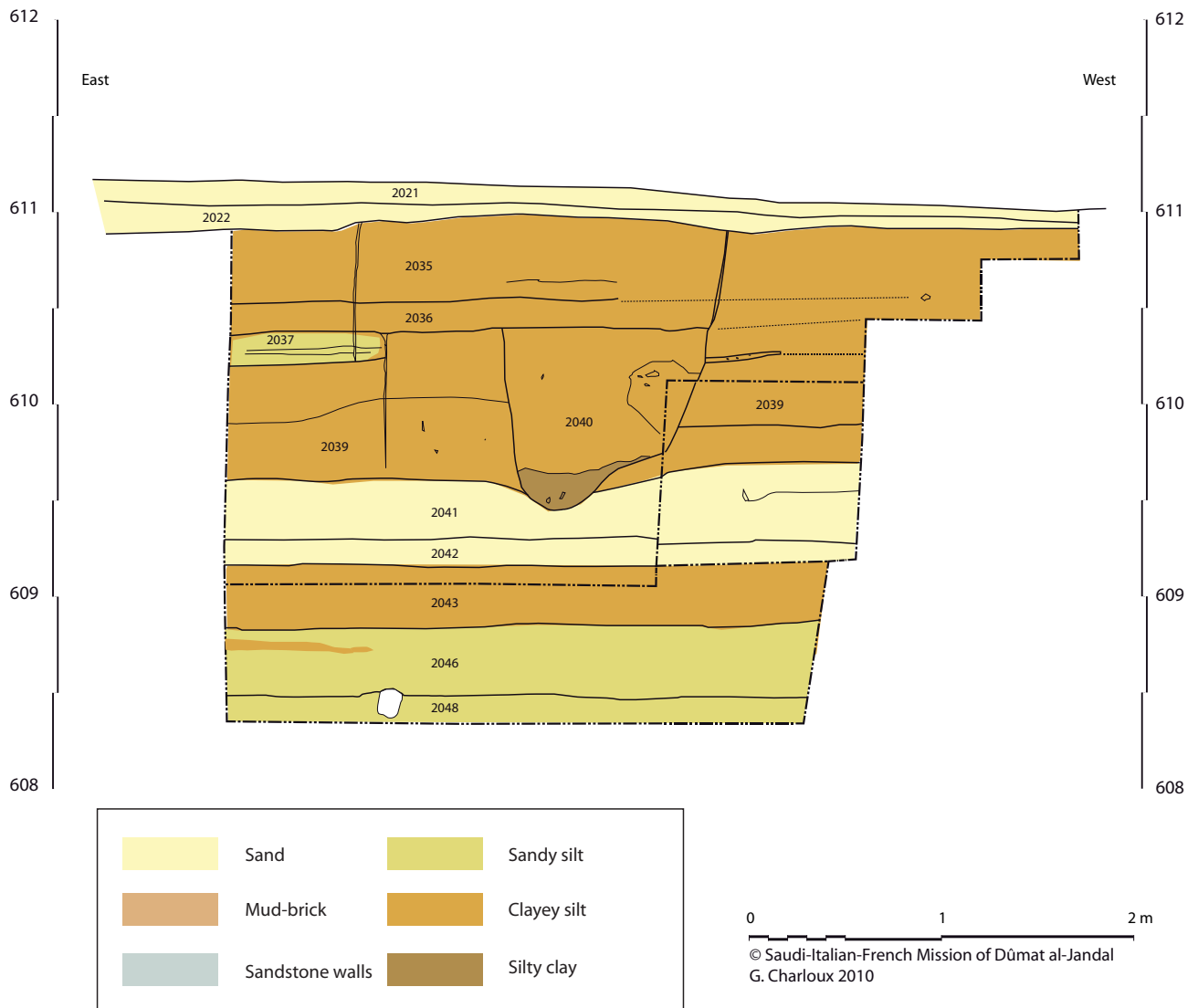


Fig. 61. South section C, sounding 3

1. Modern layers and pit L2010

In the southwest corner of the square stood a cemented block marked by a metal rod, from which emerged a plastic tube for aeration. Against it came up layer 2022, extending over the southern half of the square. This is a modern accumulation of eolian sand, of collapsed blocks and of silty-clayey soil with mud-brick fragments.

The excavation of pit L2010 was necessary prior to the installation of the cemented block. This pit is enlarged at the top near the block, where it reaches 1 m in diameter. It crosses through the entire sounding from east to west, 60 cm wide on average (**Figs. 60, 63**). It was understood at the end of the season that the pit is definitely modern and had not been reused, as we had previously believed. Under fill 2023 and orange sand 2028 a thick layer of gravel 2045 appeared, in which was installed the modern plastic pipe that extends towards the farm located east of the sounding.

2. The upper level

Structures of an old garden have survived under modern disturbances. In many aspects, they look like those which still abound today in the heart of the oasis (**Fig. 59**).

The garden is bordered on the west by a long dry stone wall M2010. We follow its emerged summit for a length of 11.30 m but we easily guess that it extends over more than twice this distance (**Fig. 64**). This wall is preserved in 6 courses to a thickness of 50-60 cm. It lies on a layer of clay which was used as a bedding for floor 2033. The base of wall M2010 has a fairly strong downward slope towards the north - this could correspond to the existence of a slope in the north area caused by the strong flooding of the wâdî running from west to east.

A wall segment numbered M2018 abutted on the southern extension of wall M2010. This segment, which was removed during excavation to facilitate clearance, had been poorly built: dry stone masonry with large gaps at the base. It reached to its southern end an amount of earth stopping its extension. It appeared that this original masonry had



Fig. 62. Sounding 3, looking south



Fig. 63. Pits L2010 and L2011, sounding 3, looking east

been intended to let water run away from channel L2003. The water was then channelled outside the garden.

Within the excavated area we cleared several structures belonging to a water distribution system.

- Water channel L2004 is located at the departure of the system. Its base is made of small blocks laid flat above the bottom of a shallow straight channel dug in the ground. On both sides of the channel are positioned obliquely a row of small stones. The north-south oriented entry of the water channel may have been disrupted by the digging of pit L2010, as discussed below (**Fig. 65**). Measuring 1.60 m long by 0.32 m in width, L2004 leads to an empty space, which allows the distribution of water in three directions:
- To the east is implemented a large composite basin L2005 (4.15 x 3.59 m) with a vast circular central space (3.4 x 3.2 m) (**Fig. 66**). Two-thirds (north-east) are paved by large limestone blocks extending front of the southwest corner of wall M2011 (see below). The remaining third (south-east) is composed of very compact beaten clayey earth, as well as a small space north of the pavement, which may also have been used for the flow of water towards the east¹¹. This space is bounded by three walls:
 1. a curved wall M2012 to the south, made of a single row of nine blocks laid obliquely against a mound of earth held in place. It measures 2.82 m in length and abuts the western face of M2019.
 2. a straight north-south oriented wall M2019 to the east. Measuring 2.48 m long at the start¹² and 32 cm thick, it is rough, dry stone built. The wall is preserved in one or two courses and a row of limestone blocks.
 3. a long curved wall M2011 (3.43 m x 0.60-80 m) to the north. Its masonry is also roughly mounted. It comprises 3-4 courses made of two rows of blocks. Its inner south side presents a roughly regular surface, although the northern side is irregular: blocks are stacked with a slope ascending from north to south. It does not appear that

¹¹. As could indicate a large block, east of M2019.

¹². Two blocks from the wall were removed during the clearing.



Fig. 64. Upper level of sounding 3, looking north-east

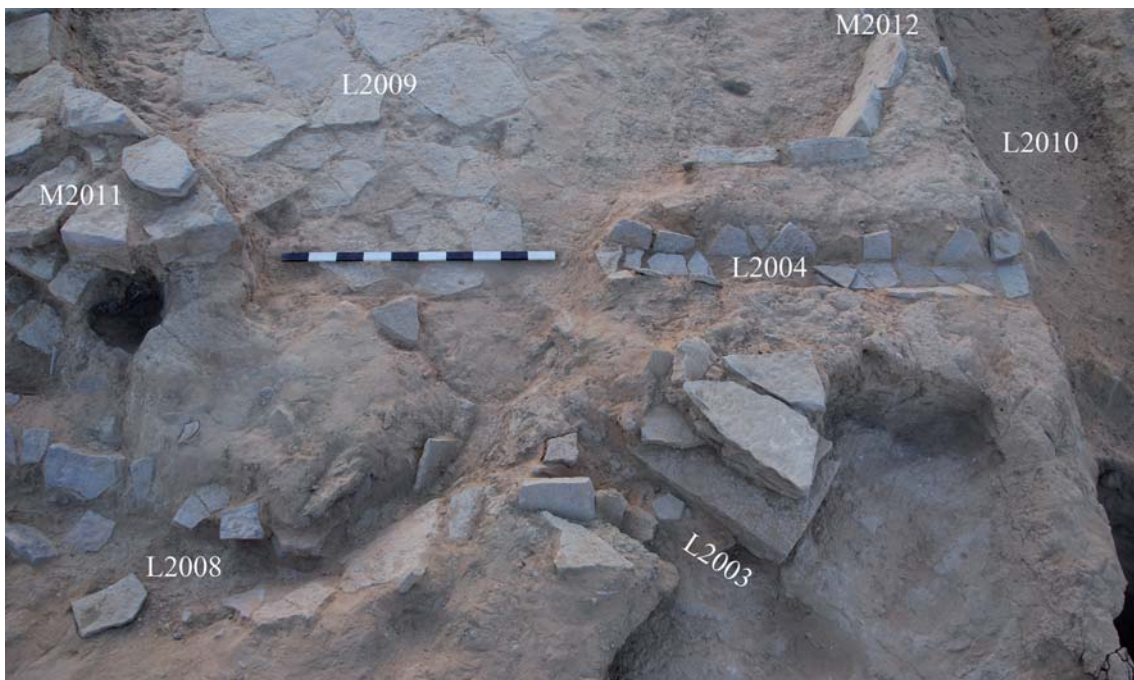


Fig. 65. Channels L2003 (bottom right), L2004 (center right), L2008 (bottom left) and basin L2005 (top), looking east

any masonry stood above these stone walls, which remained standing to an average height of about 30 cm since antiquity.

- To the south west, a water channel L2003 (0.65 x 0.81 m) starts from the end of L2004 (**Fig. 65**). Consisting of a few blocks for both sides and of small stones set against the base, it allowed drainage of water from the area bounded by walls M2010/M2018 to the west. A wide channel narrowing to M2018 then expanding to the west was dug in the underlying soil. A vast amount of earth left in place prevented drainage to the south.
- To the west, a curved water channel L2008 (**Fig. 65**) about 2 m in length was poorly built. Some small stones are simply placed diagonally against the face of the previously dug channel. The bottom is formed by earth, except in two places by small stones. This channel allowed water to be distributed beyond the basin to the north in a large space where a few holes filled with eolian sand or vegetal remains have been identified. These holes are the negative traces of shrubs and old garden plants (2026, 2029, 2034)¹³. The ancient circulation surface was cleared over the whole square, under a thick layer of eolian sand 2027. No ceramic sherds were found on the floor L2013.

The discovered water distribution system was probably in use with a specific arrangement of wooden doors or stone blocking in order to choose the direction of flow and to close one or two channels. We found no traces of them.

The garden continues south of modern pit L2010. Two large and shallow pits L2006 (width 1.47 m) and L2007 (width: 1.77 m) were observed under layers of eolian sand (**Fig. 67**). Remains of earth measuring 20-30 cm thick separate the two pits. This arrangement seems typical of cultivated areas in the oasis today.

The nature and the layout of structures, as well as archaeological evidence, raise another important question relating to the location of the recent pit 2010. We observed in the sounding that:

13. Samples have been taken.

1. Both pits L2006 and L2007 rise slightly a few centimeters in front of pit L2010. Furthermore, the two pits are perpendicular to the latter.
2. Channel L2004 does not continue in the southern part of the garden, since no trace of a pit or a structure appears in its alignment. It is also perpendicular to L2010.
3. Wall M2012 of basin L2005 stops a few centimeters before pit L2010.
4. The earth bordering the eastern side of trench L2003 does not extend further south, but instead bypasses the area as it extends westward.

All these gathered data suggest that pit L2010 was positioned at the exact location of a former channel, where the farmer drew water before spreading it to its crops.

This observation necessarily implies the question of the date of this garden. Was the ancient channel not fully covered by sand and still visible during the digging of pit L2010? Or is it a recent channel related to a recent garden?

The first solution appears more probable. The main argument lies in the homogeneity of the ancient material discovered in the eolian layers overlying the unearthed structures, the lack of modern or medieval pottery, as well as the homogeneity of the material found in layer 2033/2047 constituting garden floor L2013.

Moreover, stone basin L2005 of rather elaborate masonry does not correspond to the quadrangular and smaller structures, sometimes cemented, currently seen in the oasis.

In addition, garden wall M2010 was built directly on floor L2013 and on top of wall M2013, without the presence of any intermediate layer. Another argument lies in the photograph published in 1976 which does not show any crop in the area¹⁴.

14. R. Mc. Adams, P. J. Parr, M. Ibrahim et A. S. al-Mughannum, « Saudi Arabian Archaeological Reconnaissance 1976 », *Atlat* I, 1977, p. 38, pl. 9.

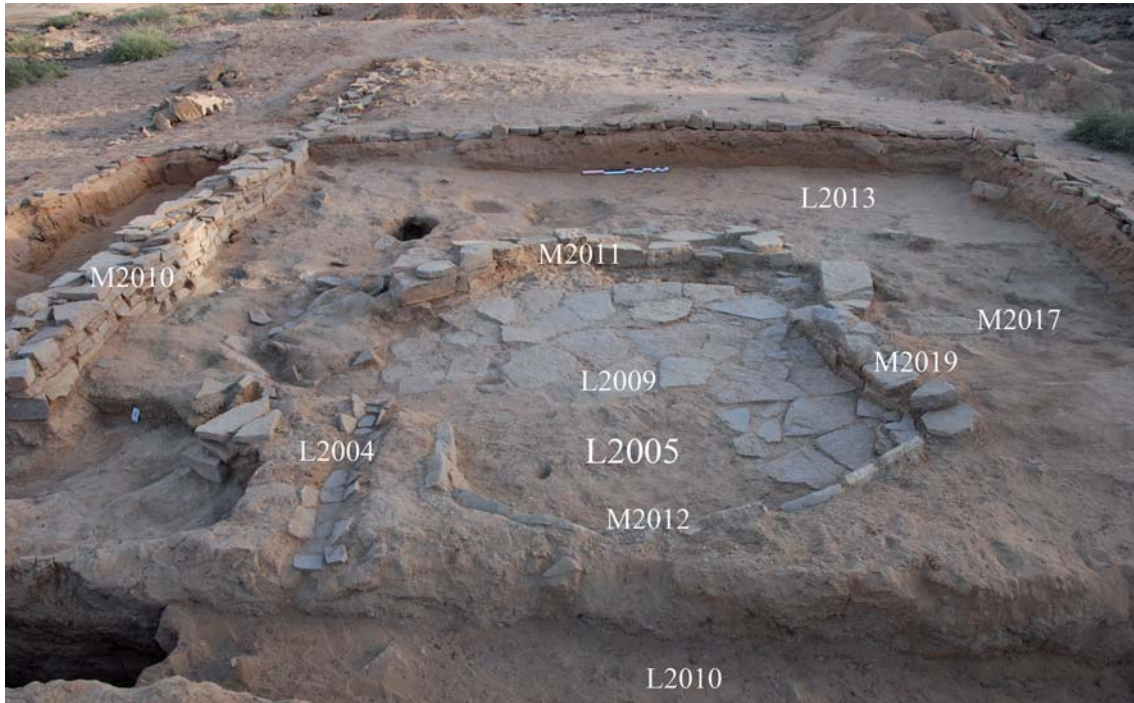


Fig. 66. Upper level of sounding 3, looking north



Fig. 67. Cultivation pits L2006 and L2007, sounding 3, looking south

Finally, the absence of modern buildings reusing stone foundations in their bases as was frequently the case in the heart of the oasis for centuries could also be an additional proof.

In conclusion, it seems to us that the garden was abandoned in antiquity, a date which may only be established by *terminus post quem*.

3. The Lower level

To complete study of the sector stratigraphy, we opened a sounding in the southwest corner of the square, near the top of wall M2013, which was visible after cleaning of the upper level (**Fig. 68**). We excavated along its southern face. Two superimposed structures, vertically positioned one on top of the other, 1.50 m in height, were distinguished (**Fig. 69**):

. Wall M2013 measures 7.55 m in length and 0.67-0.70 m thick, within the observed limits to the west of M2010. It poses several difficulties of study, as it may have experienced two stages of construction.

First, several stones are located on the eastern side of wall M2010, in the axis of the western face of M2013. It indicates a continuation of wall M2013 eastward. Moreover, we found a segment of this latter (numbered M2017), consisting of a single aligned row of blocks, 5.70 m to the east. Nevertheless, the northern part of wall M2017 is absent (even after digging down). It would signify a difference of masonry or structure, rather than destruction.

Wall M2013 abuts buttress M2016 to the west. It is a small quadrangular structure (141 x 75 cm) preserved in 7 courses. M2013 then extends westward in the same direction. The base of buttress M2016 is situated at 610.34 m above sea level, about 20 cm higher than the base of M2013.



Fig. 68. Deep trench, sounding 3, looking north

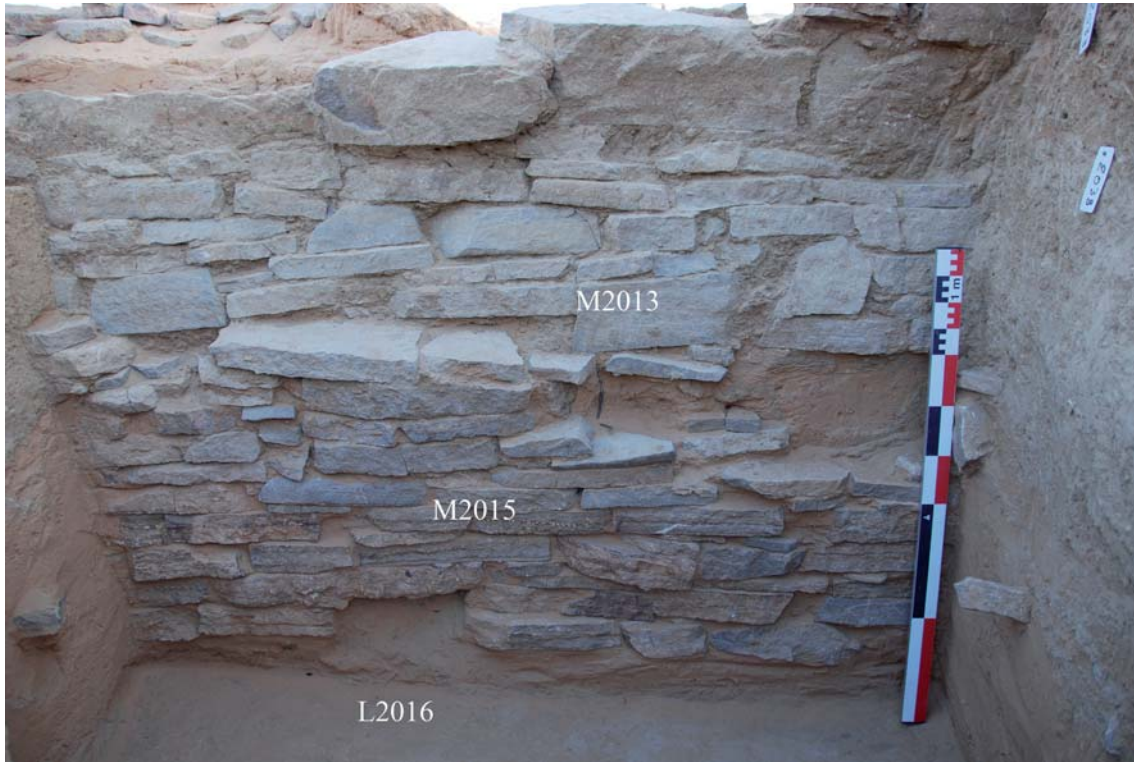


Fig. 69. South faces of walls M2013 (top) and M2015 (bottom), sounding 3, looking north



Figs. 70-71. Filling of pit 2040 in layer 2041, before and after clearing, sounding 3, looking east

Moreover, removal of sand layers north of M2013 showed that only one course of stone is preserved on that side as against 4 courses to the south. The wall was therefore enlarged at this location, indicating the existence of two construction phases (the second with the installation of the buttress).

Of the earlier phase of the wall, only the southern face is still visible. It measures 55 cm in thickness.

- . The connection between wall M2015 and upper wall M2013 seems clearer, explaining why we distinguished these two structures.

The southern face of M2015 consists of 9-10 courses of rather thin limestone blocks (about 25 x 6-10 cm). The wall lies at altitude 609.27 m. on a layer of yellow eolian sand 2042 which also abuts its southern face.

M2015 presents a fairly clear orientation shift with wall M2013, of about 5-10 cm towards the south, and over the entire length (5.74 m).

This distinction can also be seen in plan and section where a change in the nature of the layers and in the existence of a floor was observed.

A problem arises concerning the nature and function of wall M2015, because it could be a simple foundation arrangement for wall M2013, given its position on the sandy soil and the lack of floor against its southern face. Wall M2013 furthermore lies on top of it, so its builders had knowledge of the lower wall M2015.

Examination of adjacent layers may show the opposite, namely that these two walls reflect two distinct, although related, phases of occupation.



Fig. 72. Floor L2015 on top of layer 2041, looking north

Against the southern face of wall M2013 abuts layer 2033, which actually includes three sub-layers 2035, 2036 and 2037, distinguished only in the southern part of the sounding beyond pit L2010:

- . 2035: thick, dense but not agglomerated, brown-grey silty clayey soil.
- . 2036: compact and bedded pink to green clayey soil.
- . 2037: beige sandy silt, very bedded, clearly distinguishing the upper and lower layers over the entire sounding.

The archaeological material found in layer 2037 is associated with wall M2013, present on the floor surface created by 2038 (L2014). No material was observed lying on this floor.

Under layer 2037 was located layer 2038, a very specific brown to beige-orange silty soil. It corresponds to layer 2039 to the south.

The two layers 2037 and 2039 were cut by a large pit, numbered 2040, filled with clayey silty soil, beige coloured on top and dark brown in its lower part. This pit has been located at the end of the clearing of 2039, which implies that the material registered with numbers 2037 and 2039 got mixed with that of 2040 during the excavation.

The bottom of the pit fill 2040, very dark and compact, has instead been excavated with more care in sands 2041/2042 (**Figs. 61, 70-71**). The circular hole measuring 130-80 cm wide and 135 cm in height has a pronounced slope towards the east.

Layer 2041 is made of melted mud-bricks, collapsed on the eolian sand. Its bottom indicates the location of a floor L2015 (**Fig. 72**), identified in plan and section. No material has been recovered in place. The mud-bricks (32 x 23 x 9 cm) visible in the section are oblique and parallel due to their fall. They are still linked by a gray-green silty mud mortar, quite compact and hard¹⁵.

Underlying yellow eolian sand 2042 measures between 20 and 50 cm thick.

Then appears a flat surface, floor L2016, with two to three sherds lying on layer 2043 (horizontal brown silty clayey layer).

25 to 30 cm lower is once more located a layer of sand 2046, then silty sand 2048.

15. Samples have been taken from the mortar.

Function of the enclosure wall in sector C

The function of the enclosure wall could not be established with certainty. Several aspects seem indeed contradictory:

- . The high aesthetic quality of the wall is clear, apparent in the quality and colour of the masonry which consists of small modules of rocks, and in the impression of regularity due to the projections created by the strongholds and the buttresses on the western wall.
- . There is no doubt that some strongholds were arranged in specific locations for architectonic reasons. Indeed, the western wall face has often a strong *inner-batter* which needs to be contained by massive stone structures (strongholds and buttresses) (**Figs. 73-74**).
- . Finally, the enclosure wall has also a defensive role:
 1. The natural strategic position of the outcrop enables easy military control over the entire region. The presence on the top of the mound of large walls which may belong to a fort or a tower seems to support this hypothesis.
 2. The enclosure encloses a large area where crops were cultivated (see sounding 3), without apparently wishing to extend the confined space (this is debatable in the east).
 3. The monumentality of the enclosure is not questionable, although units 1 and 6 on the outcrop are only 1.20 m thick. In flat areas, the enclosure wall measures at least 2 m thick and can go up to almost 4 m.
 4. The inner partition wall (unit 8) also indicates the intention to divide areas and control spaces and movements. This wall could have been used to strengthen two weak walls (units 1 and 6) ascending the outcrop, to prevent blocks falling from the slope, or to improve the protection of the summit of the outcrop from the bottom.

The defensive aspect of the enclosure wall, our preferred hypothesis, is however limited by two indications:

1. The presence of strongholds only on the western wall.
2. The fact that the southern wall does not fully surround the summit of the outcrop.

This could suggest that this defensive purpose was not directed against large armies but more against raiders.

It should be added that the enclosure wall appears to extend eastward and could therefore have protected a much larger space in the past, perhaps all of the oasis as suggested by several authors (see introduction to sector C).

The date of the enclosure wall is still very uncertain, spanning around 1st-4th cent. A.D. (most probably 1st- 2nd cent.), according to the ceramic typology, but we need to collect more pottery on floors and to obtain radiocarbon datings.

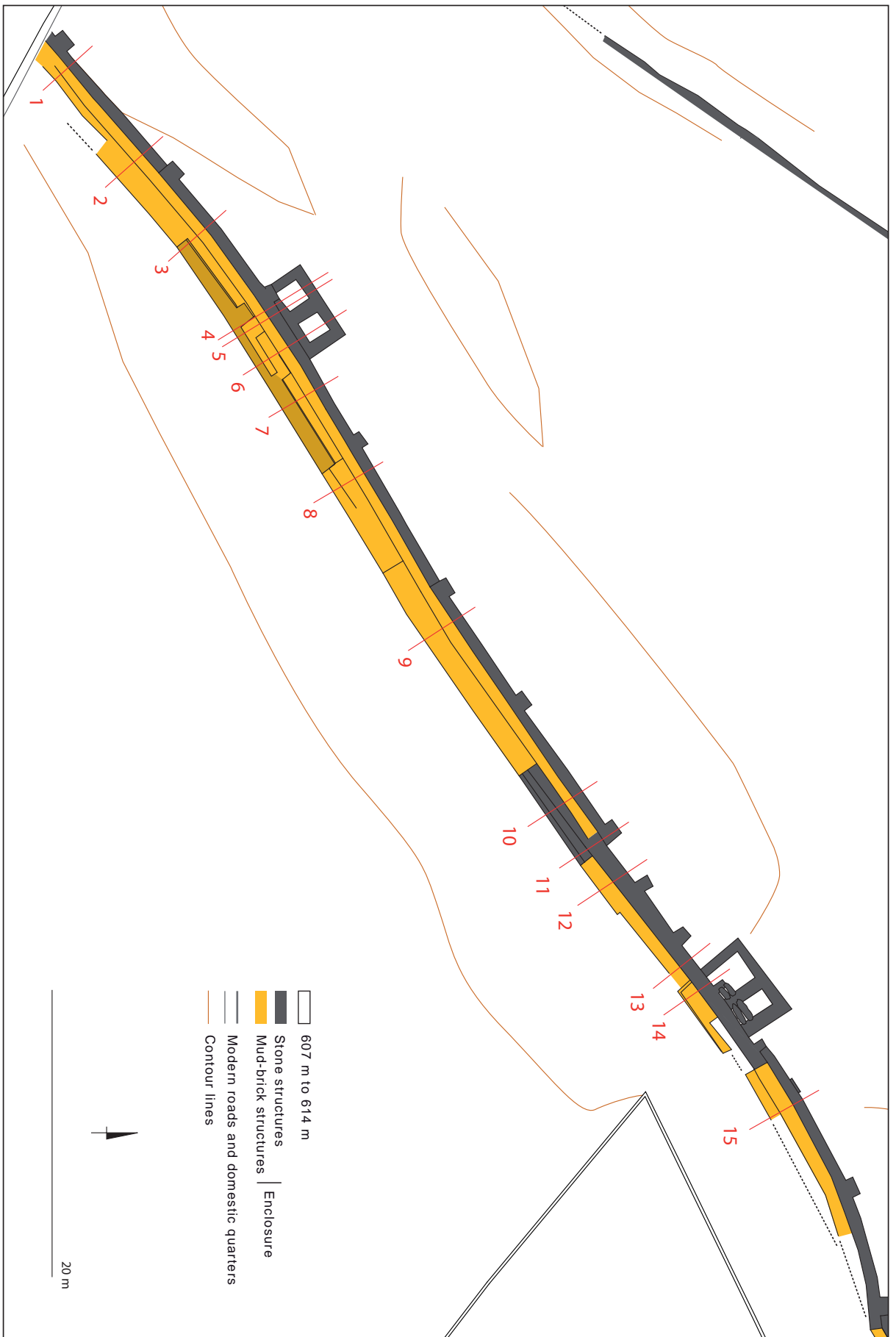


Fig. 73. Topographic plan of the south segment of unit 3, cleared and studied in 2010, with location of sections

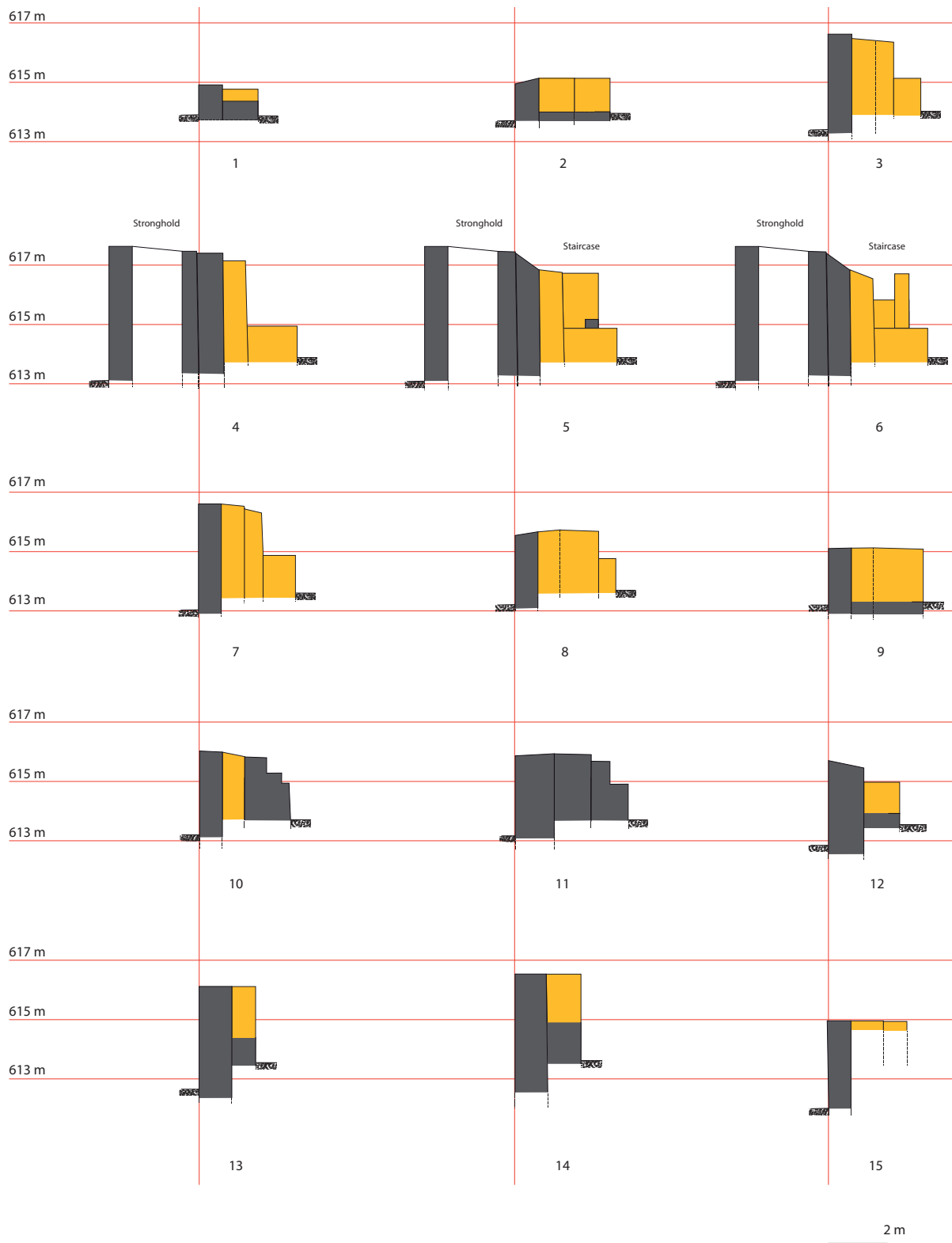


Fig. 74. Schematic sections of the segment of unit 3 cleared in 2010 (see previous figure)

Clearing and presentation of the enclosure wall

At the request of the Secretary General of the Saudi Commission for Tourism and Antiquities, Prof. ‘Alī al-Ghabbān (interview, October 2nd, 2010), we conducted an extensive clearing of a wide segment of the western enclosure wall (unit 3).

The 80 m long segment stands north of a modern asphalt road (which bisects the wall for a 9 m section in the middle), and inside the enclosure of the Department of Antiquities. It was chosen for ease of access, protection and cleaning.

The outer face of this segment had indeed been extensively cleared during Saudi Arabian excavations in 1986 (**Fig. 73**), while the interior was left intact (**Fig. 74**), with the exception of a small trench done by the Team of al-Dâyil. The inner mud-brick wall which rests on top of a stone foundation was completely cut in this area by the excavators (**Fig. 75**), in order to study its masonry.

This situation was unsafe for the wall as the pressure was strong on the outer face.

The first step was a general flattening of the space to the west of the stone wall, using a wheel loader and a larger track loader (**Fig. 76**). This first step made it possible to assess the qualities of the machine operators.

We then used a wheel excavator to perform precise clearings against the enclosure wall (**Fig. 77**).

Under the continuous monitoring of the excavator G. Charloux, the wheel excavator first removed tons of sand accumulated against the west face of wall in the last 24 years. Cleaning did not pose any problem here, the layers connected to the wall (destruction and floors?) were removed in 1986. The track loader then evened up the area before workers finished cleaning by removing sand layers near the wall and carefully cleaning the stone masonry (**Fig. 78**).



Fig. 75. Western face of the enclosure wall segment (unit 3) excavated in 1986, before cleaning, looking north



Fig. 76. Eastern side of the enclosure wall segment (unit 3), before cleaning, looking north



Fig. 77. One segment of the eastern face of the enclosure wall excavated and cut in 1986, before complete cleaning, looking west



Fig. 78. Cleaning of sector C, to the west of the enclosure wall (unit 3), looking north



Fig. 79. Clearing of the western area of sector C using mechanical instruments, looking south

Note that we have not gone down as deep as the previous excavations, in order to protect the stone foundation and any archaeological remains, as well as to give a flat circulation path from the gate of the enclosure and to keep uniformity of altitudes with the adjacent road.

The problem was bigger on the inner eastern side of the enclosure, since the mud-brick wall had not previously been exposed. With our knowledge of the archaeological context from sounding 1, the help of the topographic survey of the area and the study of the layers in place during cleaning, we avoided destroying elevations of mud-brick wall. The wall indeed expands very strongly here.

A first trench was dug north of the segment, at the place of al-Dâyil's trench. Once we had checked the layers, especially that sand was accumulated under the destruction layers of mud-brick elevations, that there was no floor on top of the sand (or no trace of it), and that we were higher than the clearance on the west side, we removed the thick



Fig. 80. Cleaning of the western face of the enclosure wall (unit 3) by workers, looking south

layers of sand and destruction of the mud-brick elevation in that area.

In order to protect the wall, we have not gone down below altitude 613.50 m, probably 1 or 2 m above the ancient ground level.

The track loader also evened out the raised space on this side before workers cleaned the eastern face of the enclosure by shovel, *'tourieh'* and brush (**Fig. 79**). Here, the masonry of the wall is fairly complex and highly variable, as seen on the sections (**Figs. 73-74**).

This cleaning required a significant effort on the part of the French team because 13 workers of sector C were involved in this work for a week and a half. The result, very satisfying, offers an impressive glimpse of the monumentality of the enclosure wall for local and foreign tourists. This has also allowed detailed examination of the masonry wall.

It should be added that this clearing will require a restoration program in the near future, as the brickwork suffered badly from erosion in the past and should therefore be protected from rain, using suitable mud coating. Local authorities (‘Abd al-Hâdî al-Tirâd, Ahmad al-Qa’îd), were informed of this critical aspect and assured us of their help with the arrival of specialist workers on site during the next study season in 2011 (**Figs. 82-83**). These workers are now involved in the old city restoration.



Fig. 81. Cleaning of the eastern face of the enclosure wall (unit 3), looking north



Fig. 82. The enclosure wall, excavated and mostly cleaned (unit 3), looking north-east



Fig. 81. The enclosure wall, excavated and mostly cleaned, looking south

Layer number DJ.10.C.	Sounding	Description	This layer abuts	This layer equals layer	This layer is over	This layer is under	Bottom level	Top level
2000	1	Surface layer Eolian yellow to soft orange rough sand, not compacted, fallen limestone blocks, few sherds and others.	M2001, M2002, M2003		2001, 2002, 2003, 2004, 2005, 2011, 2006	/	610,00 ca.	616,90 ca.
2001	1	Mud-brick greenish clayey destruction layer from wall M2002, to its east. Greenish mud-brick module = ca. 31 x 22 x 11 cm very clear in the section	M2002		2002	2000	612,21	613,9
2002	1	Homogenous eolian yellow to soft orange, dense and compacted rough sand. Few little stones (2x 3 cm) and almost no ceramic	M2002		2003	2001	ca 611,66	ca 612,62
2003	1	Succession of thin yellow eolian sand layers hardened by water? against eastern face of wall M2002	M2002		2005	2002	ca 611,27	ca 611,92
2004	1	Fallen destruction layer of limestone blocks coming from wall M2001, and located to its western side. Strong E-W slope Underpart of yellow eolian sand on top of floor L2012	M2001		2017	2000	611,27	612,29
2005	1	Irregular mud-brick greenish clayey destruction layer, with holes and small stones, on top of yellow eolian sand, fallen from wall M2002, to its east. Lot of vegetal roots	M2002		2008	2003	610,70	ca 611,27
2006	1	Homogeneous layer of white friable limestone blocks, coming without doubt from the digging of the recent canalization trench (originally 2019).			2011	2000	610,15	610,96
2007	1	Horizontal thin clayey silty brown soil, on top of which wall M2001 was founded. Homogeneous and virgin of material, probably natural			2015	2010, 2012	610,07	610,15
2008	1	Composed of 2 layers : 1. Mud-brick greenish clayey destruction layer with a lot of limestone blocks fallen on top of floor. No mud-brick seen in it, seems very homogeneous, with a strong slope E-W abutting M2002. 2. Eolian yellow rough sand on top of floor L2001, irregular. Sieved	M2002		2013	2010	610,66	ca 611,27 / 610,70
2009	1	Thin layer of gravels and stone chips with sand in the foundation of wall M2002, probably equals 2012		2017 (under-part), 2012?	2007, 2010	M2002	610,04	610,20
2010	1	Succession of very horizontal thin eolian yellow sandy layers			2007	2013, L2001, 2017, 2011	610,70	610,11
2011	1	Thick layer of blocks with sand Seems to have cut 2010. Its 'rounded' shape seems to be explained by the trench and the bulldozer Probably recent layer			2010, 2007, 2015	2004	609,68	611,32
2012	1	Thin layer of gravels and stone chips with sand in the foundation of wall M2002 Probably equals 2009		2009?	2007	M2001	610,06	610,16

Table 1. Preliminary list of layers in Sector C

2013	1	Individualized layer of material placed on top of floor L2001 / layer 2018. Horizontally fallen blocks, few ceramic sherds and bones. Fully sieved	M2002		2018	2008	610,55	610,78
2014	1	Probably eolian dense yellow sand against M2004, M2005, M2007, M2009. In its half underpart, brown clayey areas still sandy against wall faces (close to 2033) Few ceramics, although fully sieved	M2004, M2005, M2007, M2008, M2009, M2014		2032	2015	609,37	609,84
2015	1	Succession of thin eolian yellow-orange sandy layers, very small grey blue gravels, and of a wide beige brown silty layer (ca. 15 cm high), all very horizontal and regular layers, separating 2007 of under level.			2014, 2016, M2004, M2005, M2009	2007, 2009, 2017	609,89	610,01
2016	1	Eolian? Yellow orange dense sand against M2005	2005		Bedrock 2019	2015	609,70	610,01
2017	1	Fallen grey limestone blocks and brown mud-brick destruction on top. Located against the foundation of M2001, in its foundation pit	M2001	2009?	2010, 2007, 2015	2004, 2011	610,04	611,36
2018	1	Thin hardened clayey brown-grey "bricky" layer. Rather regular surface but not under-face. Slope from east to west against M2002 Layer of floor L2001 Fully sieved	M2001		2010	2013	610,47 / 610,70	610,56 / 610,78
2019	1	White dense limestone bedrock, hard but very friable. Seems to be composed of two thick layers separated by a thin layer of sand, as seen in the small sounding near sounding 1 Geological and virgin of material	M2004, M2005, M2007, M2009		2020	2016	ca. 609,30/40	609,58 à 609,36
2020	1	Greenish compacted homogeneous sandy silt. Geological and virgin of material				2019, M2004, M2005, M2007, M2009	/	ca. 609,30/40
2021	3	Surface layer. Loose eolian sand, mixed with vegetation roots, stones. Contains some sherds.	M2010		2022, 2024, 2026, 2027	Surface	611,15 à 610,88	611,30 à 611,14
2022	3	Eolian accumulation of sand mixed with fallen stones and mudbrick fragments. Located in the southern half of the 10 m large sounding ; this layer has been partly disturbed by the digging of a square for the setting up of a concrete block and pipes (approx. 1m large x 1 m height = 2023). This layer covers a melted mudbrick massif on the southern half of the south-west quarter, a east-west trench in the middle (2023), eolian and ashy sand in the north-east (2025). It merged with eolian sand layer 2024.	M2010	2024	2023, 2025	2021	611,00	611,19

Table 1b. Preliminary list of layers in Sector C

2023	3	In the south-west quarter of the 10m-large-sounding, in the central part : - western half : square pit (approx. 2 x 2 m) filled with eolian sand mixed with stones and mudbricks fragment. It covers a melted mudbrick massif. Its filling is disturbed by the whole dug through 2022 and 2023 for the setting up of a concrete block with pipes. - Eastern half : opening on the pit of the western half, a 60-cm-wide trench is filled up with the same content of stones, mudbrick fragments and eolian sand. The upper part of the trench (40 cm in depth) contained a lot of fallen large stones. The lower part (40 cm in depth) was a mixed layer of sand and mudbrick. This trench is rimmed on the northern and southern side by mudbrick walls or melted mudbrick massifs in the lower part, by melted mudbrick massifs in the upper part, these two parts being separated by a layer of earth mixed with red and friable stone		2028	2022	609,90	611,06	
2024	3	Layer of 40 cm eolian sand accumulated against M2010 (to the east), above a hard ground made of earth (southern part) or hardened sandy ground with gravels (northern part). Located in the NW quarter of the 10m-large-sounding, and in the northwestern part of the SW quarter of the 10m-large-sounding : Very few sherds found above this ground	M2010		Earth ground	2021	610,73	611,15
2025	3	Composed of 2 layers : 1. Layer of red sand, under 2022. 2. Grey sand mixed with ashes and very small charcoals. Pby related to wall M2011 against which it abuts to the east. In the SW quarter of the 10m-large-sounding, in the northeastern part of this quarter, north of the EW trench (2023)	M2011		Earth ground	2022	610,83	611,08
2026	3	Hearth? of sand mixed with many ashes and some small charcoals, approx. 50 cm in diameter and 10 cm in depth. In the NW quarter of the 10m-large-sounding, east of (and abutting) M2010	M2010	2027		2021	610,75	610,88
2027	3	Hard yellow eolian sand. In the NE quarter of the 10m-large-sounding, under an eolian sand layer (UF2021), removing of the same layer of hard yellow sand (eolian). It also covers what could be the northern extension of M2011 unearthed in the SW and NW quarter of the 10 m large sounding	M2010, M2011	2047		2021, 2026	610,80 - 610,69	610,90 ca - 610,75
2028	3	Orange red sand mixed with few stones. Very few sherds in spite of sieving of the sand		2045		2023	609,40	609,92
2029	3	Black-grey soft pulverulent ashy soil, probably the area of plants, located against eastern face of wall M2010. Sampled	M2010			2027	ca 610,60?	ca 610,70
2030	3	Sampled compact yellow sand layer with bottom from water channel L2004. Not sure to be interesting to study because of under layer of eolian sand?	L2004			2022	610,99	611,09
2031	3	Compact grey-beige hard compacted silty soil, making crust on top of pavement L2009, inside basin L2005.	L2009			Compacted eolian sand	610,86	ca 611,00

Table 1c. Preliminary list of layers in Sector C

2032	3	Sampled compact yellow sand layer with bottom from water channel L2008. Trace of a dark line (plant)? Not sure to be interesting to study because of under layer of eolian sand?	L2008			2022	610,78	ca 610,87
2033	3	Silty clayey beige-light brown soil creating floor of the upper garden (L2013)	M2013	2035 + 2036 + 2037	2038	2022	610,45	610,98
2034	3	Black and white print of a racine (palm tree?)			2033	2007	? ca 610,50?	ca 610,73
2035	3	Silty clayey brown-grey soil creating floor of the upper garden (L2013)		2033 (with 2036 + 2037)	2036	2022	610,52	611,15 / 610,90
2036	3	Pink to red clayey lited soil with north-south slope	M2013 à verif	2033 (with 2035 +2037)	2037	2035	610,31	610,66
2037	3	Beige sandy-silty soil, with sand and small pebbles. Very much bedded		2033 (with 2035 + 2036)	2040, 2039	2036	610,17	610,56 / 610,36
2038	3	Made of 2 layers : 1. Light brown to beige-orange silty soil (equals 2037) 2. Second equals 2039	M2013	2039?	2041	2033	609,65	610,50
2039	3	Brown to beige-orange silty soil		2038?	2041	2037	609,59	610,19
2040	3	Brown-dark grey clayey-silty compacted soil , with few diagnostic sherds at the bottom, and many small white and greenish stone grits (see pictures DJ2010a0565B.jpg) Belongs to a semi-circular pit with a slope towards the east			2039, 2041, 2042, 2043	2037	609,04	610,42
2041	3	Layer of Eolian sand and dark brown mud-bricks (32 x 23 x 9 cm) fallen horizontally on a rather flat surface (although different from pavement). Surface with a clear N to S slope MB elevation probably localized to the west.	M2015? a verif		2042	2039, 2040, 2038	609,39	609,88
2042	3	Yellow eolian sand Virgin of material M2015 founded in this sand layer (around 7 cm top of 2042)	M2015		2043	2040, 2041	609,22	609,76 / 609,38
2043	3	Horizontal dark brown compacted silty clayey soil, on top of a sand Eolian layer. Virgin of material inside the layer, although one sherd was found on its surface, under 2041 (see DJ2010a0557B.jpg). This sherd (small jar Body sherd, dense and well cooked, pink inside and white reddish on exterior of memory) is today disappeared due to the cleaning of the surface by a worker. It could well be a circulation surface.			eolian sand layer	2041, 2040	608,82	609,22
2044	1	Brown compacted heterogeneous clayey layer, with many nodules, gravels, large and thin limestone blocks fallen from the upper level or roof. Totally sieved, not even one sherd !!	M2004, M2005, M2007, M2008, M2009			2014	609,20	609,63
2045	3	Modern grey to white 1-3 cm gravel layer in pit L2010. Plastic pipe in it.	2033, 2035, 2038, 2039, 2041, 2042,2043		2043	2028	608,39	609,40
2046	3	Yellow orange sandy layer			2048	2043	608,50	608,82
2047	3	Silty clayey brown-beige soil creating floor of the upper garden (L2013) Eastern part of the sounding		2033?	/	2027	/	ca 611,10
2048	3	Mixed yellow sand and brown silt			/	2046	/	608,50

Table 1d. Preliminary list of layers in Sector C

Wall number	Sounding	Description	Length	Width	Is abutted by
M2001	1	Eastern wall of unit 3 of the enclosure (which is composed of 2 walls M2001 and M2002) made of stone courses, globally oriented south-west north-east, but with change of orientation to the southern half.		125 cm	2002, counterfort 2003, tower M2008, M2002
M2002	1	Western wall of unit 3 of the enclosure, made of mud-brick elevation upper part and stone courses in its lower part, globally oriented south-west north-east, but with change of orientation to the southern half, like M2001. Only half of its stone under part is in foundation.		85 cm	2001, 2002, 2003, 2005, 2008, 2013, 2010, M2001
M2003	1	Buttress	around 120 cm	80 cm	2000, 2004, 2017
M2004	1	Buried north-south stone wall made of ca. 5/6 courses of grey-blue limestones, located west of M2005. Linked to 2007. Abuted by M2008 Founded on a greeyish sand, against white limestone bedrock		40 cm	2014
M2005	1	Buried north-south stone wall made of ca. 5/6 courses of grey-blue limestones, parallel to M2004 which is located west. Abutting white limestone bedrock : its eastern face is very irregular, although the western face (inside the room?) is well built and regular.		45 cm	2014 (west), 2016 (east)
M2006	2	Wall made of 3/4 courses of grey-blue limestone, founded on eolian sand.	160 m minimum	120	
M2007	1	Buried east-west stone wall made of ca. 5/6 courses of grey-blue limestone, linked to M2005 and perpendicular to M2004 (linked?) Founded on a greeyish sand, abutting white limestone bedrock			2014
M2008	1	North-south wall made of ca. 6/8 courses of grey-blue limestone, parrallel to M2005 and abutting the western face of M2007, abuted by M2014 to its west Founded on a greeyish sand, against white limestone bedrock		110 cm	2014
M2009	1	Buried east-west stone wall made of ca. 4/5 courses of grey-blue limestone, linked to M2004. Founded on a greeyish sand, abutting white limestone bedrock to its west and geological to its south-east			2014
M2010	3	Long stone wall, self standing, without wall abutting against it. Limestone and limestone. Squarred stones, with regular outer face, set in horizontal layers of different height. The wall is directly founded on a hard ground (very compacted earth). 3 lower stone layers set without mortar (dry stone), maybe as foundations. Above layers (up to 4 preserved) coated with mud mortar. On the southern end of this wall, a 70-cm-long extension abuts the wall. It is founded at the same altitude and on the same ground. It is made up with the same dry stones.	11,30 m (uneartthed)	0,50/0,62m	2021, 2022, 2024, 2027
M2011	3	Curvilinear irregular wall delimitating the northern part of pavement L2009 and water basin L2005. Dry stone masonry made of 2/3 limestone courses with slope to its north.	343	60-80	L2009 (west)

Table 2. Preliminary list of walls in Sector C

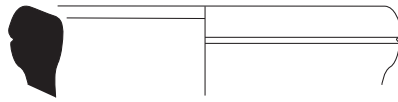
M2012	3	Curvilinear irregular wall delimitating the southern part of pavement L2009 and water basin L2005. Dry stone masonry made of a line of 1 obliquely set limestone course	282		L2009 (east)
M2013	3	Wide straight E-W limestone wall from under layer of the 'garden'. Dry stone masonry	7,55	67	2033, 2038
M2014	1	East-west wall or structure (?) made of ca. 3/4 courses of grey-blue limestone, perpendicular to M2004 and M2008. Founded on a greeyish sand, against white limestone bedrock. Seems to be founded one course higher to its north			
M2015	3	East-west stone wall under and in the same line than M2013 Dry stone masonry			2041, 2042
M2016	3	North-south stone wall, perpendicular and linked to M2013 Dry stone masonry ; 7 courses max.	141	75	2033
M2017	3	E-W stone wall in the continuation of M2013 Dry stone masonry			2047
M2018	3	N-S stone wall/structure in the continuation of M2010, abutting earth at its southern extremity Dry stone masonry with holes for the water			
M2019	3	Rectilinear N-S stone wall, located east of L2005 against L2009 Dry stone masonry	194 (248 originally)	31	

Table 2b. Preliminary list of walls in Sector C

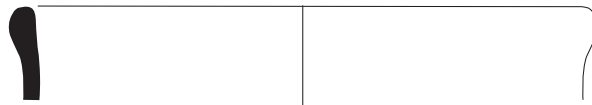
Locus number	Square	Locus type	Description
L2001	1	Floor	Floor abutting the oriental face of wall M2002 (enclosure). The material on the floor is incorporated to layer 2013, while the material coming from the bedding for the floor is 2018. Its surface is rather irregular on whole sounding, with a slope going up against the enclosure.
L2002	1	Room	Buried square building with door, and staircase (M2014, M2008), made of limestone courses walls (M2004, M2005, M2007, M2009) founded on geological greenish sand-silty soil 2020. Seems to keep an exact N-S E-W orientation.
L2003	3	Water channel	Stone built water channel with oblique stones placed on its sides and small stones at the bottom.
L2004	3	Water channel	Straight N-S stone built water channel with oblique stones placed on its sides and small stones at the bottom. Dry stone masonry. Beginning of the structure on top of the northern side of pit L2010
L2005	3	Water basin	Stone built water basin with a line of oblique stones placed on its southern side (M2012) and stone pavement L2009 to its northern part, with wall M2011. Dry-stone masonry. Hard compacted layer on top of pavement L2031 Pavement under: 1. earth + ash to its west, 2. sand layer, 3. 1031
L2006	3	Cultivation pit	Shallow cultivation area under eolian layer, west of L2007, with upper sides
L2007	3	Cultivation pit	Shallow cultivation area under eolian layer, east of L2006, ascending on its sides.
L2008	3	Water channel	Curvilinear N-S stone built water channel with oblique stones placed on its sides and small stones at the bottom. Irregular dry stone masonry. Joining L2004
L2009	3	Pavement	Pavement made of large flat irregular limestone blocks under 1031, at the bottom of basin L2005. Does not cover the complete surface of the basin!
L2010	3	Qandã, water channel pit	Deep narrow E-W pit
L2011	3	Pit	Recent shallow pit made for the installation of a recent ciment evacuation structure
L2012	1	Floor	Floor east of the enclosure wall
L2013	3	Floor	Floor of garden
L2014	3	Floor	Floor related to M2013
L2015	3	Floor	Floor related to M2015 (upper MB elevation)?
L2016	3	Floor	Floor related to M2015 (upper MB elevation)?

Table 3. Preliminary list of loci in Sector C

Pottery from Sector C



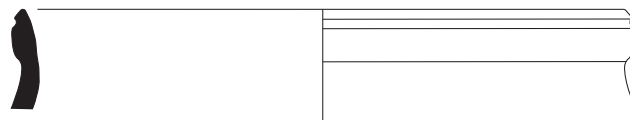
DJ.10.C.2000-3



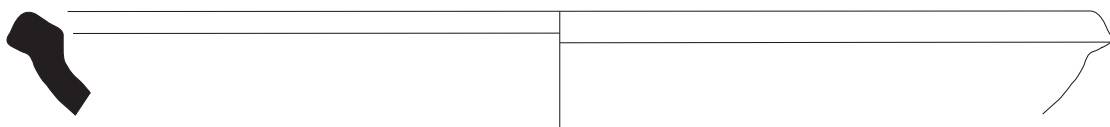
DJ.10.C.2000-2



DJ.10.C.2000-4



DJ.10.C.2000-5



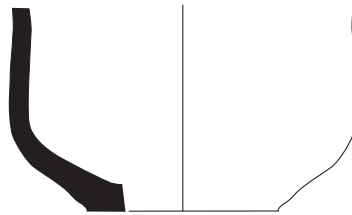
DJ.10.C.2000-1

5 cm

Layer 2000



DJ.10.C.2003-1



DJ.10.C.2003-4



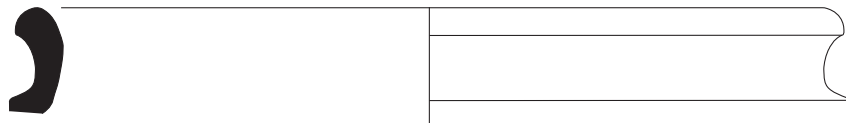
DJ.10.C.2003-3

5 cm

Layer 2003



DJ.10.C.2004-2



DJ.10.C.2004-1

5 cm



Layer 2004



DJ.10.C.2005-3



DJ.10.C.2005-2

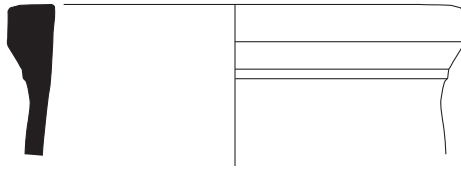


DJ.10.C.2005-1

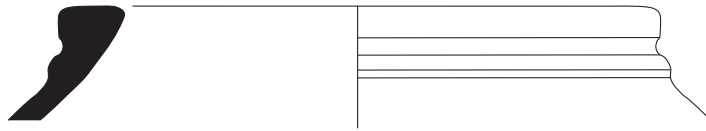
5 cm



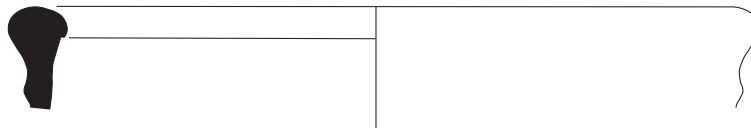
Layer 2005



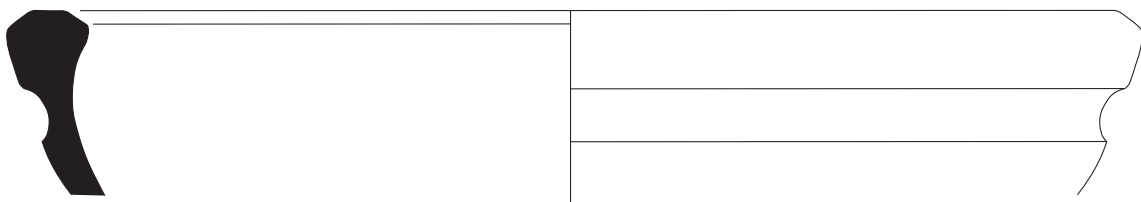
DJ.10.C.2008-3



DJ.10.C.2008-2



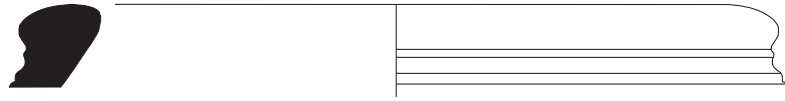
DJ.10.C.2008-4



DJ.10.C.2008-1

5 cm

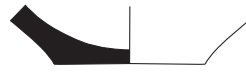
Layer 2008



DJ.10.C.2009-1

5 cm

Layer 2009



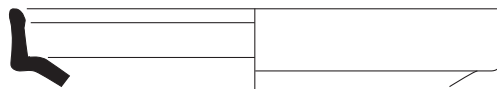
DJ.10.C.2011-1



DJ.10.C.2011-2



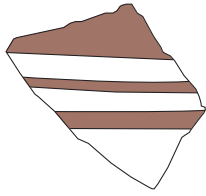
DJ.10.C.2011-3



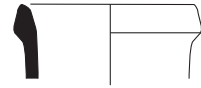
DJ.10.C.2011-4

5 cm

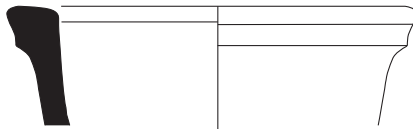
Layer 2011



DJ.10.C.2013-6



DJ.10.C.2013-3



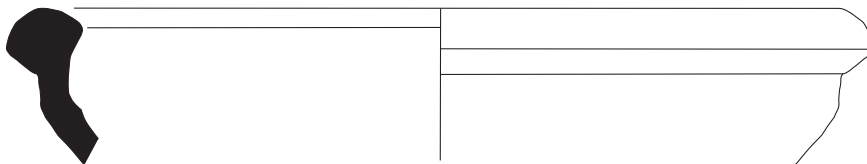
DJ.10.C.2013-4



DJ.10.C.2013-2



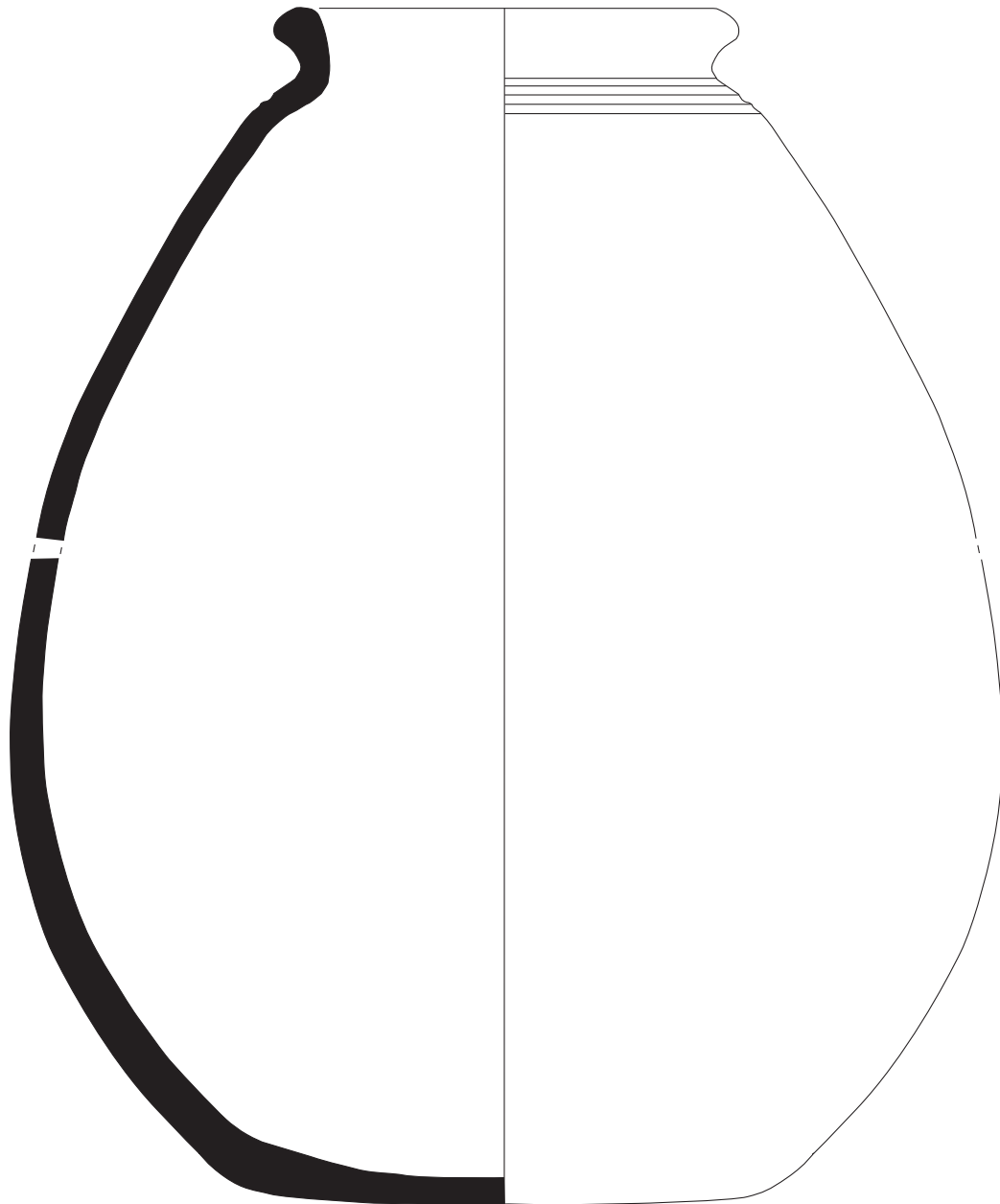
DJ.10.C.2013-5



DJ.10.C.2013-1

5 cm

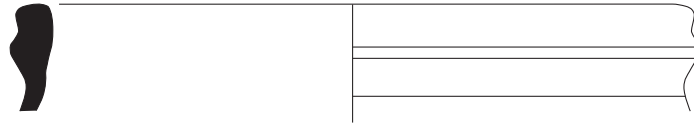
Layer 2013



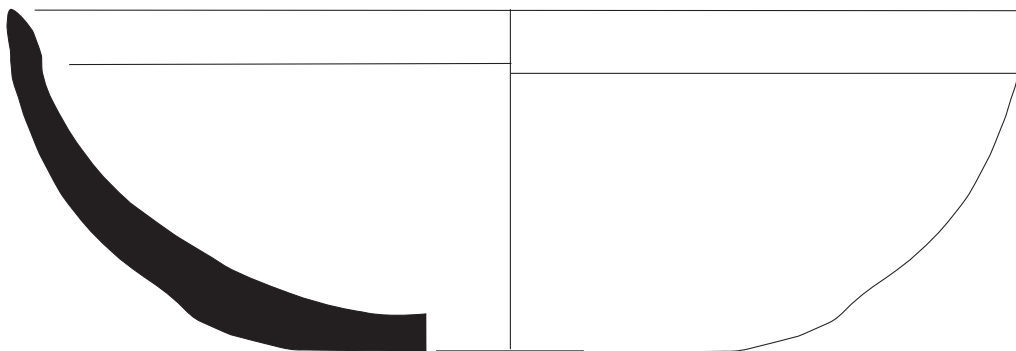
DJ.10.C.2013-7

5 cm

Layer 2013



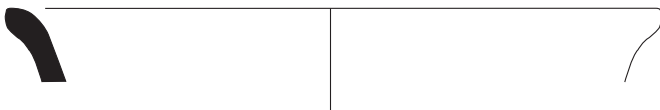
DJ.10.C.2014-1



DJ.10.C.2014-2

5 cm

Layer 2014



DJ.10.C.2017-1



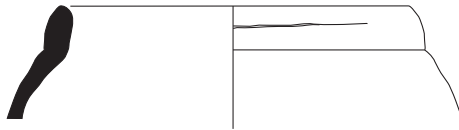
DJ.10.C.2017-2

5 cm

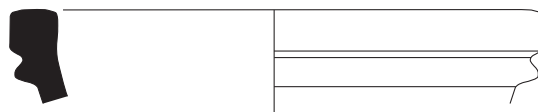
Layer 2017



DJ.10.C.2018-1



DJ.10.C.2018-2



DJ.10.C.2018-3

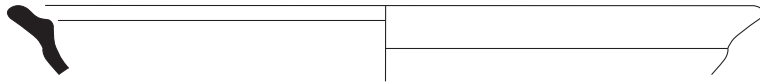
5 cm



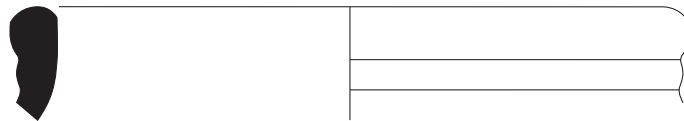
Layer 2018



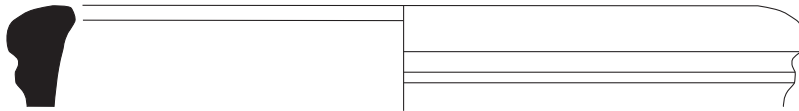
DJ.10.C.2022-16



DJ.10.C.2022-5



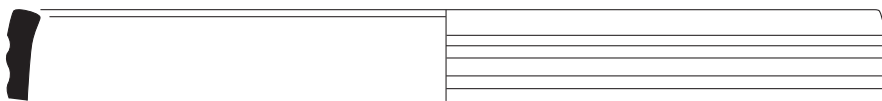
DJ.10.C.2022-6



DJ.10.C.2022-7



DJ.10.C.2022-9



DJ.10.C.2022-3



DJ.10.C.2022-4

Layer 2022

5 cm



DJ.10.C.2022-14



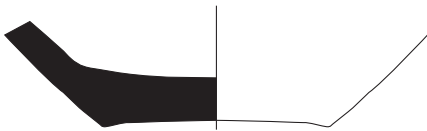
DJ.10.C.2022-2



DJ.10.C.2022-1



DJ.10.C.2022-18



DJ.10.C.2022-17



DJ.10.C.2022-10



DJ.10.C.2022-12



DJ.10.C.2022-11



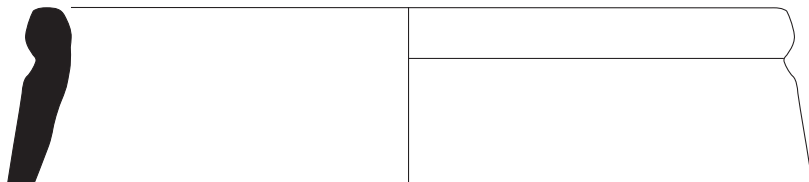
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DJ.10.C.2022-15



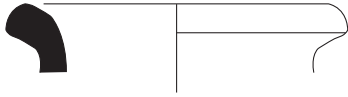
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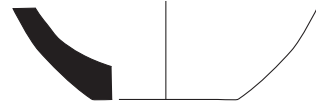
DJ.10.C.2022-8

5 cm

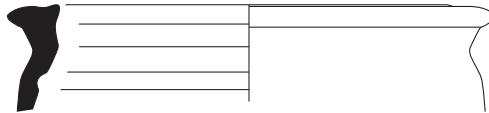
Layer 2022



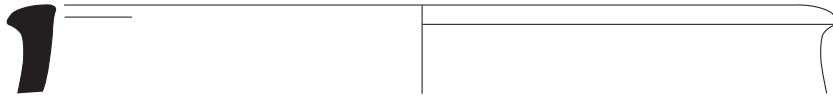
DJ.10.C.2027-8



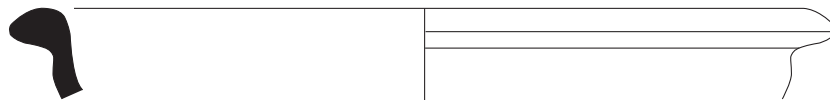
DJ.10.C.2027-5



DJ.10.C.2027-4



DJ.10.C.2027-6



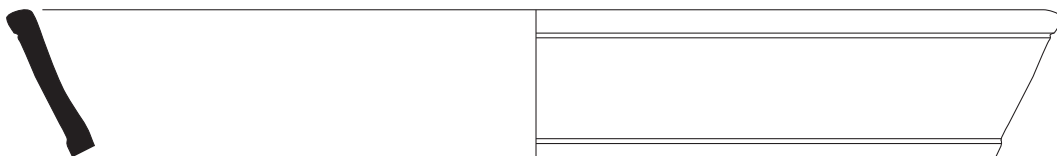
DJ.10.C.2027-2



DJ.10.C.2027-1



DJ.10.C.2027-3



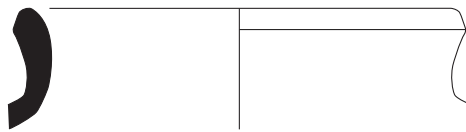
DJ.10.C.2027-7

5 cm

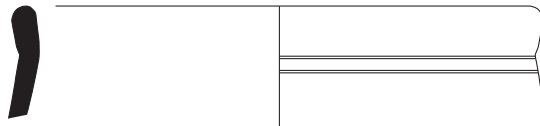
Layer 2027



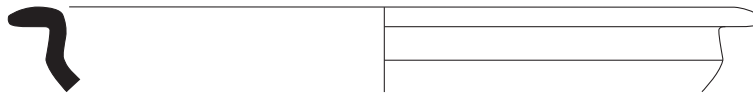
DJ.10.C.2033-4



DJ.10.C.2033-1



DJ.10.C.2033-2



DJ.10.C.2033-3

5 cm

Layer 2033



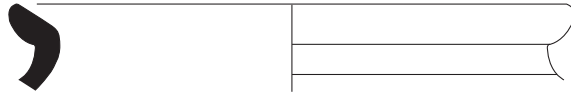
DJ.10.C.2035-2



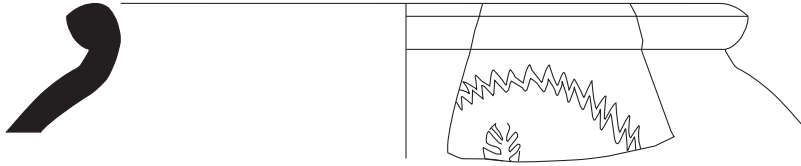
DJ.10.C.2035-1

5 cm

Layer 2035



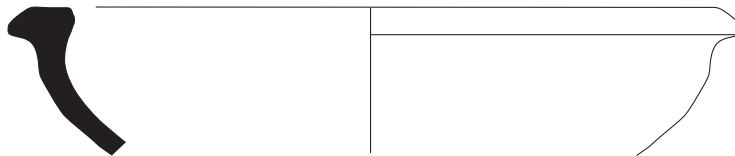
DJ.10.C.2036-4



DJ.10.C.2036-1



DJ.10.C.2036-2



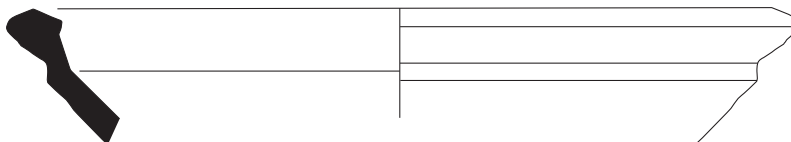
DJ.10.C.2036-3

5 cm

Layer 2036



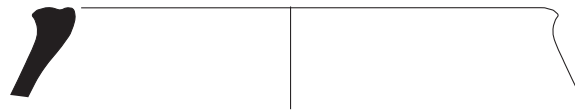
DJ.10.C.2038-2



DJ.10.C.2038-1

5 cm

Layer 2038



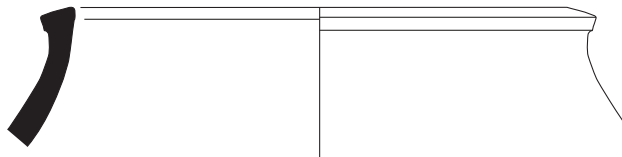
DJ.10.C.2040-2



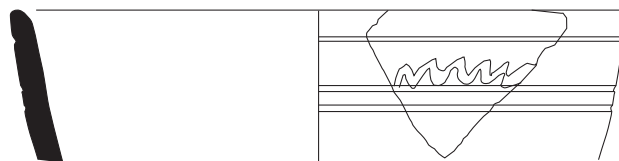
DJ.10.C.2040-1

5 cm

Layer 2040



DJ.10.C.2047-1



DJ.10.C.2047-2



DJ.10.C.2047-3

5 cm

Layer 2047

Number DJ.10.C.	Form	Diameter	Part	Fabric	Decoration	Slip description	Comments
2000-1	Platter	30	Rim	P2			
2000-2	Small jar	16	Rim	P2B?		White-beige slip ext. & int.	
2000-3	Small Jar	10	Rim	P2B?		?	Much eroded rim. Uncertain orientation
2000-4	Small jar?	14	Rim	P2		White-beige slip ext. & int.	
2000-5	Small jar	17	Rim	P1?		Self-slip	
2003-1	Juglet	4	Rim	P2		White-beige slip ext. & int.?	
2003-2	Juglet?	5	Base?	P2		White-beige slip ext.	Not drawn
2003-3	Large bowl?	?	Base	P6?		Slipped surface? Polished int. & ext.	Circular base. Unique sherd in the assemblage
2003-4	Juglet	5	Base and body sherd	P2B			Scratched base
2004-1	Jar	22	Rim	P4			
2004-2	Jug or Large bowl	8	Base	P2		Red slip ext	Annular base. Eroded inside
2005-1	Platter	25	Rim	P2		Self-slip?	
2005-2	Juglet	9	Rim	P2		White-beige slip ext. & int.	
2005-3	Pot?	9	Rim	P2		White-beige slip ext. & int.	
2008-1	Platter	30	Rim	P2		Smoothed, Burnished/ polished ext. & int.	
2008-2	Jar	16	Rim	P1		Self-slip?	No collar. Short rim with deep incised lines
2008-3	Jar	12	Rim	P1			Rim towards ext
2008-4	Platter?	20	Rim	P4?			Uncertain orientation. Eroded surface
2009-1	Jar	20	Rim	P2		White-beige slip ext, smoothed inside	
2011-1	Large bowl petite?	4	Base	P2		White-beige slip ext	
2011-2	Small jar or Jug	9	Rim	P2		Black slip int. & ext.	
2011-3	Small bowl	14	Rim	P4		White-beige slip ext. & int.	
2011-4	Small carinated platter	13	Rim	P4		White-beige slip ext. & int.	
2013-1	Platter	23	Rim	P2		White-beige slip ext	Thick internal rim
2013-2	Pot	18	Rim	P2		White-beige slip ext	Thin rim
2013-3	Juglet	5	Rim	P2		White-beige slip ext. & int.	
2013-4	Small jar	11	Rim	P2		White-beige slip ext	
2013-5	Small jar?	9	Base	P2		White-beige slip ext, planed down	

Table 4. Description of ceramic sherds from Sector C


2013-6	Jar?	0	Body sherd	P10B	4 brown-purple horizontal painted lines	White-beige slip ext and orange-beige int	
2013-7	Jar	13	Forme complète	P1			Very close to 2037-1
2014-1	Jar	18	Rim	P2		White-beige slip ext	
2014-2	Large bowl	18	Forme complète	P4		Red slip ext and self-slip int	
2017-1	Large bowl? Platter? Jar	0	Rim	P2?			
2017-2	Jug	14	Shoulder	P2			
2018-1	Juglet	0	Rim	P7? Beige-greyish		White-beige slip ext	
2018-2	Pot	10	Rim	P2		White-beige slip ext. & int.?	
2018-3	Platter	20	Rim	P2B		White-beige slip ext. & int.	
2022-1	Jar	14	Rim	P2		White-beige slip ext	Thick rounded rim towards ext.
2022-10	Jar	8	Rim	P2		White-beige slip ext	
2022-11	Bowl	13	Rim	P2		White-beige slip ext	
2022-12	Bowl	13	Rim	P2		Red slip ext. & int.	
2022-13	Bowl	13	Rim	P2		Red slip ext. & int.	
2022-14	Juglet	4	Rim	P2		Red slip ext. & int.	
2022-15	Large bowl	20	Body sherd	P2	Brown line on the inside rim and carination	Red slip int. & white-beige ext.	Uncertain Diam.
2022-16	Large bowl	17	Rim	P2	Brown line on the inside rim	White-beige slip ext	
2022-17	Small jar?	6	Base	P1		Beige slip ext	
2022-2	Jar	12	Rim	P6?		White-beige slip ext	
2022-3	Large bowl	23	Rim	P2		Red slip ext	
2022-4	Large bowl	23	Rim	P2		Red slip ext. & int.	Uncertain orientation
2022-5	Large shallow bowl	20	Rim	P6? Mar-ron gris		Red slip ext. & int.	
2022-6	Jar	18	Rim	P2		White-beige slip ext	
2022-7	Basin	21	Rim	P2		White-beige slip ext	
2022-8	Large basin	40	Rim	P2		White-beige slip ext	Thick rounded rim towards ext.
2022-9	Basin	22	Rim	P2		White-beige slip ext	Simple slightly thickened rim
2027-1	Large bowl	26	Rim	P2? Mar-ron		White-beige slip ext. & int.	
2027-2	Large bowl	22	Rim	P2? Mar-ron		White-beige slip ext	
2027-3	Large bowl	25	Rim	P2		White-beige slip ext	
2027-4	Jar	13	Rim	P2? Brown		Black slip int. & ext. (due to cooking?)	
2027-5	Juglet? Little pot?	6	Base	P2		White-beige slip ext. & int.	

Table 4b. Description of ceramic sherds from Sector C

2027-6	Large pot? Jar? Or basin?	22	Rim	P2		White-beige slip ext. & int.?	
2027-7	Large bowl	28	Rim	P4? Marron-brown		Red slip int and blanc-beige ext	
2027-8	Jar	9	Rim	P2?		?	Much eroded surface
2033-1	Jar	12	Rim	P2		White-beige slip ext. & int.	
2033-2	Jar? Pot?	14	Rim	P6?		Brown slip, well smoothed. White painted lines int. & ext.?	Uncertain orientation
2033-3	Small platter	20	Rim	P2		White-beige slip int	
2033-4	Jug?	5	Base	P1		White-beige slip ext	Very rough inside, well slipped outside
2035-1	Large bowl?	/	Base	P3			Traces of coils. Traces of string base cut
2035-2	Juglet	10	Rim	P1		White-beige slip ext. & int.?	
2036-1	Jar	18	Rim	P2	Palmette and incised decoration before slip	White-beige slip ext. & int.	
2036-2	Large bowl with internal rim	19	Rim	P2		White-beige slip ext. & int.	
2036-3	Platter	20	Rim	P6?		Brown slip int. & ext.	Uncertain diameter
2036-4	Jar	15	Rim	P2		White-beige slip ext	
2037-1	Large bowl	17	Rim	P4			Very close to 2014-1
2037-2	Pot	18	Rim	P2		Pink slip ext	Deep grooves
2037-3	Bowl	11	Rim	P2		White-beige slip ext. & int.	
2037-4	Large bowl?	10	Base	P2			
2037-5	Jar	0	Handle	P1			Handle
2038-1	Platter	22	Rim	P4		White-beige slip ext. & int.?	
2038-2	Pot	11	Rim	P2		White-beige slip ext	
2038-3	Jar	17	Rim	P3			Flaring rim towards the ext.
2040-1	Large bowl?	20	Rim	P2			
2040-2	Jar	14	Rim	P2		White-beige slip on the upper part of the rim.	Holemouth jar
2047-1	Jar	13	Rim	P1		White-beige slip ext. & int.	
2047-2	Large bowl	16	Rim	P2?		Self-slip	
2047-3	Large bowl	18	Rim	P4?		Self-slip?	

Table 4c. Description of ceramic sherds from Sector C





The Recording System & Some Preliminary Remarks on the Islamic Pottery

Pierre Siméon



The Recording System & Some Preliminary Remarks on the Islamic Pottery

Pierre SIMÉON (post-doc in UMR 8167, CNRS)

The study of ceramic material was carried out on site during the first year of the joint Saudi-Italian-French archaeological Project between October 1 and November 7, 2010. This work was undertaken in close collaboration with archaeologists Guillaume Charlux and Romolo Loreto. It makes it possible, among other things, to understand the nature of the different phases of occupation, providing clues as to dating and circulation of goods and people.

After explaining our approach, we will make a number of remarks on fabrics, shapes and surface treatment, on the one hand, and on the characterization of Medieval occupation levels and attempts at dating, on the other. Lastly we will list some study aspects to pursue during the next archaeological campaign.

I. Recording System

Objectives and methodology of study

To best fit the needs of archaeologists, four goals were set prior to the work field:

- . Recording all the pottery material from the 2009 Italian campaign (2 weeks of excavation, 48 buckets of ceramics).
- . Establishing a morphological typology for the periodization of the ceramics, by drawing pottery shapes.

- . Identifying and describing ceramic fabrics, in correlation with morphological studies and dating.
- . Exploring the medieval Islamic ceramics of the site and providing chronological milestones.

The material is divided into two excavation areas (sectors A and C) and has some obvious similarities. Sector A (at the foot of Qasr Mârid) delivered a very significant amount of material, although very little pottery was recovered in the excavation of sector C (3 km west, 3 soundings). We therefore chose not to distinguish these sectors in this general presentation.

The ceramic material was studied by levels in sector A¹, and layer or stratigraphic unit (U.S.) in sector C, in both cases as desired by the archaeologists in charge of excavations.

The fieldwork was conducted in the following six stages (**pl. 1**):

1. Sorting (for fabrics, shapes and designs), performed after washing the ceramic lots. This provided an initial assessment of the nature of the layer as well as permitting some easy restoration. For instance, the excavation of floor layer 2013 related to the enclosure wall (Sector C, sounding 1) gave a small complete jar in fabric 1 (**Fig. 12**) broken on the floor due to the collapse of the mud-brick elevation. Its stratigraphic position makes it a potentially important piece of evidence for dating. Moreover, to date it is the only complete form found on a floor. No doubt restoration of it is essential, making it available for a wider public in the site Museum. The non-diagnostic sherds were reburied in a pit at the eastern foot of Qasr Mârid².
2. Selection and marking of significant sherds (mainly rims and bases). The recording system follows that established by Italian archaeologists in the 2009 campaign, that is to say the initials of Dûmat al-Jandal (DJ), the year in abbreviated form, the capital letter corresponding to the study sector (U.S. number in sector C and bucket number in sector A) followed by the number of fragment (eg. DJ.10.A.63-47), usually written on the inside wall of the sherd. The significant sherds, which were

¹. Taking into account several layers, each corresponding to a bucket.

². *Sondaggio* (2), coordinates x: 583870.3994 / y: 3298205.7166 / z: 609.74



Plate 1. Top: Washing the ceramic lots; bottom: sorting for fabrics, shapes and designs.

numbered with a black indelible pen, were marked with a black dot for photos and a red dot for drawings to avoid omissions during further study.

3. All sherds of a same level (or even U.S.) were then photographed on both sides. To facilitate the utilization of these photographs, we kept as much as possible to pottery subsets, previously identified during the sorting (fabrics, shapes and decorations). The body sherds were arranged clockwise, and the registration number is centered below. The black background textile used for pictures facilitates drawings and photomontages. For levels in sector A, where material is more abundant, a brief description of each photograph in a list makes possible to find a sherd quickly.
4. Only diagnostic sherds were drawn³. The drawings were made on tracing and graph paper (A3 format) at the scale 1/1. The indicated diameter is in all cases the outer diameter (exact or approximate). The vessel profile is placed to the left. Under the drawing is indicated the number of the pottery sherd, its fabric number (denoted P1 to 22 so far) or, alternatively, and a description of the surface treatment and the decoration (color, texture, inclusions). All technical or morphological comments were also noted in the drawing.
5. Extra time was spent at the end of the mission to check the drawings⁴. A first series of pottery vectorization was performed on site by R. Loreto (78 drawings) and by myself (208 drawings); the largest part of the “scanning” and vectorization was conducted in Italy and France.

Diagnostic pottery sherds were recorded in the Pottery Database by the archaeologists with the following rubrics: Locus number / Sherd number in locus / Fabric number / Form, function / Diameter / Vessel Part/ Decoration technique / Decoration / Slip / Comments. These rubrics were discussed and accepted by all the participants.

³. Given the absence of a morphological typology for the Jawf region and for all periods seen in Dūma, selection of shapes for the drawing was deliberately very broad – every rim and form.

⁴. Note that all the drawings of sector C were verified by G. Charloux.

6. Finally the bulk of uncovered material from 2010 campaign (about 125 buckets) was cleaned, and stored away from dust. The entire protocol was facilitated by the excellent working conditions (offices, storerooms, draft tables in the al-Jawf Museum) made available to us by our colleague, Ahmad al-Qa'îd, director of the museum.

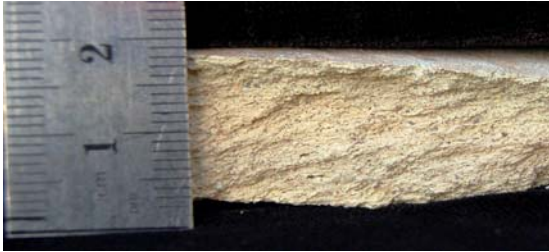
b. Preliminary results and general remarks

***Fabrics* (Fig. 1 and Table 1)**

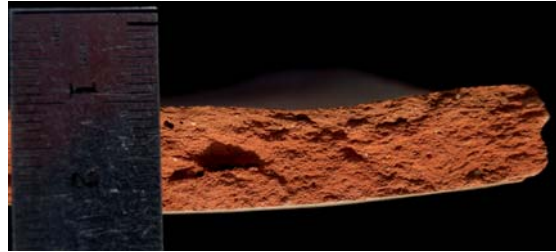
Fine and coarse unglazed fabrics were described and numbered from 1 to 22. Some fabrics have closely related subtypes denoted by a lowercase letter. This first list and description (attached below) will allow local and regional productions to be identified in the future. It will also assist in recognizing imports and characterizing specific technical features that will complement our knowledge of production, and circulation of pots, techniques and artisans.

These fabrics were sampled (sherds stuck onto cardboard) to facilitate identification. Macro-pictures of each fabric type were made.

This first inventory is mainly based on material obtained from sector A: it presents all fabrics and covers the entire period from the early Nabataean to the 19th century attested during 2009 and 2010 campaigns. For a preliminary chronological sequence see **Table 1** in the chapter Excavation of sector A. It must be supplemented by new fabrics from future fieldwork. Furthermore, glazed ceramic fabrics (present in very small quantities) have not yet been analyzed.



Fabric 1



Fabric 2a



Fabric 2b



Fabric 3



Fabric 4



Fabric 5



Fabric 6



Fabric 7



Fabric 8

Fig. 1a. Ceramic fabrics at Dūmat al-Jandal in 2010

Fine fabrics (7 types)

Fabrics 1 and 2, easily identifiable, are the most frequent in sites A and C. They are abundant in the lower levels (Nabataean, Roman, Byzantine/Sassanian). The large amount of fabric 2 suggests, as a preliminary basis, that it is locally produced. The existence of sherds with 'two-tone' fabric (black and red clearly separated), both close to fabrics 2 and 3, may suggest that the fabric could be identical, baked in a reducing atmosphere voluntarily or simply over-baked. The ceramics in fabric 1 are, in turn, slightly less frequent in all studied lots, except perhaps at the junction of Levels 3 and 7. We also noted that it is very fragile and friable, which raises questions about whether it was in fact transportable⁵. There are also some more rare fine fabrics (5, 6, 7, 8) perhaps belonging to imported wares. Further morphological studies and comparisons should clarify these points.

Coarse fabrics (15 types)

Coarse fabrics were found in a wide variety⁶. They represent a smaller number of shapes that were only found in Levels 2, 3, 4 and 6 of sector A. They are virtually absent from sector C apart from some sherds in Fabrics 10 & 10a (only one campaign). This may be due to the nature of the occupation.

Most of these fabrics have an addition of temper, identifiable when it is vegetal (9, 11 and 18) or crushed fired pottery (grog) (14, 18, 20, 21), but harder to determine as a voluntary addition when mineral⁷. The variety and specific inclusions (shape, color, quantity) suggest that taking into account regional geological maps would quickly bring about some interesting results⁸. Clays or purple and green clayey soils are abundant in the wâdî of Dûma (marked on the eastern edges for example), and are visible at the foot of the Mârid castle.

As a preliminary basis, we can note that the use of some of these fabrics varies over time. We observed for example that fabrics 10, 11, 19, 22 are rare in the upper levels

⁵. Unless this weakness is due to bad conservation in the soil?

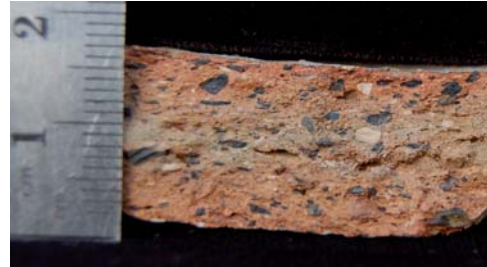
⁶. This may reflect the variety of places of manufacture or production household, but also a wide range desposits of raw materials, particularly of minerals used as a temper.

⁷. Because these mineral inclusions may be naturally present in the sediments, for example, schist (?) in fabrics 19 and 20 or alluvial sand in fabric 22.

⁸. Sayari & Zötl 1978; Sindi 1986.



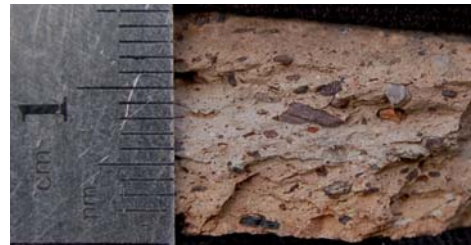
Fabric 9



Fabric 10a



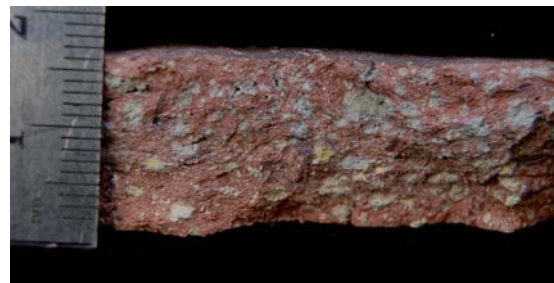
Fabric 10b



Fabric 11



Fabric 12



Fabric 13

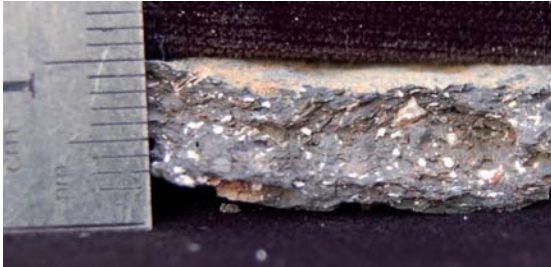


Fabric 14



Fabric 15

Fig. 1b. Ceramic fabrics at Dūmat al-Jandal in 2010



Fabric 16



Fabric 17



Fabric 18



Fabric 19



Fabric 20



Fabric 21



Fabric 22

Fig. 1c. Ceramic fabrics at Dūmat al-Jandal in 2010

Fabric	Body texture	Colours surface and body	Visible inclusions and estimate quantities	Various comments	Stratigraphic data
1	fine, friable	yellowish, whitish, light green, surface and body	quartz sand (?) (> 2 mm), grey fine grains, mica (?) very fine brillant rare	wheel-thrown and hand-made	Level 5
2a	fine, hard	white to beige surface, bright orange core	white nodules rounded or elongated (> 2 mm) irregular quantity, whitish quartz (?) rounded and angular (> 2 mm), grey fine sand in surface	wheel-thrown only	Levels 5, 7, 8, 9... Sector C
2b	fine, grains visible	beige/cream surface, bright orange body	white nodules	wheel-thrown	Sector C / 2013
3	fine, hard, sandy surface	black/ greyish body, dark brown or grey surface	fine grey sand, whitish, quartz (?) rounded and angular (> 2 mm) , white nodules	wheel-thrown	Level 5
4	fine, hard	light brown in surface, brown to grey body	black elongateds angular whitish nodules (> or = 6 mm)	wheel-thrown only	Level 8
5	medium dense, hard	light brown to grey surface and body	grains grey and brown angular, nodules whitish sparse (> or = 2,3 mm)	rare	?
6	fine, hard, dense	dark grey to brown and orange surface and body	black angular sand, fine	wheel-thrown, specific forms, imports ?	Level 4
7	fine, hard	brown in surface, light grey to beige yellow body	/	hand-made and wheel-thrown, slip decoration red or brown interior and exterior	Levels 2, 7
8	fine sandy	light grey surface and body	very homogène	wheel-thrown, (subtype of P1 ?)	?
9	coarse	orange surface, black to purple body	white nodules rounded and irregular abundant, grey grains, black angular, sparse, vegetal temper	Much more vegetal temper is noticed in the orange surface	?a
10a	coarse, dense, hard	internal surface light orange, grey coloured external surface, pinkish to orange body	black elongated schiste (?) (inferior or equal to 3-4 mm) abundant, white grains elongated and angular, red angular very sparse	ribbed surface	Level 3 (mixed context), level 10
10b	coarse, hard	pinkish to beige surface and body	red brick grains elongateds (> or = 4 mm), grey angular grains sparse (crushed fired pottery [grog] ?)	hand-made	Level 8, Sector C, 2013
11	coarse, dense, hard	beige to grey surface and body	grains angular black (abondant) and red brique (inf ou = 3 mm), sometimes to 8 mm deep, vegetal temper	hand-made	?
12	coarse	yellow to grey body and surface	roundeds grains black and grey (> or = 4 mm)	hand-made, grey and red brick coloured slip	Level 6 (floor)
13	coarse, friable	pink to bright red surface and body	white nodules rounded and irregular, ondant, grey and black angular grains sparse	hand-made, maybe related to P15 and P21	Levels 2, 3, 4, 6
14	coarse friable	beige, greyish surface and body	crushed fired pottery (grog) (7,8 mm)	hand-made, very rare	?
15	coarse	bright orange and pink surface and body	white rounded irregular nodules (> or = to 6 mm) medium frequency and black angular grains sparse	hand-made, near P13 but more dense body	?
16	medium	black, dark grey in surface and body	white irregular nodules very frequent (like shells), elongated black and red sparse grains	wheel-thrown or hand-made ? Maybe overcooked ?	?
17	coarse, friable	beige/ greyish to light brown surface and body	rounded and brown gravels, black to grey (> or = to 9 mm)	hand-made	?
18	very coarse, hard	beige coloured surface, light orange to pinkish body	crushed fired pottery (grog) (> or = to 1 cm) and vegetal temper (> or = to 1-2 cm)	hand-made only	Levels 2, 3
19	coarse, friable	grey core, orange surface coloured	black elongated schiste (?), very abundant, only in the center of the core	hand-made	?
20	coarse, friable	bright orange surface, dark grey to black body	angular gravels red-brown colour, elongateds, (inferior or equal to 3-4 mm)	hand-made, very rare	?
21	coarse, hard	pinkish to beige surface and body	crushed fired pottery (grog) (> or = 7 mm), white irregular nodules, very abundant	hand-made, near P13 but denser body	Level 4
22	coarse, friable	beige/ cream and light orange surface and body	alluvial sand, grey, brown, transparent, grains of quartz (?) subrounded and matt (1 to 3 mm)	hand-made	Level 10

Table 1. Fabric descriptions

(2, 3, 4, 6) but more frequent in Level 10. Other fabrics (9, 14, 16, 18, 20) remain extremely rare in all levels, and we cannot yet draw any conclusions. This first identification and interpretation of the fabrics based on two excavations seasons, is also the foundation for a broader questioning concerning the presence of a craft sector in Dûma or in the region⁹.

Forms and manufacturing techniques (Figs. 2-6, 12)

The morphological study will draw on the corpus of drawings consisting of 350 drawings for 8 levels for sector A and 70 drawings for thirty stratigraphic units for sector C.

While awaiting a detailed study, some general features emerge:

. Open forms are dominant in the corpus. At this stage of the study, the number of forms appears relatively small for a full range of sizes. The forms in coarse fabric belong to hemispheric basins or with oblique rims, suggesting the most diverse domestic functions. It is found that the hand made ceramics are dominant in the upper levels (2, 3, 4, 6) of sector A; this trend reversed sharply in the lower levels (5, 7, 8, and probably 9 and 10). In sector C, we noted the rarity of hand made ceramics (Fabrics 10 and 10a only). A large number of vessels could be related in their shapes to cooking pots but they show no traces of fire. We observed the recurring presence of tenons (or buttons) placed on top of vertical or outward walls of pots (see for example **Figs. 3-5, 7, 10, 11**). Sometimes very small in size, their “functional reality” may be questioned. We noted that several fragments are composed of coarse gravel or angular crushed fired pottery (grog) and then shaped by pinching and rotating with fingertips. Concerning the hand made ceramic, we found no traces of shaping with bat nor coil building. Only a few flat bases indicate the shaping of the pottery wall first as a cylinder

⁹. No indication of ceramic production has been found on the site. The quantity of metal slag is also very small which suggests that industrial zone were not located on the vicinity of the castle. Several reddened areas were however seen in the palm grove. There is also a production site of pottery comprising twenty kilns, about 40 km east of Sakâkâ and contemporary potters are known 300 km south-east from Hâ'il.

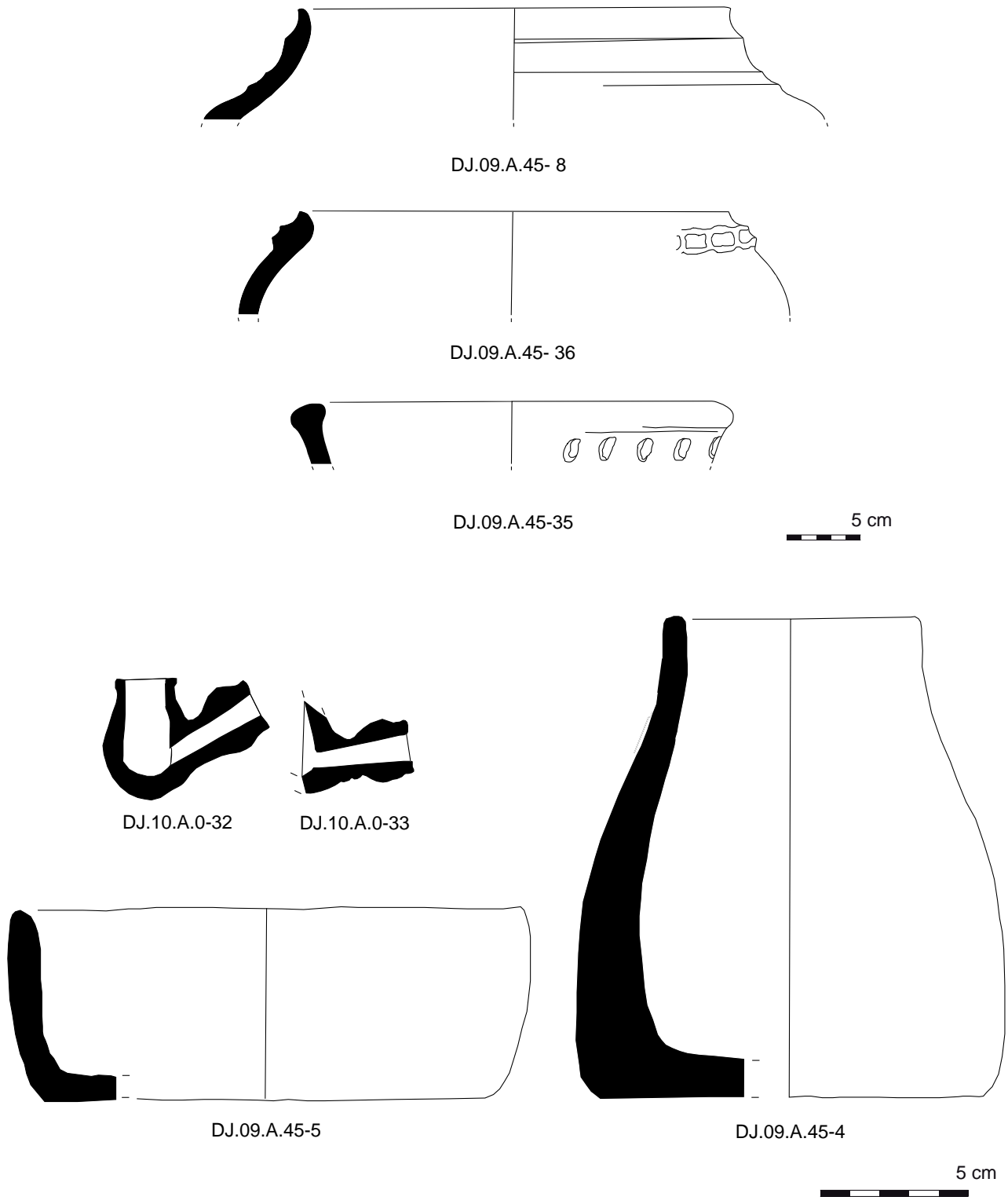


Fig. 2. Selection of sherds from Level 2

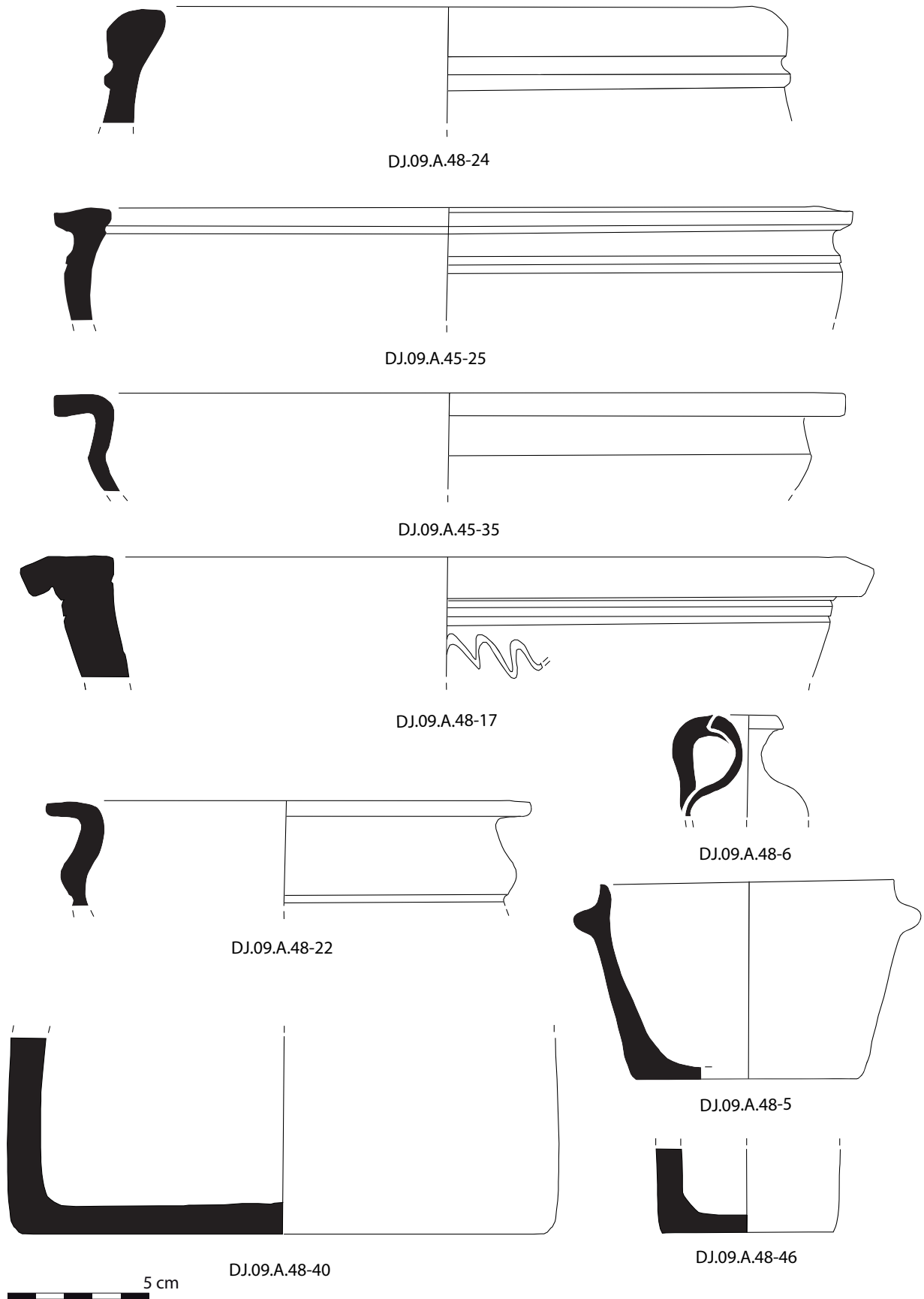
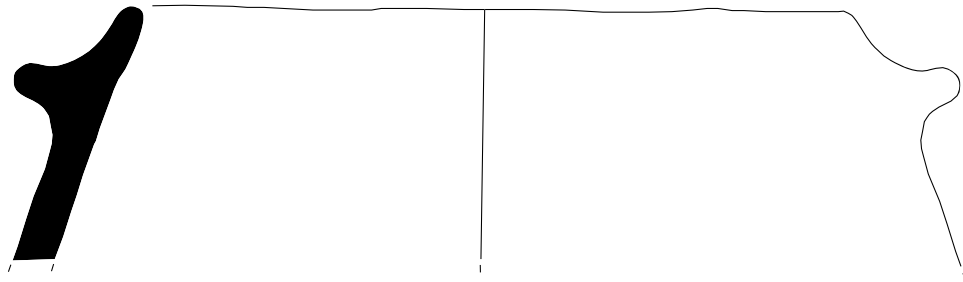
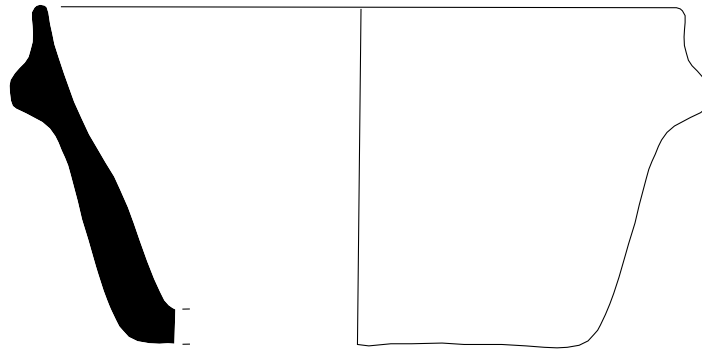


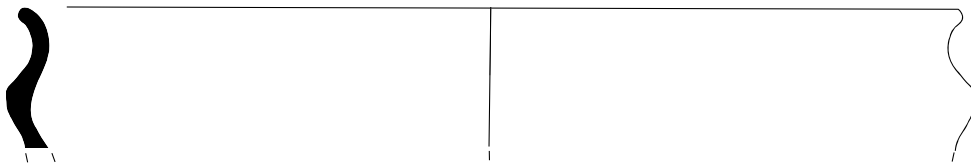
Fig. 3. Selection of sherds from Level 3



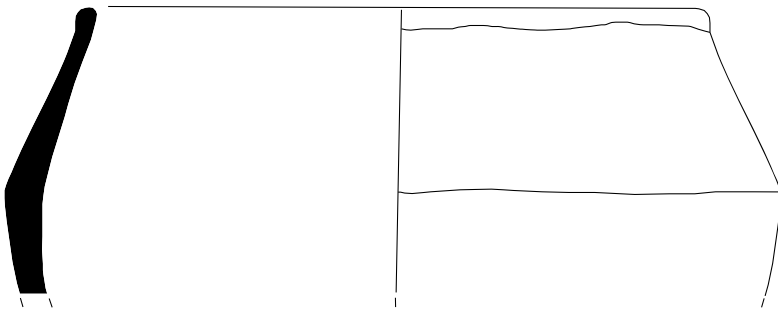
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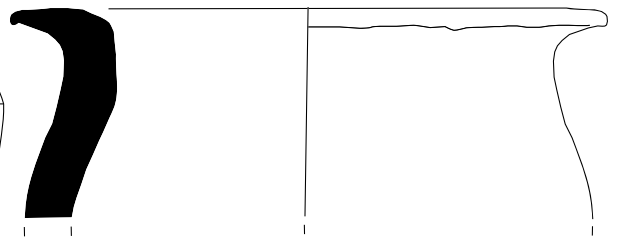
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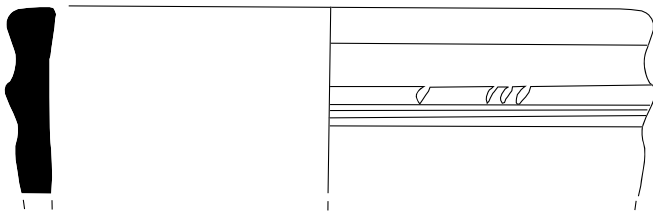
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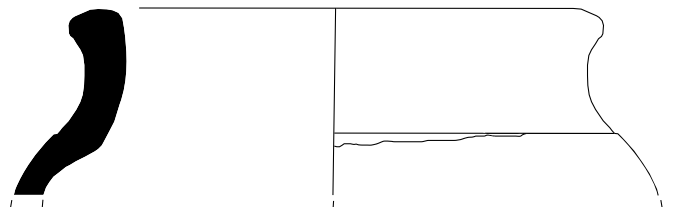
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DJ.09.A.29-61



DJ.09.A.29-66



DJ.09.A.45-35



Fig. 4. Selection of sherds from Level 4

and second with the addition of a base. The characterization of manufacturing methods should be continued.

- . Closed shapes predominate in the wheel-shaped ceramic assemblage, and are abundant in the lower levels (5, 7 and 8) (see for example in **Fig. 6**). There is a correspondence in form between ceramic fabrics 1 and 2, which might suggest that they are contemporary or at least that one of these productions is inspired by the other. Archaeologists and I have been surprised by the diversity and quality of the forms encountered: elaborate table vessels with complex rims, jars and globular jugs of various sizes, cups, bowls, some with annular base and thin to very thin walls (Nabataean egg-shell pottery with red slip decoration). We are currently preparing a typology of the pottery for easier study. **Figures 2 to 6** show a selection by level of remarkable forms. See also **Loreto, Sector A: figures 9 and 10** with characteristic Nabataean pottery from Level 5).
- . Molded pottery is very rare, only three fragments were found (Levels 3, 4 and 6): two belong to closed shapes (probably a jug made of two superimposed hemispherical halves), the second could belong to a type of vessel commonly called ‘pilgrim flask’.
- . We already notice that some forms are closely related to one fabric type, often also to one type of manufacturing technique (either handmade – modeled or wheel-shaped), also indicated in the Table 1. This is the case for small vessels with carinations, cooking pots with neck encountered in fabric 7, large jars or basin in fabric 19, pots in fabric 13 (...). Only ceramic in fabric 1 are found wheel-shaped and modeled, while fabrics 2 and 3 are only wheel-shaped. This seems also to be the case with other fabrics (4, 6 and 8), but we still have manipulated too few sherds to get a secure opinion.
- . All sectors and levels included, we noticed the absence of lamp fragments and the limited presence of large storage vessels (diameter > 30 cm).

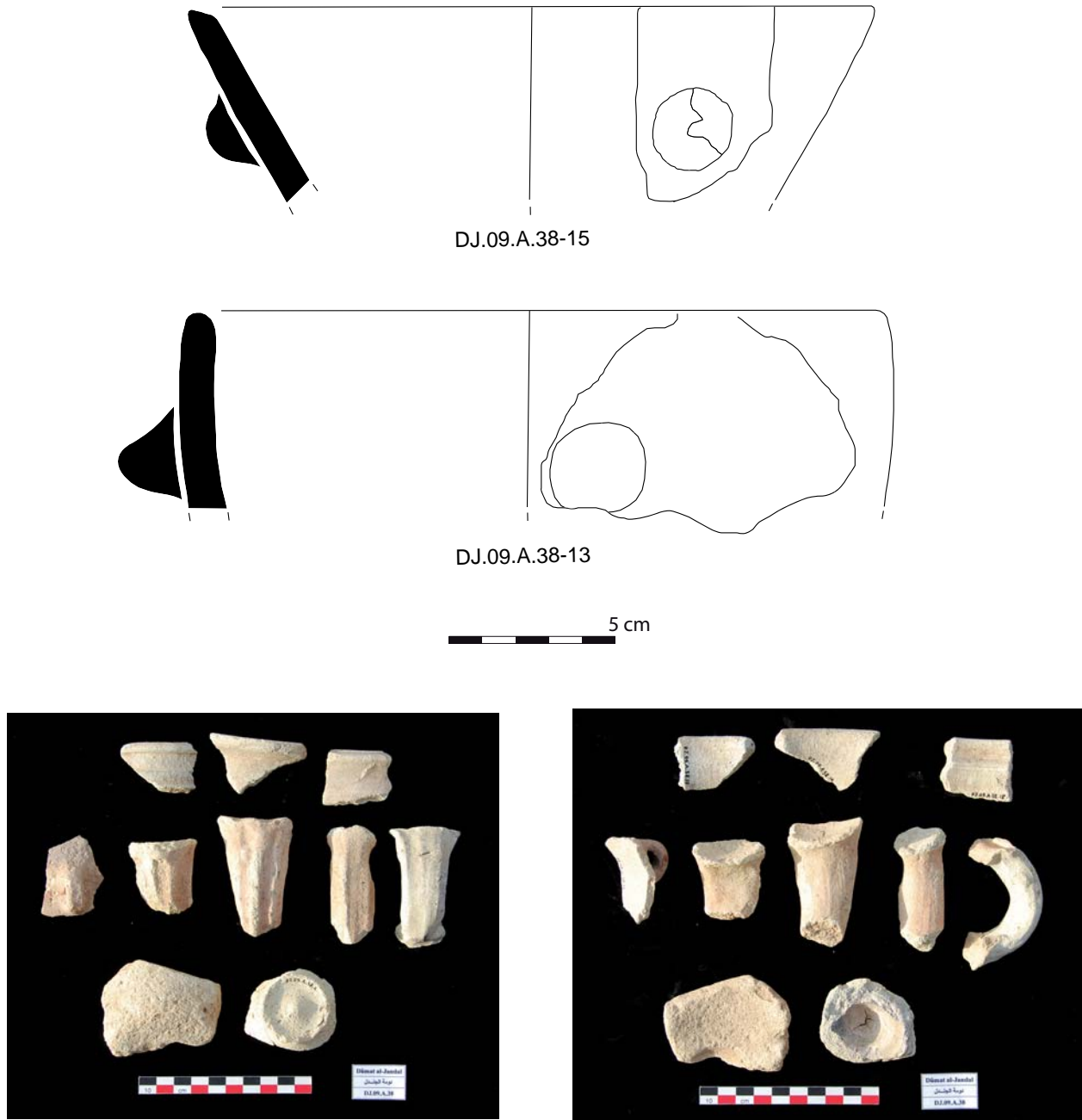
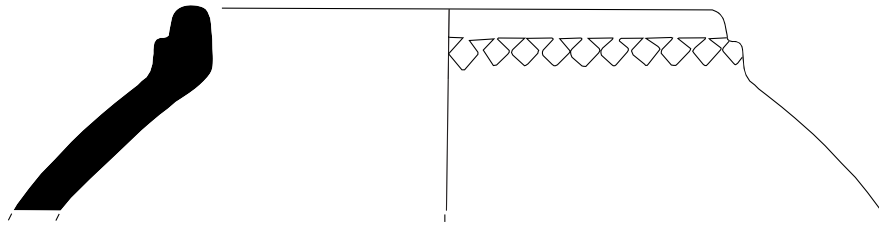
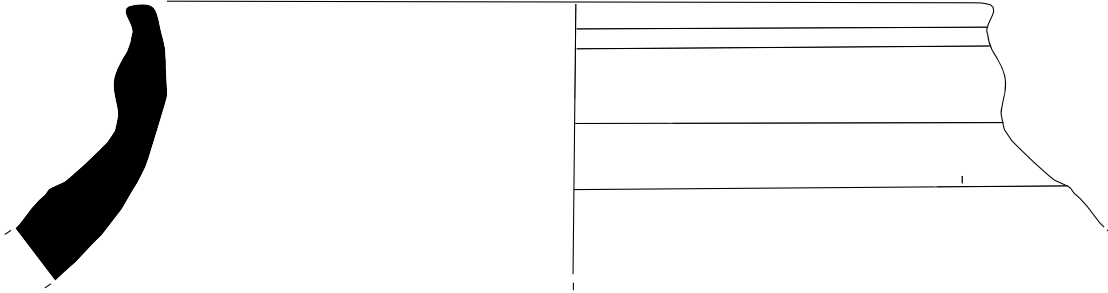


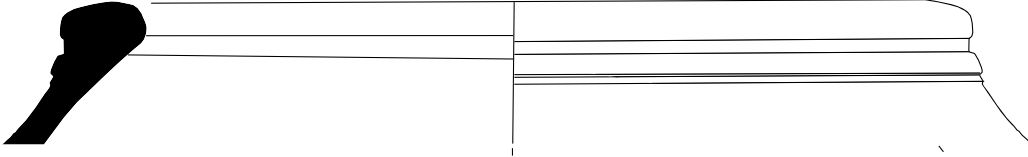
Fig. 5. Top: selection of sherd drawings from Level 5, Bottom: Photographs show only closed forms in Fabric 1. **See also Loreto, Sector A, Figs. 8-9**



DJ.09.A.46-20

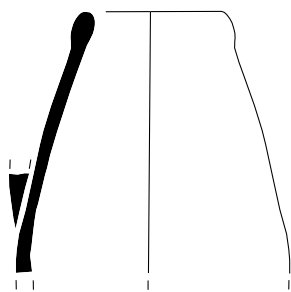


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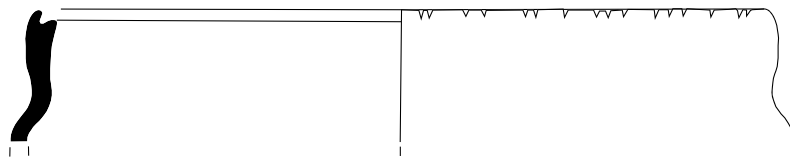


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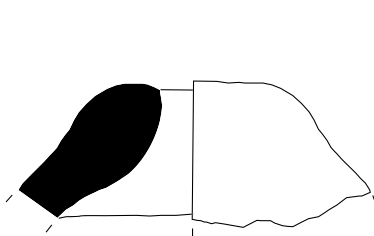
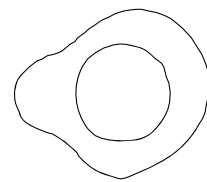
0 5 cm



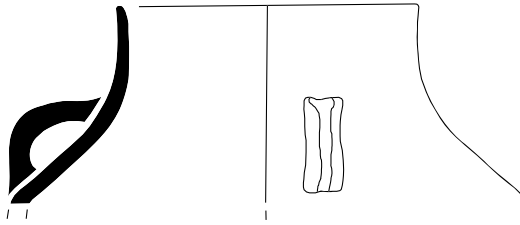
DJ.09.A.46-35



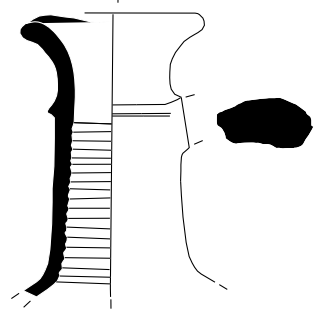
DJ.09.A.46-11



DJ.09.A.29-36



DJ.09.A.46-5



DJ.09.A.46-3

5 cm

Fig. 6. Selection of sherds from Level 6



Fig. 7. Selection of hand made cooking-pot sherds from Level 2



Fig. 8. Ottoman molded pipes from Level 2. Top: DJ.10.A.0/33; bottom: DJ.10.A.0/32



Fig. 9. Selection of wheel-thrown rim sherds from Level 3

Surface treatments and decorations (Figs. 10-11)

On wheel-shaped ceramics, the application of a slip is common:

- . Pink or beige on fabric 1 (inside);
- . Brown, red, white, almost systematically on the ceramics in fabric 2 (outside or inside).
It can be applied in alternating strips which outline the carination of the neck;
- . White slip covered with a red slip on some ceramic of fabric 2 (outside);
- . Gray (outside) and yellow (inside) on ceramics in fabric 7;
- . Gray (outside) on the ceramic in fabrics 4, 7 and 12.

The other decorations are limited in number:

- . Decoration by 'tilting', associated with three stamped patterns (vegetal / 'palmette' (common), 'coffee beans' and 'sun' (lower case), located on the shoulders and under the collar of globular jugs or small jars;
- . Many pottery profiles are deeply marked by wheel-shaping. The outer walls showing undulations are also more specific of Levels 7, 8 and 9.

On modeled ceramics, wall surfaces have some characteristics:

- . Polished or lustred (outside / inside) using a hard tool (eg roller) whose traces are still visible;
- . Brown spots or large color variations that indicate irregular, domestic (?) or in lump (?) cooking, except for one type of pot with tenons whose surface is pink and 'marbled' (fabric 13, many examples in Level 4 – see **Fig. 10**);
- . A slip is sometimes applied to the whole surface, and in general we find little painted decoration, apart from the vessels in fabric 7 (painted inside and outside with red brick slip).



Fig. 10. Selection of wheel-thrown rim sherds and glazed ware from Level 4



Fig. 11. Selection of hand made storage jar and basins sherds from Level 6



Fig. 12. A wheel-thrown jar (DJ.10.C.2013-7, see [Charloux et al. Sector C: 246](#))

2. Remarks on Islamic Pottery

Only one coin, probably Islamic (still to be analysed), was found in sector A from the lowest part of Level 3b; and few artefacts (soapstone vessels, figurines) can provide stratigraphic information, apart perhaps from the many glass bracelets found in the upper levels.

Further chronological information will be provided by comparative study of pottery (apart from clearly identified types which provide some chronological markers); this must still be jointly conducted with archaeologists.

Our study of the Islamic assemblage already provides some additional elements for an understanding of Levels 3 and 6 (**Figs. 3, 6, 9 and 11**). In sector A¹⁰, the surface level and abandonment of the site is clearly visible by eolian deposits (Level 2), which cover a thick level (Level 3) of many small stone blocks¹¹, numerous domestic mills. The lack of floor may be explained by the slope on the east and north-east sections which abuts on wall M19. This suggests that this significant destruction / collapse level is related to the houses standing on the slopes of the nearby outcrop of the Qasr Mârid, where sector A is implanted. The modest domestic occupation highlighted in this level, and those of preceding Levels 2, 3 and 4, have not yielded much glazed material, a few sherds often damaged (**Fig. 10**), nor fine or 'table' ceramics (in very limited proportion), while contemporary sites of medieval Arabia, as al-Mabiyyat or al-Rabadhah featured them in large quantities.

Level 3 rests on top of an original building with a circular room (L10A). On its floor (Level 6) (**Figs. 6, 11**), which was cleared on a small surface, some great glazed ceramics were found as well as a few sherds of a Sassanian-Islamic jar (7-8th cent.). None of the major types of glazed ceramic, produced in 'Abbâsîd 'Irâq (Basra in particular) in the 9th century, such as 'lustre ware', pottery with blue or green decoration, or molded ceramics with green colored glaze, have been identified yet. In the first layer

10. See the report of Romolo Loreto, Excavation of Sector A, for details.

11. Walls of this type are still visible beyond the eastern boundary of the archaeological area.

beneath the surface (Level 2), two parts of Ottoman molded pipes give us an easy *post quem* artefact (drawings on **Fig. 2** and photographs **Fig. 8**), but the low level of occupation of this part of the city in the 19th century should also be a point of reflexion.

The modest nature of all medieval and modern levels investigated so far are also in accordance with ancient texts that indicate the loss of importance of Dûma from the 9th century and throughout the 10-11th century, as the site is away from commercial and pilgrimage networks¹². These levels are dominated by coarse pottery, which is often dated by association with glazed wares. Given their absence, we shall have to rely on comparisons and morphology. Many rims of bowls or jugs (?) uncovered in many layers are found in abundance in sector A from Level 7, offering a lot of remarkable and diagnostic assemblage.

A first typology of pots should soon be compared with reliable Byzantine, Umayyad and ‘Abbâsid contexts from ‘Irâq, Syria and Jordan. *A priori* the most popular exogenous types are not present here, which would confirm the local nature of production between the 9th century and the 19th century¹³. The identification of contemporary wheel-shaped ceramics in fine fabrics will be easier once the typology of forms from the lower levels is supplemented by processing and elimination of intrusive material. At this point, dating chronological phases to “late / middle / early Islamic”, although convenient in the field research, may be premature given the current state of our knowledge on ceramics.

In sector C, the ceramic assemblage appears homogenous (fabric 2 is dominant) in both occupation levels related to the enclosure wall (in its western part) and on the promontory (pottery from the survey). No clear indication of early Islamic occupation has been identified; a single fragment belonging to a jar called “Sassanian-Islamic” comes from the surface (layer 2006).

12. *Ibid.*

13. Little House (L6) is covered by Level 2 and was built on Level 3.



Plate 2. Initiation to drawing ceramic sherds: our Saudi colleagues Thâmir A. al-Mâlikî (top) and ‘Abdul ‘Azîz al-Dâyil (bottom)

Further research plans

- . Complete the material study of Levels 2, 3, and 4 from 2010 campaign in sector A, corresponding to the extension of the excavations to the NE and SW.
- . Complete the range of fabrics and our observations by using a magnifying glass.
- . Determine systematically the forms available in each fabric.
- . Constitute in collaboration with the archaeologists a typo-morphology of Nabataean, Roman, Byzantine and Islamic pottery to serve as a reference tool for the region.
- . Continue the investigation on the presence of potters in the region in recent years and identify places of deposits of raw material.
- . Prepare a storeroom that can also be used as a North-Arabian sherd collection in the Museum of Dûma, and continue the training in drawing ceramics for our Saudi colleagues (**pl. 2**).

The substantial quantity of ceramics uncovered in sector Area A during the 2009 campaign will provide insight into local and regional productions, still very poorly understood for the medieval and modern periods. The study of lower Levels 7, 8 and the following, and several floors (2010 season) corresponding to ancient occupations, will make possible to specify the chronological sequences of sectors A and C. The study will, in the future, provide new and useful markers for the study of Nabataean, Roman and Islamic material culture of desert margins, and will thus contribute to enriching our knowledge of ancient Arabia.



Pre-Islamic Pottery

Romolo Loreto



Pre-Islamic Pottery

Romolo Loreto (University of Naples, “L’Orientale”)

The ceramic vessels found in the stratigraphic sounding dug at the foot of the acropolis (Sector A) and during excavation of the western enclosure wall (Sector C) display a wide variety of forms, fabrics and decorations making it possible to recognize multiple cultural traditions related to different periods.

Excavation of Sector A, in a complex and articulate urban context which went through several overlapping phases of occupation, has made it possible to collect a series of associations of materials belonging to various cultural phases ranging from the Ottoman era to Early Islamic periods and from the Roman-Byzantine occupation to the Nabataean era. Finally a few materials enable us to identify traces of the Hellenistic and Partho-Sasanian traditions.

Excavation of Sector C, on the contrary, points to a radically different context. Two decisive factors must be noted: in the first place it was not an extensive excavation but a trial dig and thus offered only limited possibilities of collecting large quantities of materials; in the second place the excavation of fortified areas whose function is neither properly residential nor urban but rather military or something else does not generally yield large quantities of material left by occupation unless in sectors close to gates or doorways. Leaving out of consideration the function fulfilled by the city walls, the area of the settlement was not reoccupied after its abandonment. On the basis of the architectonic evidence, once the walls had fulfilled their function, they were not reused for any purpose except as the source for building material for the modern town centre. Thus the repertory of ceramic ware yielded by this excavation is entirely devoid of materials from the Islamic tradition of the type found in Sector A. The pottery gathered belongs to a period going from the late Nabataean and Roman-Byzantine period.

The ceramic ware was catalogued using an Access database including the stratigraphic units related to each excavation site. 150 lots (zanâbîl) were gathered, each weighing about 2.5 kg. The drawings of the pottery items are made by Pierre Siméon; the photographs and vectorization are the work of the present author and P. Siméon.

Pottery items from Sector A

During the 2010 campaign we studied the ceramic repertory yielded by the 2009 test dig and began to study the material yielded by the extensive 2010 excavation. The latter yielded such a large quantity of pottery (120 zanâbîl of which 30 just from the foundation level of building A – Level 10) that study of the materials can only be completed during the 2011 campaign. Here we present a chronological account based on the forms, decorations, fabrics and manufacturing techniques that make it possible to identify the cultural traditions underlying the ceramic associations found. This responds to the aim of the first exploratory and trial excavations to establish a first chronological sequence for ancient Adummatu. A typological study of the extensive, above all Pre-Islamic, material has to await the 2011 campaign.

Byzantine ware (6th-7th cent.)

Among the Pre-Islamic materials the most recent items are Byzantine sherds. From level 7 a number of examples of early Byzantine coarse-ware came to light (**Fig. 1, n°1-10**). The Byzantine coarse-ware was produced throughout the Early Byzantine Empire, e.g. in Palestine and Egypt. They include bowls, cooking pots and storage vessels, hemispherical or globular in shape, often with ribbed external surfaces, presumably to improve grip¹.

¹. Bakirtzis 1989: pl. I-XV; Dark 2001: 31-42; Gerber 2001: 7-12; Harrison *et al.* 2003: 144, 146.

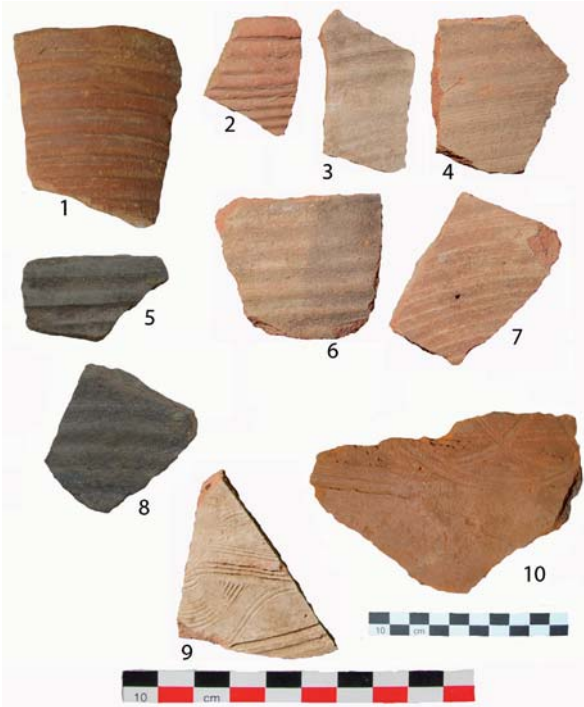


Fig. 1. Byzantine items



Fig. 2. Roman and Nabataean fine ware

Roman fine ware (2th cent. AD - 5th cent. AD)

A fragment of a handle in “eastern sigillata A”² (or “fine red slip ware”) was found in the occupation level of Building A (level 5) close to the western edge of the structure, between the rocky flank of the hillside and M6 (**Fig. 2, n°1**). Some fragments of “eastern sigillata A” were found also in the foundation level of Building A (**Fig. 2, n°2**). This was the most common form of red varnish “terra sigillata orientale” (or “eastern sigillata”), of Syro-Palestinian origins. The red varnish Roman ceramic ware was produced between the mid-2nd century BC and through most of the 2nd century AD. It circulated above all in the eastern Mediterranean basin, reaching as far as Dura Europos, Seleucia and the Nile Delta.

Nabataean fine ware from Jordan

The highest number of fragments and greatest variety of forms, decorations and fabrics have come from the levels representing the Nabataean tradition.

A number of examples of the so-called “eggshell” pottery type came from the foundation level of Building A (level 10) (**Fig. 2, n°4-7**). This category is securely dated to the first quarter of the 1st cent. AD. It is Nabataean fine ware imported from Jordan, widely attested in Petra³, Madâ’in Salih, Taymâ⁴, Aila (‘Aqaba)⁵, Mâdabâ⁶ and also in Timna (from the Nabataean level of the Hathor Temple)⁷, Bosra⁸, etc.⁹. Sherds from level 10 are thin bowls with a red or orange paste, decorated on both inner and external surface with naturalistic elements in red painting¹⁰. A handle of a Nabataean fine ware juglet was also collected (**Fig. 2, n°3**).

2. Hayes 1985: 1-48.

3. Schmid 2000: 1-281; Nehmé 2002: 243-256; Schmid 1996: 151-172; Gerber 1994: 271-292; Khairy 1983 : 17-40; Schmitt-Korte 1997: 88.

4. al-Talhi 1989: 21-28.

5. Retzleff: 2003: 45-65; Dolinka 2003: 35-60.

6. Harrison et al. 2003: 139.

7. Rothenberg 1972: 178-179.

8. Dentzer 1985: 149-153.

9. Dolinka 2002: 429-450; Negev 1974: 14-22, 1986: 36-61; Schmid 2000: 1-199.

10. Dekorgruppe 2c according to Schmid 2000: Fig. 98.

Nabataean decorated ware (1st-2nd cent. AD)

A huge amount of Nabataean decorated ware came from level 10. This group of ceramic items can be divided into two classes:

1. Red painted¹¹ or red painted with impressed motifs which found parallels from Oboda¹² and Petra¹³ or inner circles with deeply incised lines (**Fig. 3, n°1-6**). This category features a great variety of decorative solutions and ceramic fabric. It will be studied during the 2011 campaign.
2. Zig-zag incised motifs and palmette motifs impressed similar to local at-Tuwayr models (**Fig. 4, n°1-6**)¹⁴. This category of materials presents at least two types of fabric, both very common among the Pre-Islamic materials found at this site:
 - a. Fabric 2a. The fragments in **Fig. 4, n° 1-2, 4-6** feature a fabric ranging in colour from orange to beige, with white or beige external surfaces and natural interiors. The fabric has circular or elongated white nodules (less than 2 mm) in irregular quantities on surfaces of fine grey sand, whiteish, round and pointed quartz (?) (less than 2 mm) (**Fig. 5**);
 - b. Fabric 5. The fragment in Fig. 4, no 3 features a fabric ranging from greenish to grey. The fabric has grey and brown pointed grains, with a small quantity of whiteish nodules (less than or = 2.3 mm) (**Fig. 6**).

11. Dekorgruppe I according to Schmid 2000: Figs. 73-77.

12. Negev 1986: 62-72.

13. Khairy 1983: Fig. 15, type 6-8.

14. al-Mu'ayqil 1994b: 207-215



Fig. 3. Nabataean decorated ware



Fig. 4. Nabataean decorated ware locally made



Fig. 5. Fabric 2a



Fig. 6. Fabric 5

Locally made Nabataean table ware

A huge amount of juglets (**Fig. 7, n°1-5**)¹⁵, jars (**Fig. 8, n°1-4**)¹⁶ and bowls (**Fig. 9, n°1-9**)¹⁷ with a paste locally made from level 10 present a strong similarity in shapes with Nabataean pottery from Jordan. The coarse bowls (Gruppe 1 and 6 according to Stephan Schmid)¹⁸ are also common at Thâj¹⁹ and Abū Kusheiba²⁰.

The ceramic repertory that can be attributed to this category features several types of fabric used to make the same forms. As an example let us look at the flat bottomed bowl in **Fig. 9** that came to light in abundance. These bowls, locally made, feature at least 3 different types of fabric:

15. Negev 1986: 113-115.

16. Negev 1986: 116-117.

17. Gruppe 1 and Gruppe 6 according to Schmid 2000: Figs. 1-17, 44-51.

18. Schmid 2000: 73-77, 44-51.

19. Gazdar, Potts & Livingston 1984: 55-85.

20. Lindner 1992.

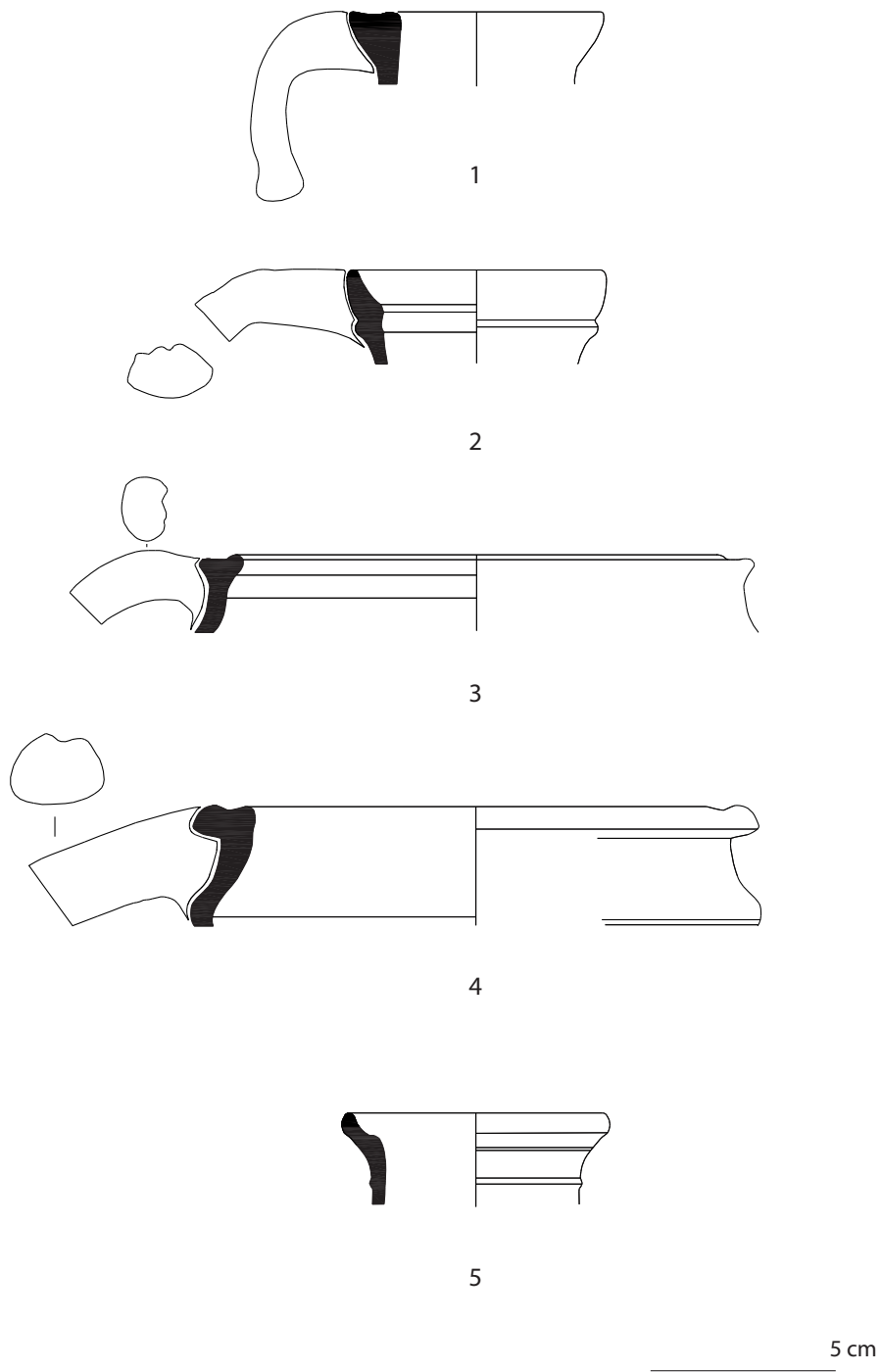


Fig. 7. Locally made Nabataean table ware (jars and juglets)

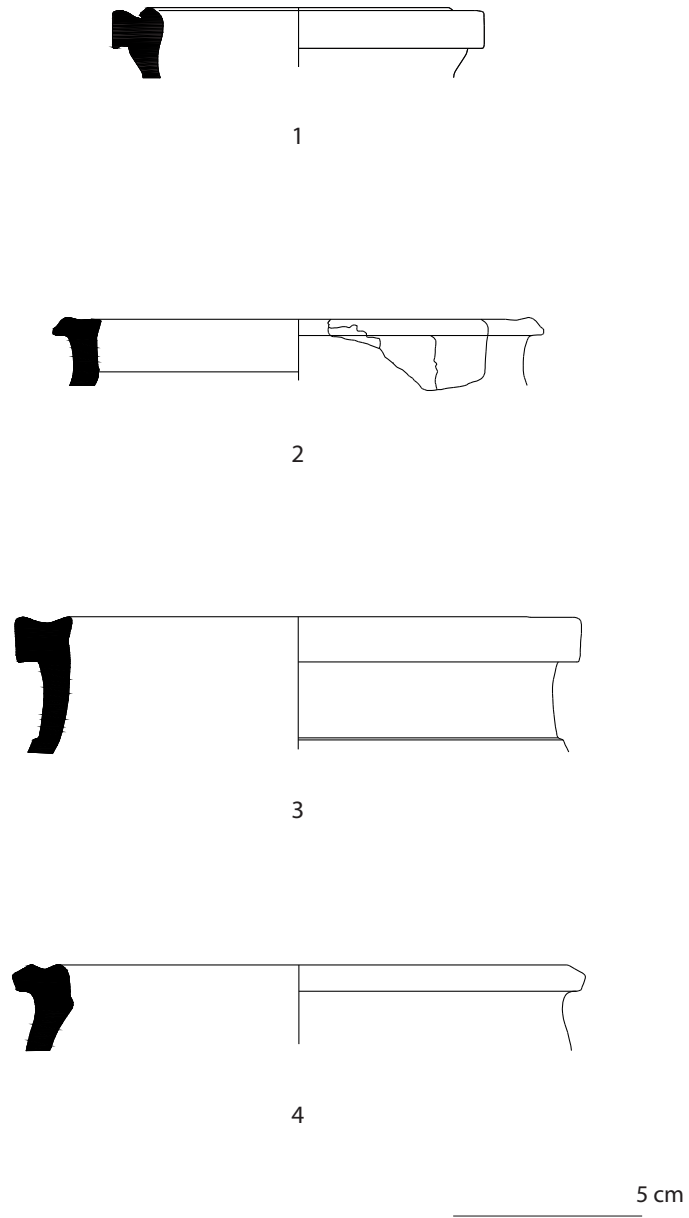


Fig. 8. Locally made Nabataean table ware (jars)

1. Fragments n° 2, 3-4, 6-9 in **Fig. 9** feature Fabric 2a (**Fig. 5**);
2. Fragment n° 5 features Fabric 1 with surfaces and sections in a yellowish, whiteish, slightly greenish colour and impasti with quartz sand (?) (less than 2mm), fine grey sand, and very fine, shining mica (?) in small quantities (**Fig. 10**).
3. Fragment no 1 features Fabric 3 with surfaces and sections in a black, greyish, dark brown colour and fabric with fine grey sand, whiteish, round and pointed quartz (?) (less than 2 mm) , white nodules (**Fig. 11**).

Partho-Sasanian glazed sherds (3rd cent. BC – 3rd cent. AD)

Some sherds of Partho-Sasanian tradition came to light in the foundation level of Building A (**Fig. 12, n°1-2**). A rim and a few sherds of glazed blue-green jars and juglets have parallels with glazed pottery from Susa, still widely dated to between the 3rd cent. BC and the 3rd cent. AD²¹.

Hellenistic alabaster bowl (3rd-2nd cent. BC)

An alabaster bowl from level 10 features a type of decoration with vine leaves which is typically Hellenistic or Romano-Hellenistic (**Fig. 12, n°3**). The bowl comprises part of the body, flat rim and a handle decorated with a vine leaf.

21. Sb 3471, Sb 3497, Sb 3498, Sb 3500, Sb 3534 from Susa. Louvre Museum.



Fig. 9. Locally made Nabataean table ware



Fig. 10. Fabric 1

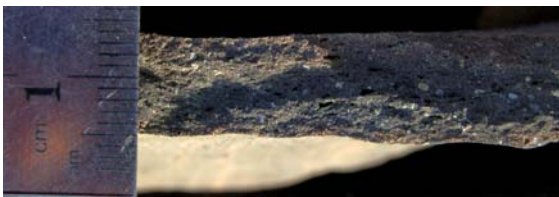


Fig. 11. Fabric 3



Fig. 14. Hellenistic and Partho-Sasanian items

Pottery items from Sector C

The ceramic ware to emerge from the excavations conducted in sector C is generally in a less well preserved state than the materials found in sector A, making it more difficult to analyze the forms. The material is quite homogeneous on account of the lack of elements from the Islamic tradition and the coarse ware typical of the Late Islamic period, which was extremely abundant in the Islamic levels in sector A.

One can immediately recognize associations of materials from the Nabataean period, characterized by a variety of forms which partially conform to what was found in sector A, and materials from the Roman-Byzantine era (**Fig. 13**). In reality, it is only the Nabataean pottery that enables us to recognize a phase of occupation that can be securely dated. The materials that can be ascribed to Roman-Byzantine phases have no particularly distinctive features. The type of fabric and forms identified to date can be assimilated to the levels dating from the 2nd-6th century AD found in sector A.

Nabataean ware from sector C

According to the materials found in sector A we can recognize various Nabataean pottery items from sector C. As seen above these categories can be dated to the 1st-2nd cent AD. It is possible to distinguish two kinds of decorated pottery and a type of table ware:

Nabataean decorated ware from sector C

1. Red painted or circles with deeply incised lines decorated ware. A small number of red painted ware²² with or without circles with deeply incised lines (**Fig. 3, n° 1-6** from sector A) came from levels 2023 and 2035 (**Fig. 14, n° 1-4**). The pastes and shapes will be studied during the next campaign together with sector A items. Actually it is possible to recognize only flat bases and body fragments;

²² Dekorgruppe I according to Schmid 2000: Figs. 73-77.

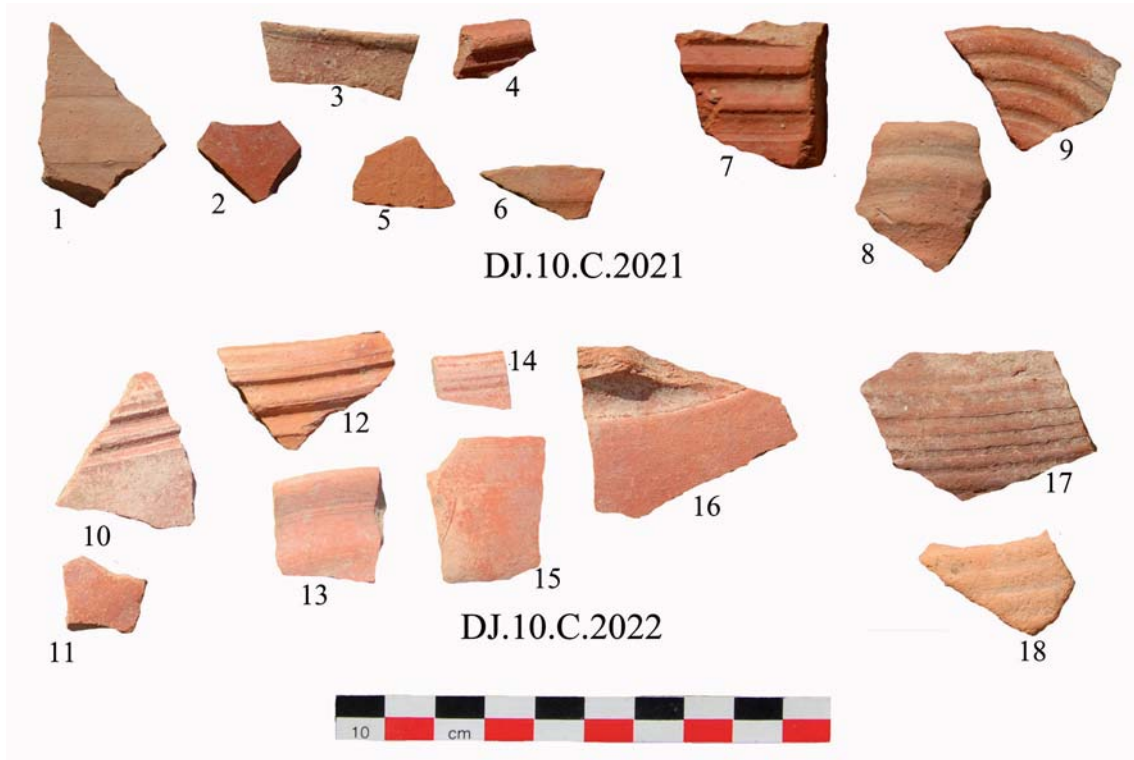


Fig. 13. Roman-Byzantine sherds from sector C



Fig. 14. Nabataean red painted ware from sector C

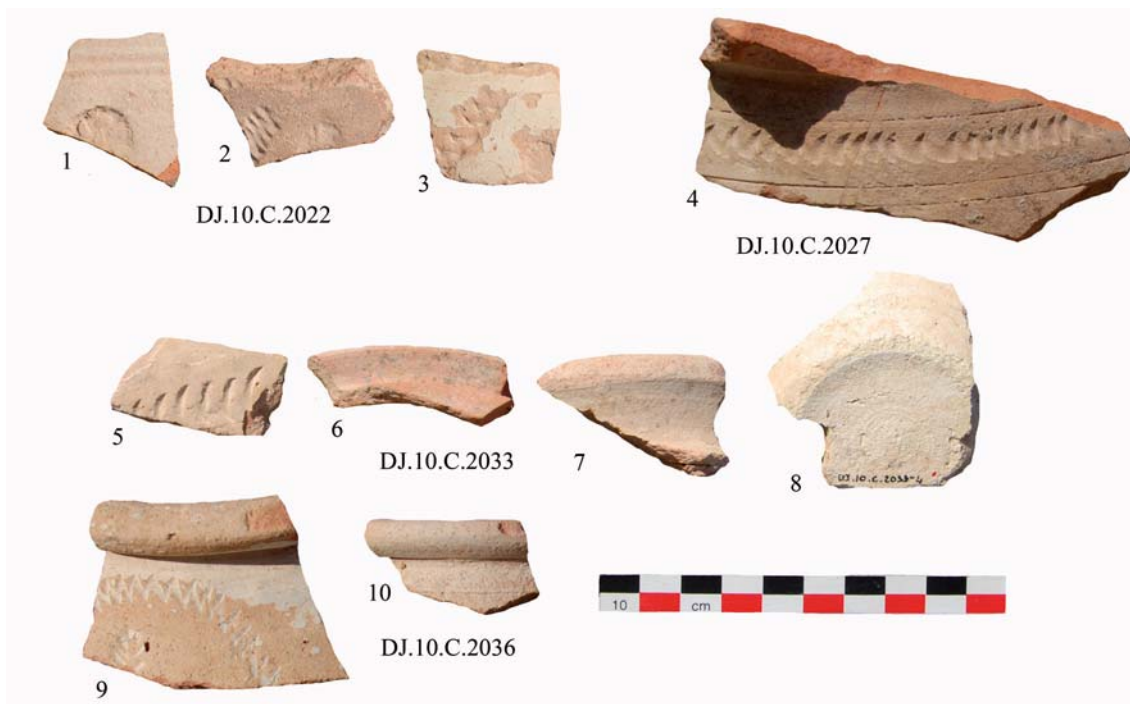


Fig. 15. Nabataean sherds from sector C

2. Zig-zag incised motifs and palmette motifs impressed decorated ware. As seen above this category of Nabataean ware is very similar to local at-Tuwayr models (**Fig. 4, n° 1-6** from sector A)²³. Also the fabric is comparable to the sector A items: 2a (**Fig. 5**). This kind of decorated sherds came from levels 2021 (**Fig. 16, n°10-13**), 2022, 2027, 2033 and 2036 (**Fig. 15, n°1-5, 9**). It comprises jars, juglets and bowls.

Nabataean table ware from sector C

As in sector A, a huge amount of pottery items of every day usage came from levels 2033, 2036 (**Fig. 15, n°6-8, 10**), 2004, 2011, 2013, 2021 (**Fig. 16, n°1-9, 14-15**). This pottery type is ascribable to Nabataean pottery models from Jordan (**Fig. 9, n°2, 3-4, 6-9** from sector A)²⁴. The peculiar feature, as seen in sector A, is the locally made paste: type 2a (**Fig. 5**). Only jars, juglets and bowls were collected.

²³. al-Mu'ayqil 1994b: 207-215.

²⁴. Gruppe 1 and Gruppe 6 according to Schmid 2000: Figs. 1-17, 44-51.

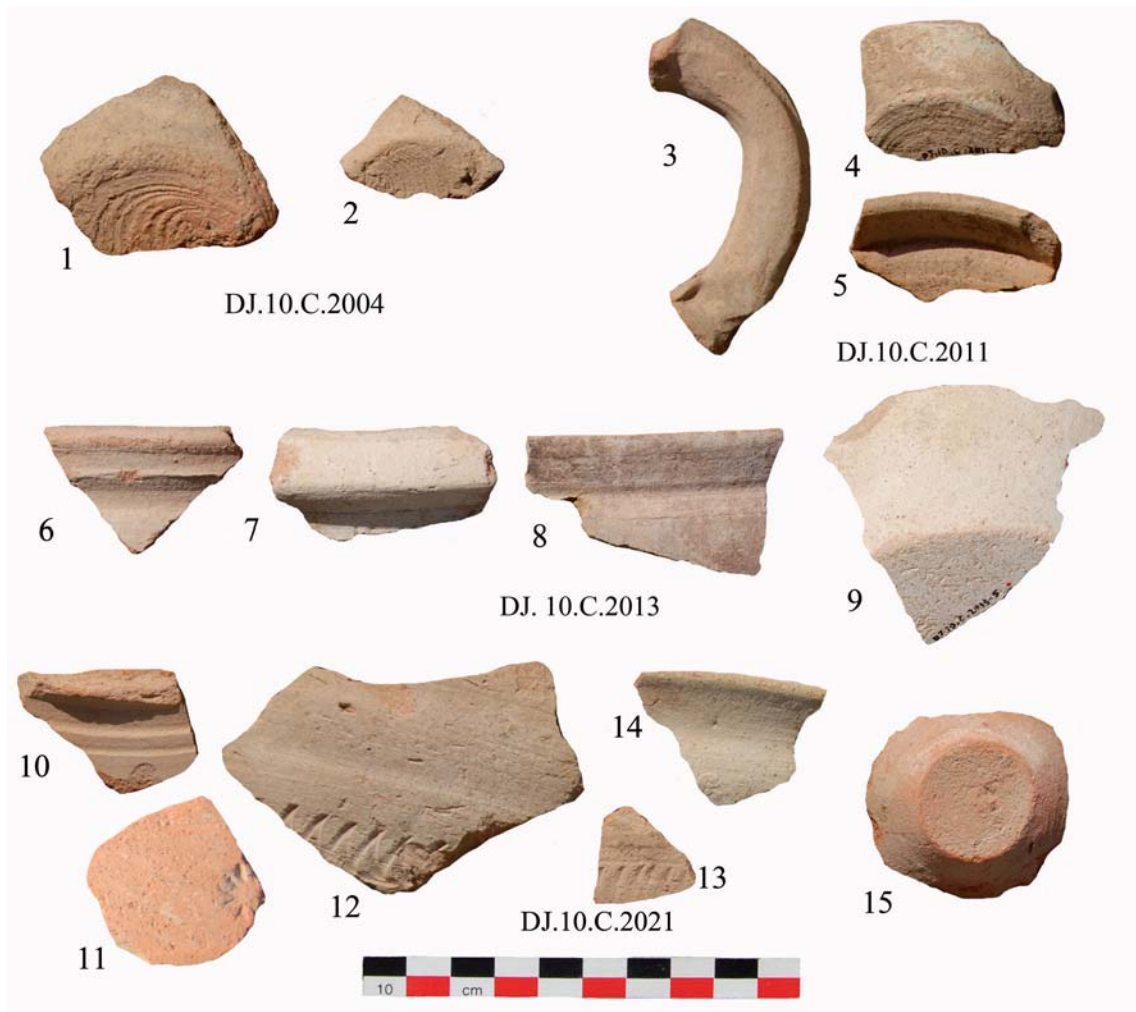


Fig. 16. Nabataean ware from sector C

Topographic Survey & Coordinate System

Quentin Morel



Topographic Survey & Coordinate System

Quentin Morel

Mission

Topographic survey at Dûmat al-Jandal oasis in the Jawf region of northern Saudi Arabia, as part of the archaeological mission of the Saudi-Italian-French mission, October 1 to November 7, 2010.

Main objectives

- Surveying the enclosure wall located northwest of Dûmat al-Jandal (sector C).
- Surveying the surrounding environment (water channels, roads, walls, recent infrastructure, slope lines [ridges, talwegs, cliffs, embankments], grid level points inside and outside the enclosure wall to get an overall view of relief and a better interpretation of the site).
- Linking of enclosure wall area (sector C) with the excavations of sector A, and localization on the plan of 1986 soundings by Saudi team, in a common coordinate system detailed below.

Equipment

Differential GPS LEICA SYSTEM 500 (**Figs. 1-2**).



Fig. 1. Quentin Morel using a differential GPS

Fig. 2. Differential GPS pivot



Coordinate system

Coordinate System used is UTM (Universal Transverse Mercator), based on the so-called “Mercator” projection. Topographic survey conducted in RTK (real time) in a UTM approach system with an accuracy of five meters from the exact system both in altimetry and in planimetry. Centimetric precision obtained in real time is the vector between the pivot and the mobile station. It becomes centimeter accuracy when the pivot is positioned at a known point, or when it is positioned for enough time to calculate its location using permanent networks.

2009 Coordinate System

Local coordinate system in planimetry (close to the origin) + approximate height system, calculated by interpolation contours of a map rendered by photogrammetry (aerial photography taken in 1976).

2010 Coordinate System

UTM approached by planimetry. Conservation height of 2009 system.

Note: All data point coordinates are derived from this “local” system.

Procedure

- General observations, visit of sites.
- Search for traces of the enclosure wall, interpretation of visible elements, sketch drawings, research of existing stations used in 2009.
- Topographic survey with DGPS.
- Data export process, controls and plan restitution on software *Autocad Covadis*.

Station points and references located in the system

Historic area

- **Station A** (altitude reference) (dot on a concrete base) (**Fig. 3**)

Coordinates : E = 583 853.65 m
N = 3 298 140.63 m
EL = 625.00 m

- **Station M** (tour) (dot on a concrete base)

Coordinates: E = 583 740.28 m
N = 3 298 151.20 m
EL = 627.09 m



Fig. 3. Station A

- **2009 and 2010 Sounding** at the foot of Qasr Mârid

Coordinates: E = 583 872 m
N = 3 298 206 m
EL = 606 m

- **Ceramic Pit**

Coordinates: E = 583 877.70 m
N = 3 298 250.90 m
EL = 602.50 m

Other stations are located on the plan (100510_ref.dwg). They are identified by a letter on the plan and indicated by a metal rod on the ground

Sector C

- Sounding 1

Coordinates: E = 581 556 m
N = 3 300 247 m
EL = 610 m

- Sounding 3

Coordinates: E = 581 641 m
N = 3 300 189 m
EL = 611 m

- Station GPS

Coordinates: E = 581 616.79 m
N = 3 300 329.21 m
EL = 622.93 m

- Station C1

Coordinates: E = 581 578.65 m
N = 3 300 261.08 m
EL = 610.45 m

- Reference station C2

Coordinates: E = 581 559.07 m
N = 3 300 236.73 m
EL = 612.29 m

- Reference station C3 (disappeared)

Coordinates: E = 581 511.95 m
N = 3 300 322.87 m
EL = 614.62 m

- Station C4

Coordinates: E = 581 654.78 m
N = 3 300 302.42 m
EL = 624.61 m

- **Station C7** (north wall) (nail on a concrete base)

Coordinates: E = 582 144.65 m
N = 3 300 111.69 m
EL = 620.95 m

- **Station C19** (promontory) (dot on a concrete base)

Coordinates: E = 581 864.43 m
N = 3 299 668.57 m
EL = 669.47 m

Other stations are on the plan (assemblage.dwg), they are preceded by the prefix “C”.

- **Nails** on the asphalt road (**Fig. 4**)
- **Metal rods** (**Fig. 5**)
- **Paint marks** (**Fig. 6**)
- **Nail** on a concrete base (**Fig. 7**)
- **Concrete construction bases** and elevation references for the areas of search are also included (**Fig. 8**).

Areas between sectors A and C

- **al-Sunamiyât 1**

Coordinates: E = 583 307 m
N = 3 299 183 m
EL = 605 m

- **al-Sunamiyât 2**

Coordinates: E = 583 658 m
N = 3 298 884 m
EL = 600 m



Fig. 4. Station C14



Fig. 5. Station C8



Fig. 6. Station C9



Fig. 7. Station C7



Fig. 8. Station C2

Notes

A few days before the end of the 2010 season we localized two referenced points which may be used in the UTM system (**Figs. 9-12**). They have the form of a concrete base, with a metal rod and a “dot” inserted indicating coordinates (E, N, EL) of the point. They are located two kilometers northeast of Qasr Mârid.

After locating these points, we observed an inconsistency between this system and our own. As we do not know their origin and the manner in which they were calculated, our system was kept.



Figs b. 9-10. UTM1 (plan 110110.dwg)



Figs. 11-12. UTM2 (plan 110110.dwg)







Topographic and Photogrammetric Survey & Documentation

Andrea Marcolongo



Topographic and Photogrammetric Survey & Documentation

Andrea Marcolongo (CNR)

Within the general program of the Department of Antiquities and Museums for archaeological survey and investigation in Dûmat al-Jandal 2010, in cooperation with the Isiao Institute, a topographic and photogrammetric survey of all archaeological remains, both in plan and elevation, in sector A and C, was performed to keep a daily record of the excavation phases. Geometric survey is a fundamental stage in a correct approach to surveying, defined as the complex of actions required to obtain “integrated knowledge” of the architectural artefact to be conserved and protected.

The survey results had to fulfill some specific qualifications:

1. provide detailed metric and morphological information, with particular reference to construction peculiarities, in order to allow future stylistic investigations of the archaeological remains;
2. provide qualitative information through the detailed recording of actual color values and stone masonry of each single wall;
3. assure reliable documentation with extended levels of precision and accuracy (paramount in case of demolition) in order to allow the study of original demolished artifacts or in case of damage or conservation necessities;
4. share in the experimentation of new documentation methodologies based on digital surveying techniques.

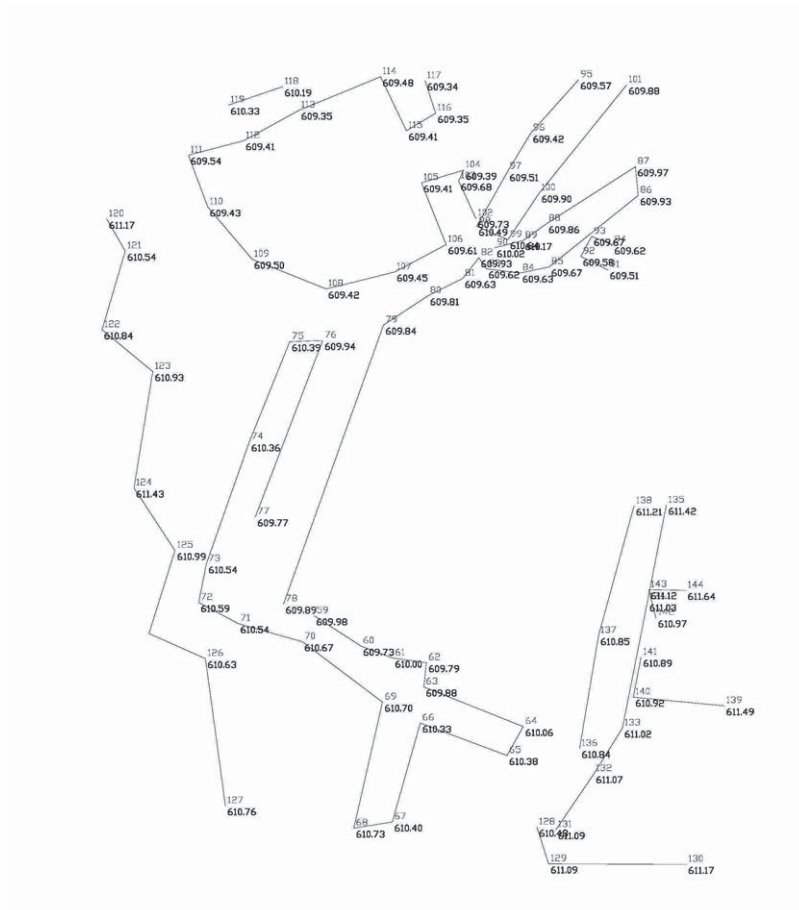


Fig. 1. Topographic survey, Sector A



Fig. 2a. Photogrammetric survey of a wall (plan)

The archaeological remains were recorded with a total station Leica TCR 407 to measure the spatial coordinates of detail and control points for the quick digital photogrammetric survey (**Fig. 1**).

All local plans have been georeferenced to the general site plan.

Photogrammetric survey was performed with a semimetric digital camera Canon Powershot S80 8.0Mpx equipped with a 24 mm calibrated lens. Photogrammetric shots were divided in strips (photographic coverage with a minimum overlap of 30% between individual images) corresponding to the single different walls (**Figs. 2a-2b**) and the geological longitudinal sections for the stratigraphy study (**Fig. 3**), both in sector A and C. Photogrammetric procedures and ortorectification of images were used for lines and edges CAD reconstruction and automatic extraction of points.

Photogrammetric measurements and automatic image matching were used to compute external orientation parameters with bundle adjustment using the topographic points. The resulting planimetric and altimetric residuals were lower than 1 cm. Photogrammetric procedures were therefore used to compute the external orientation parameters of all images in the ortorectification process through the application of a trinocular rectification algorithm and image feature matching to eliminate geometrical and optical distortions.

As final results were CAD produced vector plans of single archaeological structures, general sector A and C plans (**Fig. 4**) and a digital archive of ortorectified images with both geometric and morphological data (**Fig. 5**).



Fig. 2b. Photogrammetric survey of wall, elevation



Fig. 3. Photogrammetric survey of stratigraphy



Fig. 4. Overall vector plan, Sector A



Fig. 5. Orthorectified photo plan, detail of collapse



Conclusion

Guillaume Charloux & Romolo Loreto



Conclusion

The success of the 2010 campaign in Dûmat al-Jandal owed much to the atmosphere of collaboration and sharing in the field between Saudi, Italian and French members (**Fig. 1-18**). The good results are due to the pleasant and friendly working environment.

The archaeological remains found in the oasis are both original and surprising for the quality of their construction. Their study is sure to provide many discoveries to come.

Finally, the site is truly beautiful. It goes without saying that local and international tourism will develop quickly, and we hope our research will contribute to the popularity of the oasis.

Three main areas of research and activities were set up in October-November 2010 in accordance with the local authorities, represented by ‘Abd al-Hâdî K. al-Tirâd, Ahmad ‘A. al-Qa‘îd and Dr. Khalîl I. al-Mu‘ayqil.

1. Survey of the oasis began in its western part and in its historic centre (**Charloux et al., Survey 2010**). At this stage it is no more than a simple overview of what the oasis contains, but it is already an important basis to fix future research directions. The Project’s objective is to obtain a complete picture of archaeological remains at Dûmat al-Jandal, but also the environmental context that enabled such a development, and to give an account of the site’s evolution. The variety of archaeological remains is quite exceptional. Monumental structures of the 19th century are found alongside cairns and stone circles. Emblematic monuments of Dûma, the mosque of ‘Umar, and Qasr Mârid, stand side by side with the ruins of ancient villages, where the remains of monumental enclosures are still preserved in places. The hydraulic system is striking, composed of the well-

known *qanât*. The fine constructed wells are vast, complex and unusual, with stairs and openings at different heights in masonry and cantilevered structures to draw water. The stone enclosure wall to the west of the city is impressive, with its many defensive bastions and buttresses. Over 2.5 km of walls, standing over 4 m high in places, are still preserved (**Charloux et al., Sector C**).

2. Excavations in the historic area (**Loreto, Sector A and Marcolongo, Topographic Survey**) revealed a complex stratigraphic sequence spanning nearly 2000 years. The extensive deep sounding opened in 2009 revealed stone architectural entities up to the modern Islamic era. It brought to light the late Pre-Islamic levels (Nabataean, Roman, Byzantine) characterized by a huge architectonic building (Building A) and assemblages of ceramics and objects of pre-Islamic traditions. The Nabataean presence has again been confirmed by a recognizable archaeological assemblage at the bottom of the deep sounding (**Loreto, Pre-Islamic Ceramic**). To date no trace of the Assyrian presence mentioned in textual sources (**Charloux & Loreto, Historic Summary**) has emerged. However, Hellenistic and Partho-Sassanian items were collected. On the whole the wealth of the ceramic assemblage in each period is due to the local features of the vessels, which renders them difficult to date and classify (**Siméon, The Recording System**). A first attempt at dating the 10 recognized levels, however, was proposed by R. Loreto as a basis to establish the chronological sequence of the site (**Loreto, Sector A**). The western enclosure was also targeted for excavations in 2010, in addition to the architectural and topographic survey (**Charloux et al., Sector C; Morel, Topography**). Test soundings have sought to understand the construction processes of the enclosure and to recover pottery assemblages *in situ* for dating (sounding 1). Approximate dating is to the 1st-4th century AD (most probably 1st-2nd cent.), but we need further studies, among them C14, to be sure of this. We also tried to determine the function of the enclosure by digging in both its perimeter (sounding 3) and a monumental wall outside (sounding 2).

3. The cleaning and presentation of some archaeological remains was made at the request of Prof. ‘A. al-Ghabbân. The clearing of a segment of wall in Sector C, partly uncovered in 1986, was completed in 2010. It also enabled us to study it (**Charloux et al., Sector C**). It should be noted that this segment should now be the object of specific maintenance, to protect the brick with a thick coating of plaster.

In the future, the focus of the Project should be primarily on surveys of the oasis and the study of scattered archaeological remains. Many structures remain to be discovered and put on the GIS map of the site. The high population growth now characterising Dûmat al-Jandal is another constraint in our work and an obligation to achieve results fast.

New archaeological soundings will also give a more accurate chronological picture, in both sectors A and C. In particular, sector A will offer the opportunity to carry out an extensive excavation in order to recognize the ancient urban development of the historic center. The opportunity to carry on with regular excavations at Dûmat al-Jandal (ancient Adummatu) will give us important information about the most ancient settlement’s periods of the al-Jawf oasis and the opportunity to know the complex political, economic and social relationships linking the historical actors of these ancient periods in Saudi Arabia.

Finally, the protection of the archaeological remains, important but also costly, must be done in collaboration with the Saudi authorities.

Through this first report, we hope to have put in place the foundations for a global reflection on the oasis and a fruitful collaboration between Saudi, Italian and French parties, with a constant concern for fairness and respect for each other.

Guillaume Charloux & Romolo Loreto
September 14th, 2011



Fig. 1. From left to right, Romolo Loreto, 'Abd al-'Aziz I. al-Dâyil, Mansûr H. al-Qahtânî, Thâmir 'A. al-Mâlikî, Quentin Morel, Dar`ân M. al-Qahtânî, Pierre Siméon, Andrea Marcolongo & Guillaume Charloux



Fig. 2. From left to right, 'Abd al-Hâdî K. al-Tirâd, Ahmad 'A. al-Qa'id, Romolo Loreto, Guillaume Charloux, Quentin Morel, 'Abd al-Majîd N. al-Marshd, Andrea Marcolongo & Thâmir 'A. al-Mâlikî



Fig. 3. Christian Robin and Khalil I. al-Mu'ayqil in a street of the ancient quarter in the historic area of Dûma



Fig. 4. ‘Abd al-Hâdî K. al-Tirâd, director of the al-Jawf Region Antiquities (SCTA), standing on the western enclosure wall



Fig. 5. Ahmad ‘A. al-Qa’id, director of the al-Jawf Museum of Archaeology and Ethnography (SCTA)



Fig. 6. Thâmir 'A. al-Mâlikî (SCTA) surveying the western enclosure wall with a differential GPS



Fig. 7. Dar'ân M. al-Qahtâni (SCTA)



Fig. 8. Mansûr H. al-Qahtâni (SCTA)



Fig. 9. 'Abd al-'Azîz I. al-Dâyil (SCTA)



Fig. 10. Andrea Marcolongo (CNR)



Fig. 11. Quentin Morel



Fig. 12. Pierre Siméon (CNRS, UMR 8167)



Fig. 13. Jérémie Schiettecatte in the Museum office (CNRS, UMR 8167)



Fig. 14. Guillaume Charloux (co-director of the Project, CNRS, UMR 8167)



Fig. 15. Hammûd M. al-‘Arjân (SCTA, al-Jawf Museum)



Fig. 16. Workmen in sounding 3. Sector C



Fig. 17. Romolo Loreto (co-director of the Project, University of Naples, “L’Orientale”)



Fig. 18. Alessandro de Maigret (1943-2011, director of the Project in 2009, professor at the University of Naples, “L’Orientale”)



Transliteration Abbreviations & References



References

Arabic Alphabet & Transliteration

أ	'
ب	b
ت	t
ث	th
ج	j
ح	h
خ	kh
د	d
ذ	dh
ر	r
ز	z
س	s
ش	sh
ص	s
ض	dh
ط	t
ظ	z
ع	'
غ	gh
ف	f
ق	q
ك	k
ل	l
م	m
ن	n
ه	h
و	w
ي	y

Long vowels: â, û, î; *tâ' marbuta*: a

Abbreviations

Ja[mme]: see Jamme 1963.

Ph[ilby]: see Beeston 1938 et 1939.

Pirenne: see Pirenne 1990.

RES: Répertoire d'épigraphie sémitique. Tomes I-VIII. 1900-1967. Published by the Commission du *Corpus Inscriptionum Semiticarum* (Académie des Inscriptions et Belles-Lettres). Paris: Imprimerie nationale.

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٢- أعطت الحفريات التي تم تنفيذها في المنطقة التاريخية (انظر لوريتو، المنطقة A) سلسلة طبقات معقدة تغطي ما يقارب ٢٠٠٠ سنة. فالسبر المقطعي الطبقي العميق الذي تم تنفيذه في موسم ٢٠٠٩ أظهر وحدات معمارية تصل إلى العصر الإسلامي الحديث. وأما الأبنية الموجودة في أسفل الطبقات فهي مبنية بشكل منمق (المبنى A). وقد تأكد الوجود النبطي في الموقع بفضل العثور على قطعة أثرية في أسفل السبر المقطعي (انظر لوريتو، فخار ما قبل الإسلام). وبالعكس لم يتم العثور على أي أثر للوجود الآشوري الذي تشير إليه النصوص (انظر شارلو، لوريتو، تاريخ). من الجدير بالذكر أنه بشكل عام المواقع غنية بالفخاريات وهذا يعود إلى خصوصية المنطقة بالأدوات المنزلية من هنا تأتي الصعوبات في تأريخها وتصنيفها (انظر سيمون، الفخار الإسلامي). وقد قدم لوريتو محاولة أولية لتأريخ الطبقات العشر الذي سيستخدم كأساس لتسلسل الطبقات في الموقع (انظر لوريتو، المنطقة A). وقد تم البدء بحفريات هادفة في السور الغربي خلال موسم ٢٠١٠ بالإضافة إلى الرفع المعماري والطبوغرافي (شارلو وآخرين، المنطقة C، موريل). فالمسابر المقطعية الطبقيّة التجريبية التي تم تنفيذها على السور كان هدفها فهم نظام بناء السور والعثور على دليل أثري لتأريخه (السبر ١). وقد حاولنا أيضا تحديد وظيفة السور وذلك من خلال القيام بحفريات في المنطقة المحيطة به (السبر ٣) وفي جدار خارجي له (السبر ٣).

٣- إن إظهار المعالم الأثرية للموقع تمت بطلب من الأستاذ الدكتور علي غبان. فقد تم الكشف وبشكل كامل عن جزء من جدار السور في المنطقة C في الموسم ٢٠١٠ وهذا ما سمح لنا بدراسته (شارلو وآخرين، المنطقة C). من الضروري التذكير بأن هذا القسم المكشوف يتطلب صيانة خاصة وذلك بحماية اللبن الطبيعي بإضافة طبقة طين ملساء.

سيتم التركيز في المستقبل أولا على المسوحات الأثرية للواحة ودراسة البقايا الأثرية المتناثرة فيها. وما يزال هناك عدد لا بأس به من بقايا أبنية لم يتم اكتشافها وتحديدها على خريطة الموقع بعد SIG. يشكل التضخم والتوسع السكاني التي تعرفها اليوم دومة الجندل عائقا إضافيا لأعمال الفريق الأثري المشترك الذي يفرض عليه نتائج مباشرة ومستعجلة. إن متابعة تنفيذ المسابر المقطعية الطبقيّة التجريبية سيسمح بالحصول على تصور أكثر وضوحا للموقع. إن كان في المنطقة A أو في المنطقة C. إن إظهار الآثار للعيان عملية مهمة ولكنها مكلفة لا يمكن نجاحها إلا بالتعاون مع المؤسسات السعودية المختصة. نتمنى عبر هذا التقرير الأول بأننا قد وضعنا أساسات لفكرة شمولية حول واحة دومة الجندل ونأمل أيضا بأننا قد بنينا أساسات متينة لتعاون مثمر بين الأطراف السعودية والإيطالية والفرنسية مع الحرص الدائم على المساواة بين المشاركين واحترام الآخر.

لاقت البعثة الأثرية المشتركة خلال الموسم ٢٠١٠ بعض الصعوبات من أهمها :
 . التوسع السكاني لواحة دومة الجندل الذي سبب بتشويه معالم أثرية التي تتطلب الترميم والحماية والدراسة.
 . وجود فخاريات محلية مهمة تعود إلى العصور الرومانية والبيزنطية والإسلامية وكلها تتطلب دراسات مستقبلية وتاريخ محدد بواسطة الكربون ١٤.
 . وجود أحجار وبلاطات كبيرة الحجم وثقيلة الوزن صعب تحريكها وتتطلب إلى رافعات.
 . إن جدار السور الذي تم تنقيبه وتنظيفه (المنطقة C) يتطلب حماية وتلييس للحفاظ عليه.
 طلب مكتب الآثار في الجوف خبراء وفنيين للقيام بذلك في الموسم (٢٠١١).

النتائج

يعود نجاح موسم حفريات ٢٠١٠ أولاً لجو التعاون والمشاركة الذي كان يخيم على أرض الواقع بين أعضاء الفريق المشترك السعودي-الإيطالي-الفرنسي. وانعكس هذا الجو اللطيف والحميم على النتائج الإيجابية لعمل الفريق.
 أما بخصوص الآثار التي تم تسجيلها وتوثيقها في واحة دومة الجندل فهي حضارة أصيلة ومدهشة بنوعيتها وبطبيعتها. وليس من المدهش أن تتطور السياحة المحلية والدولية في الواحة مستقبلاً وهذا ما نتمناه لهذه المنطقة الجذابة.
 تم تحديد ثلاث محاور بحوث وأعمال ميدانية في أكتوبر ٢٠١٠ . وذلك بموافقة السلطات المحلية التي يمثلها السادة عبد الهادي الطراد، أحمد القعيد والدكتور خليل المعقل.
 . بدأ المسح الأثري في الواحة في الجهة الغربية وفي الوسط (انظر شارلو وآخرين، ٢٠١٠). وكانت الفكرة في هذه المرحلة هي أخذ تصور عام بما تعطيه الواحة من آثار وهذا ما يساعد على تحديد محاور واتجاهات البحث العلمي المستقبلي. فهدف البعثة هو الحصول في المستقبل على رؤية كاملة للآثار الموجودة في واحة دومة الجندل وأيضاً معرفة السياق البيئي الذي سمح بتطور الواحة عبر العصور التاريخية وأيضاً تفسير سبب اختيار المواقع وتطورها عبر العصور.

١- إن تنوع الآثار في الموقع شيء نادر وملفت للنظر. فنجد آثار أبنية تعود إلى القرن التاسع عشر الميلادي إلى جانب آثار استيطان تعود إلى عصور قديمة جداً. من أهم الآثار في دومة الجندل هو جامع عمر بن الخطاب «رضي الله عنه» وقصر ماردم الملاصقان لأطلال القرى القديمة للواحة التي يشاهد فيها حتى الآن في بعض الأماكن بقايا من السور الأثري القديم. وتعتبر أنظمة الري رائعة فهي تتكون من قنوات ذات أحجام مختلفة. والآبار أيضاً رائعة الشكل والمساحة والبناء تنبع من حضارة أصلية ومعقدة النظام فتحتوي على درجات وفتحات على عدة مستويات من بناءها وعلى نظام يسمح بسحب المياه إلى الأعلى. والسور المبني من الحجر الموجود في الجهة الغربية من المدينة هو أيضاً مدهش للعيان. فهو مكون من عدة أنظمة دفاعية مكونة من بروج. ولا يزال يوجد حتى الآن ٥.٢ كم من هذا السور يصل ارتفاعه في بعض الأماكن إلى ٤ أمتار (انظر شارلو وآخرين، المنطقة C . وأيضاً موريل).

التمويل لموسم ٢٠١٠

- . الهيئة العامة للسياحة والآثار بالرياض.
- . وزارة الخارجية والشؤون الأوروبية. باريس.
- . وزارة الخارجية الإيطالية.
- . سفارة فرنسا بالرياض. قسم التعاون الثقافي.
- . سفارة إيطاليا بالرياض.
- . المركز الإيطالي لإفريقيا والشرق.
- . المركز الوطني للبحث العلمي بباريس.
- . معهد دراسات الشرق والمتوسط. عالم الساميات بباريس.

الإدارة والمشاركة في الموسم ٢٠١٠

يقوم بإدارة المشروع المشترك جيوم شارلو ورومولو لوريتو وبمشاركة علماء آثار آخرين. تحت إشراف الأستاذ الدكتور خليل إبراهيم المعقل والأستاذ الدكتور كريستيان جوليان روبان.

أعضاء الفريق السعودي للموسم ٢٠١٠ :

- . خليل المعقل. عضو مجلس الشورى
- . عبد الهادي الطراد. مدير مكتب الآثار بمنطقة الجوف
- . أحمد القعيد. مدير متحف الآثار بدومة الجندل
- . ثامر المالكي. باحث آثار. الهيئة العامة للسياحة والآثار
- . عبد العزيز الدايل. باحث آثار. الهيئة العامة للسياحة والآثار
- . درعان القحطاني. باحث آثار. الهيئة العامة للسياحة والآثار
- . منصور القحطاني. رسام. الهيئة العامة للسياحة والآثار

أعضاء الفريق الإيطالي :

- . رومولو لوريتو. باحث آثار. جامعة نابولي «الشرقية»
- . أندريا ماركولونجو. مهندس معماري. المركز الوطني للبحث العلمي. روما

أعضاء الفريق الفرنسي :

- . جيوم شارلو. باحث آثار. المركز الوطني للبحث العلمي. باريس
- . قونتان موريل. طبوغرافي. المركز الوطني للبحث العلمي. باريس
- . كريستيان جوليان روبان. مؤرخ. المركز الوطني للبحث العلمي. باريس
- . جيريمي شيتيكات. باحث آثار. المركز الوطني للبحث العلمي. باريس
- . بيير سيمون. باحث آثار-فخاريات. المركز الوطني للبحث العلمي. باريس

البعثة الأثرية السعودية - الإيطالية - الفرنسية المشتركة في دومة الجندل

جيوم شارلو ورومولو لوريتو

في شهر يونيو ٢٠٠٨ تلقى المرحوم الأستاذ الدكتور الساندرو دي ميجريت دعوة من الهيئة العامة للسياحة والآثار في الرياض وذلك للقيام بمسوحات أثرية في موقع دومة الجندل في منطقة الجوف بالسعودية. وبعد موافقة لجنة البحث العلمي في الهيئة العامة للسياحة والآثار على المشروع الإيطالي للبحث في موقع دومة الجندل. وفي عام ٢٠٠٩ وافق الأستاذ الدكتور علي إبراهيم الغبان نائب رئيس الهيئة العامة للسياحة والآثار لقطاع الآثار والمتاحف على أن يقوم المرحوم الأستاذ الدكتور الساندرو دي ميجريت بحفريات في موقع دومة الجندل القديم تحت رعاية المركز الإيطالي لإفريقيا والشرق في روما برئاسة جيراردو نيولي. وتم بتاريخ ٥ مايو ٢٠٠٩ التوقيع على اتفاقية تعاون مشترك لمدة خمس سنوات. وذلك بحضور صاحب السمو الملكي الأمير سلطان بن سلمان بن عبد العزيز ومعاللي سفير إيطاليا في الرياض إيجينو دوريا. بدأ الموسم الأول بتاريخ ٢٣ أبريل واستمر حتى ٧ مايو ٢٠٠٩. وفي عام ٢٠١٠ أضيفت البعثة الفرنسية للآثار في المملكة العربية السعودية إلى اتفاقية التعاون برئاسة الأستاذ الدكتور كريستيان جوليان روبان. وتم القيام بحفريات من ٣٠ سبتمبر وحتى نوفمبر ٢٠١٠. وتم الموسم الثاني بإدارة مشتركة سعودية- إيطالية- فرنسية.

المؤسسات والتمويل

- تم تنفيذ أعمال مشروع الفريق العلمي بإشراف مؤسسات علمية عديدة :
- . المركز الإيطالي لإفريقيا والشرق بروما.
- . جامعة نابولي «الشرقية» قسم الدراسات الآسيوية.
- . المركز الوطني للبحث العلمي. معهد الشرق والمتوسط بباريس.
- . اللجنة العلمية السعودية في الهيئة العامة للسياحة والآثار بالرياض.

شكر و عرفان

إنّ تحضير وإخراج هذا الكتاب إلى النور ونجاح أعمال البعثة الأثرية في موقع دومة الجندل لم يتم إلا بفضل دعم المؤسسات العلمية والدبلوماسية في المملكة العربية السعودية وإيطاليا وفرنسا. فلا بدّ لنا من تقديم الشكر والعرفان لكل من قدّم دعماً لهذا المشروع.

المملكة العربية السعودية

. الهيئة العامة للسياحة والآثار : برئاسة نائب رئيس الهيئة لقطاع الآثار والمتاحف الأستاذ الدكتور علي إبراهيم الغبان للدعم العلمي والمالي للمشروع.
. مكتب الآثار بمنطقة الجوف : بشكل خاص الأستاذ عبد الهادي الطراد مدير مكتب الآثار بمنطقة الجوف للجهود التي بذلها لإنجاح أعمال الفريق ولمشاركته الفعالة في أعمال البعثة في موسمي ٢٠٠٩ و ٢٠١٠.
. متحف الآثار بدومة الجندل : بشكل خاص للأستاذ أحمد القعيد مدير متحف الآثار بدومة الجندل للتسهيلات التي قدمها للفريق ولمشاركته في أعمال البعثة في موسمي ٢٠٠٩ و ٢٠١٠.

الجمهورية الفرنسية

. وزارة الخارجية : وبشكل خاص الأستاذ جان ميشيل كاباريان مدير قسم التمويل والأستاذة كاترين ديلوبيل مديرة الشؤون المالية.
. سفارة فرنسا في الرياض : بشكل خاص معالي السفير بيرتران بيسانسنو لدعمه اللامحدود وللأستاذة دانيال اوليفير وببير فانسان المسؤولين عن التعاون الثقافي .
. المركز الوطني للبحث العلمي بباريس (وحدة البحوث ٨١٦٧ - الشرق والمتوسط) : بشكل خاص الأستاذة آن موجول مندوب منطقة باريس. جان كلود شينيه، كريستيان روبان وفرانسواز بريكيل شاتونيه لدعم مركز البحث قسم عالم الساميات وأيضاً الأستاذة ماري فيرونيك ديانت للجهود والمساعدات التي قدمتها لنا.

الجمهورية الإيطالية

. وزارة الخارجية.
. المعهد الإيطالي لإفريقيا والشرق : بشكل خاص الأستاذ الدكتور جيراردو نيولي مدير المعهد لدعمه وتشجيعه لهذا المشروع.
. جامعة نابولي «الشرقية» قسم الدراسات الآسيوية وخاصة برينو جينيتو وفرانسيسكا سفيرّا.
. سفارة إيطاليا في الرياض : معالي السفير ايجينو داوريا.

ولابدّ من تقديم شكرنا العميق للأستاذ الدكتور خليل إبراهيم المعقل للجهود التي بذلها لإنجاح أعمال البعثة الأثرية السعودية- الإيطالية- الفرنسية المشتركة في دومة الجندل وأيضاً لشكر الأستاذ الدكتور كريستيان جوليان روبان لنصائحه ولطفه ودعمه الدائم لنا.
كما لا بدّ أن نشكر بشكل خاص الباحث ثامر عوض المالكي للجهود التي بذلها لإنجاح أعمال الفريق ولمشاركته الفعالة في التنقيبات الأثرية بدومة الجندل في موسمي ٢٠٠٩ و ٢٠١٠.

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البعثة الأثرية السعودية-الإيطالية-الفرنسية
في دومة الجندل في المملكة العربية السعودية

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بإشراف

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بمشاركة

عبد الهادي خليف الطراد، أحمد عتيق القعيد، عبد المجيد ناصر المرشد،
عبد العزيز إبراهيم الدايل، ثامر عوض المالكي، أندريا ماركولو، قونتان موريل،
درعان مسفر القحطاني، منصور حامد القحطاني، حمود محمد العرجان،
د. جيرمي شيتيكات و د. بيير سيميون