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Report on the 2023 Season of the Madâ'in Sâlih Archaeological Project

Laïla Nehmé, Katia Schörle, Emmanuel Botte, Dominique Cabaret, Paul Cervantes, Caroline Durand, Ahmad Al-Emam, Bernard Faye, Zbigniew T. Fiema, Yvonne Gerber, et al.

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Report on the 2023 Season
of the **Madâ'in Sâlih**
Archaeological Project

Edited by Laila Nehmé and Katia Schörle

With contributions by

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Drawings by Mathilde and Jean HUMBERT



January 2024

Cover page photograph P. Cervantes: Camels for tourists in front of the Jabal al-Khrymât necropolis.
Next page photograph, Z.T. Fiema: Backfilling and conservation of Area 34, the Roman fort.

Page set up: Marc Balty art'air-éd.



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Royal Commission for AIUla



Report on the 2023 Season

of the **Madâ'in Sâlih**

Archaeological Project



January 2024

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* Madain Salih Archaeological Project, 2002–2023.

Introduction, Summary of Actions, and Prospects

Katia SCHÖRLE (CNRS–UMR 7299),
with the help of Laïla NEHMÉ (CNRS–UMR 8167) for the prospects

The 2023 season of the Madâ'in Sâlih Archaeological Project (MSAP) took place in February, with the majority of the team on the ground between February 5th and February 25th, whether on-site to review individual areas and prepare future publications (Blanc et al., this report), at the dighouse to complete the study of the pottery from the previous seasons (Durand and Gerber, Studer, this report), or travelling between Hegra and Taymā' with camels (several reports in this volume, Nehmé et al.). The last team members departed to Riyadh and the French Embassy on March 2nd, with all the objectives planned for this season successfully met.

This year was both the first year of the four-year research programme endorsed by the French Ministry of Foreign Affairs (MEAE), and the last season of the Madâ'in Sâlih Archaeological Project (MSAP) which was undertaken under the aegis of the Saudi Ministry for Culture (MoC) and placed under the responsibility of Laïla Nehmé (CNRS) and Maher al-Musa (MoC). The 2023 season was directed by Dr. Katia Schörle (CNRS) and Maher al-Musa. Note that the permit delivered by the MoC in 2019 was valid until March 20th, 2023.

The season served as a transition year into the research programme for future years. The latter is named the 'Hegra and Hinterland Archaeology and Conservation Programme' (HHACP 2024-2028), hopefully soon endorsed by AFALULA, while re-aligning the new four-year MEAE research programme (2024–2027) with the five-year Saudi Arabian research programme due to start in 2024 (2024–2028). The project's directors are deeply grateful to all the institutions and bodies which funded it. Their continuous effort to support it and the attention paid to its achievements are highly appreciated. These include the French Ministry for Foreign Affairs, the Saudi Ministry of Culture, the Royal Commission for AlUla, the Total Energy Foundation, the French Embassy in Riyadh, and the CNRS. This allowed for no less than 18 people to be on the ground, preparing future research, finalising previous research, or actively creating it on the (camel caravan) trip.

Participants to the 2023 season

Ahmad AL-EMAM	Content Management Manager	RCU	Saudi Arabian
Pierre-Marie BLANC	Archaeologist	CNRS	French
Dominique CABARET	Archaeologist	Dominican father, associate researcher in the CNRS	French

Paul CERVANTES	Archaeologist	Freelance	French
Caroline DURAND	Ceramicist	Freelance, associate researcher in the CNRS	French
Bernard FAYE	Veterinarian, specialised in camel	President of the International Society of Camelid and Research Development	French
Zbigniew T. FIEMA	Archaeologist	University of Helsinki	Polish
Yvonne GERBER	Ceramicist	University of Basel	Swiss
Mathilde HUMBERT	Illustrations/Draughtsperson	Freelance	French
Luc LAPIERRE	GIS Specialist	Freelance	French
Alan MORRISSEY	Expedition advisor, local expert	Freelance	British
Maher AL-MUSA	Archaeologist	MoC	Saudi Arabian
Laïla NEHMÉ	Archaeologist and epigraphist	CNRS	French
Jérôme NORRIS	Epigraphist	PhD student	British
Katia SCHÖRLE	Archaeologist and historian	CNRS	French
Jacqueline STUDER	Archaeozoologist	Former conservator at the Museum of Natural History of Geneva	Swiss
Muzhirah AL-QAHTANI	Trainee, ceramics	MoC	Saudi Arabian
Saad AL-ZAMAMI	Archaeologist	MoC	Saudi Arabian

Summary of actions

The objectives defined for the season were the following:

- Finalise the documentation of several areas inside the so-called Residential Area (**fig. 1**). This includes the review of the 370 *loci* recorded in the past two years in **Area 9** (182 *loci* in Trench E, 132 in the new (2022) Trench B, 43 in the revisited Trench D, 13 in Trench C), as well as fill in the MSAP Excel database, select photographs, fill in the related database, and list the few adjustments needed to be made to make the general plan and other drawings as accurate as possible.
- Finalise the documentation in **Area 34**, known as the Roman fort (see fig. 1).
- Study the **pottery** (C. Durand and Y. Gerber, this report).
- Study of the **faunal material** (J. Studer, this report), including Area 6. Two boxes from the Roman fort, a few bags from Area 35, two additional boxes from Area 61 in the Nabataean sanctuary and half a box from Area 92 were examined. Only faunal material from homogeneous and/or well-dated archaeological contexts were dry-cleaned and analysed in detail, following the procedure applied since the first study season (MSAP 2010). A total of 2427 bones from 30 *loci* were analysed, of which 889 are dated to Nabataean levels, 437 to the 2nd and 3rd centuries CE, 1036 to the late 3rd-early 4th centuries CE, and 65 to the post-Roman levels. Overall, this brings the corpus of studied material to 40,000 animal remains which belong to over 50 species of molluscs, fish, reptiles, birds and mammals. It is hoped that the quantitative and spatial analyses of this data will make it possible to identify the dietary habits of Hegra's citizens and soldiers, the management of a city's waste, the use of animals in rituals and, above all, the evolution of the exploitation of fauna over a thousand years (4th-2nd century BCE to 5th-6th century CE), whether domesticated, hunted species or imported products.

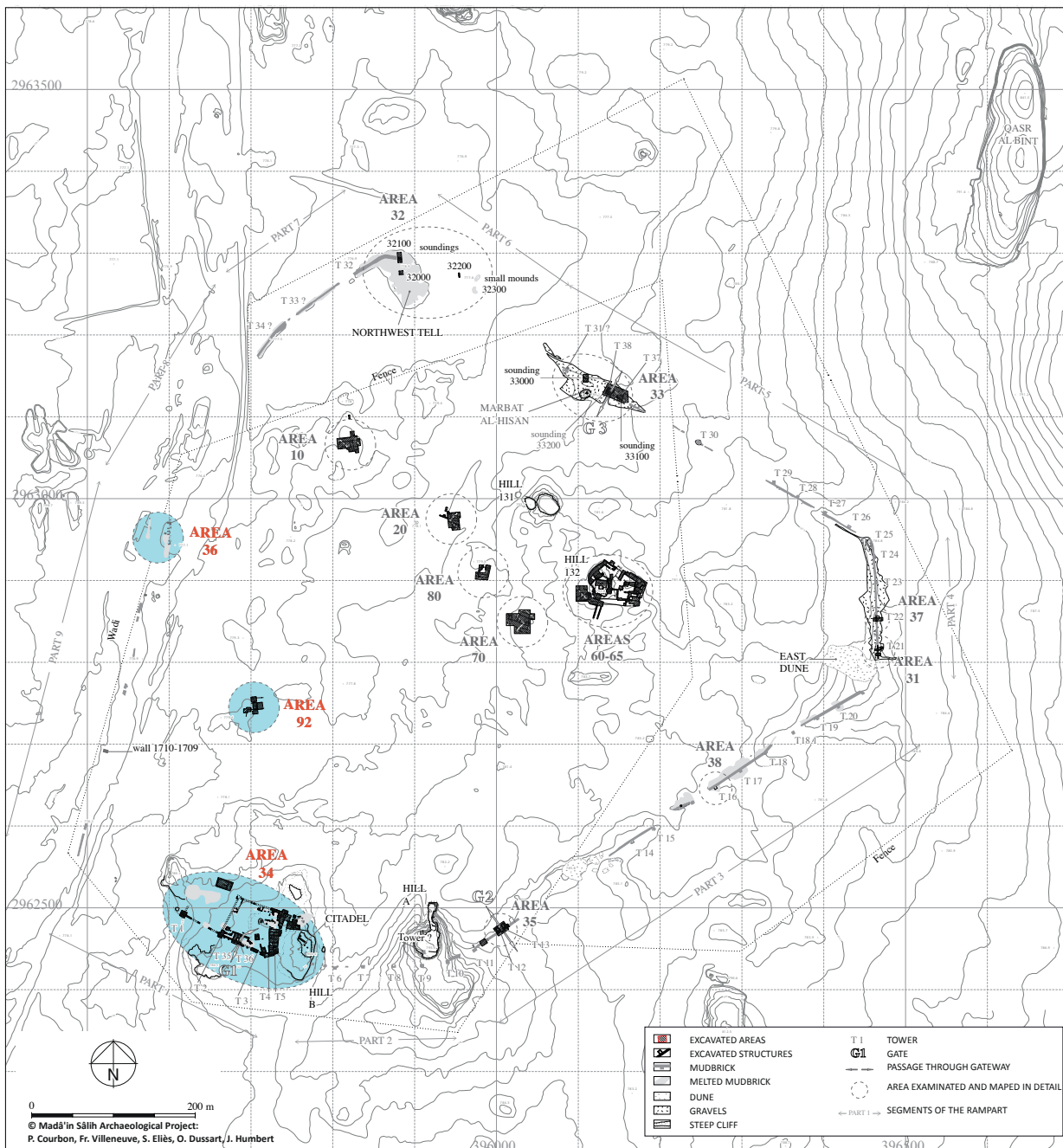


Fig. 1. Plan of the Residential Area of ancient Hegra. In blue the areas excavated in 2021 and 2022, and the focus of this 2023 study season.

- **Finalise the drawings** of objects and other artefacts (M. Humbert).
- **Camel caravan survey** between **Hegra and Taymā'** (several articles, this report).
- **Conservation**, which is most important for the site's preservation and future excavation. Since the movable artefacts had been restored during previous seasons, in 2023 the focus was put on the structures *in situ*. Indeed, an unexpectedly harsh and rainy winter affected the site more than any previous winters. This required a thorough examination on the team's part of all the trenches and a general site condition survey, in anticipation of further future work under RCU guidance (Blanc *et al.*, this report).

As mentioned earlier, all the objectives were met, and pave the way towards future projects at Hegra.

Study season

Several areas needed to be revisited in detail, both to finish past activities and prepare next year's excavation season.

- **Area 34** (Z.T. Fiema), the **Roman fort**: the aim was to decide targeted areas to excavate in 2024 as well as finalise data collection with a view to publishing this large and critical building during the HHACP 2024–20028 period (with funding requested from AFALULA for this important volume).
- **Area 36** (M. al-Musa), on the western edge of the city: the excavation of this area started in 2021. It was chosen because it is very close to the city wall on the west side of the city and because it was possibly the location of a caravanserail.
- **Area 9** (P.-M. Blanc), a **mainly domestic** area located south–west of the Residential Area. Continuing the study and preparing the 2024 excavations in Area 9 was important for two reasons: 1/ it is one of the two excavated areas—along with Area 1—which yielded, in the deepest levels of the excavations, the oldest traces of occupation at the site, probably due to its proximity to the wadi; 2/ it shows, below the latest levels of occupation, traces of monumental architecture such as extremely large thresholds, reused capitals, stone-built walls, etc.

Survey

Part of the 2023 team conducted a camel caravan survey between Hegra and Taymā' (HTCS) in order to explore a secondary itinerary of the Incense Road which connected the oases of Hegra and Taymā', and from there North-West Arabia with Mesopotamia and the Arabian-Persian Gulf (Nehmé et al., this report). The survey followed the footsteps of A. Jaussen and R. Savignac, and benefitted from various types of expertise, including epigraphy (L. Nehmé and J. Norris), archaeology (D. Cabaret, P. Cervantes, and L. Nehmé), knowledge of the area and off-road driving (A. Morrissey), plants (A. Al-Emam), camel breeding (B. Faye). Scientific highlights include 702 inscriptions recorded (294 unpublished or unknown ones), and the discovery of important camel-drawings and rock art, which, as Faye underlines, offer both a remarkable variety of scenes, only comparable with places such as Tassili N'Ajjer (Algeria) or the Alashan Desert (Mongolia, China), but also stylistic choices whose chronologies remain to be studied further.

Community Engagement

Muzhira al-Qahtani, MOC, was **trained** for the duration of the season by C. Durand and Y. Gerber for pottery analysis, M. Humbert for drawings, M. al Musa, K. Schörle, Z.T. Fiema, and P.-M. Blanc for site management.

Media

A TV documentary for ARTE was produced during the HTCS survey (Nehmé et al., this report). The broadcasting date is not known at the time of writing.

Future actions

The 2024–2028 provisional programme has a two-pronged approach in terms of methodology and strategy, based on 1/ the use of extensive open-area excavations of selected sectors of the city or peri-urban sites during long excavations seasons and 2/ surveys, soundings, and coring during shorter, targeted action seasons.

Two key surveys are expected to guide the 2024–2028 excavation strategy, namely:

- a 3D-GPR survey of the urban perimeter;
- a metal survey to remove disturbance for the 3D-GPR survey.

It was initially hoped that both surveys could be undertaken before the first HHACP excavation season in order to help determine better and in more detail long-term research strategies (streets, extent of the kiln area, identification of non-residential architecture). Due to delays, both have been rescheduled in 2024, so as to verify and open new trenches in 2025.

City Centre

HHACP's main future research objectives are to understand daily urban and peri-urban life at Hegra. Pursuing excavations in the city centre will provide more extensive data on the urban layout of the city, expose the vibrancy of its daily life, as well as its commercial and artisanal activities. Attention will be paid to the architecture of the buildings, the infrastructures, and the distribution of the various spaces (public, private, religious, etc.). Special focus will be paid to domestic structures, as well as those related to specific communities such as traders, military or artisans. Archaeobotanical and archaeozoological material will continue to contribute to the identification of ancient dietary practices. Combined with the study of the associated artefacts and architectural features (structural layouts and plans, location, spatial distribution, etc.), these will serve as indicators of the occupants' social status and occupations, as well as provide insight on the quality of their lifestyle.

Daily Hegra: domestic units

The extensive excavation of a domestic area in order to determine the plan of a complete dwelling unit, preferably one opening onto a street, will be undertaken in the western part of the city. **Area 2**, in its northern part, previously excavated (cf. MSAP report 2011, and **fig. 2** below) and the phasing of which is known, may be a good candidate to begin this investigation. This part of the project will of course initially document the upper levels of occupation, hence the Roman/Late Roman phases of the site. However, in a second phase this excavation may bring to light the walls and structures of the lower levels and help understand the plan of a Nabataean domestic unit. **Area 9** also revealed a long sequence of occupation and structures belonging to domestic installations (**fig. 3**), along with elements of Nabataean architecture. It therefore needs to be explored during one season at least. Likewise, **Area 36**, on the western side of the city, produced evidence of domestic units occupied in the late phases of the site (4th–5th centuries CE) and excavations needs to be continued to finish these and potentially reveal earlier phases (**fig. 4**).

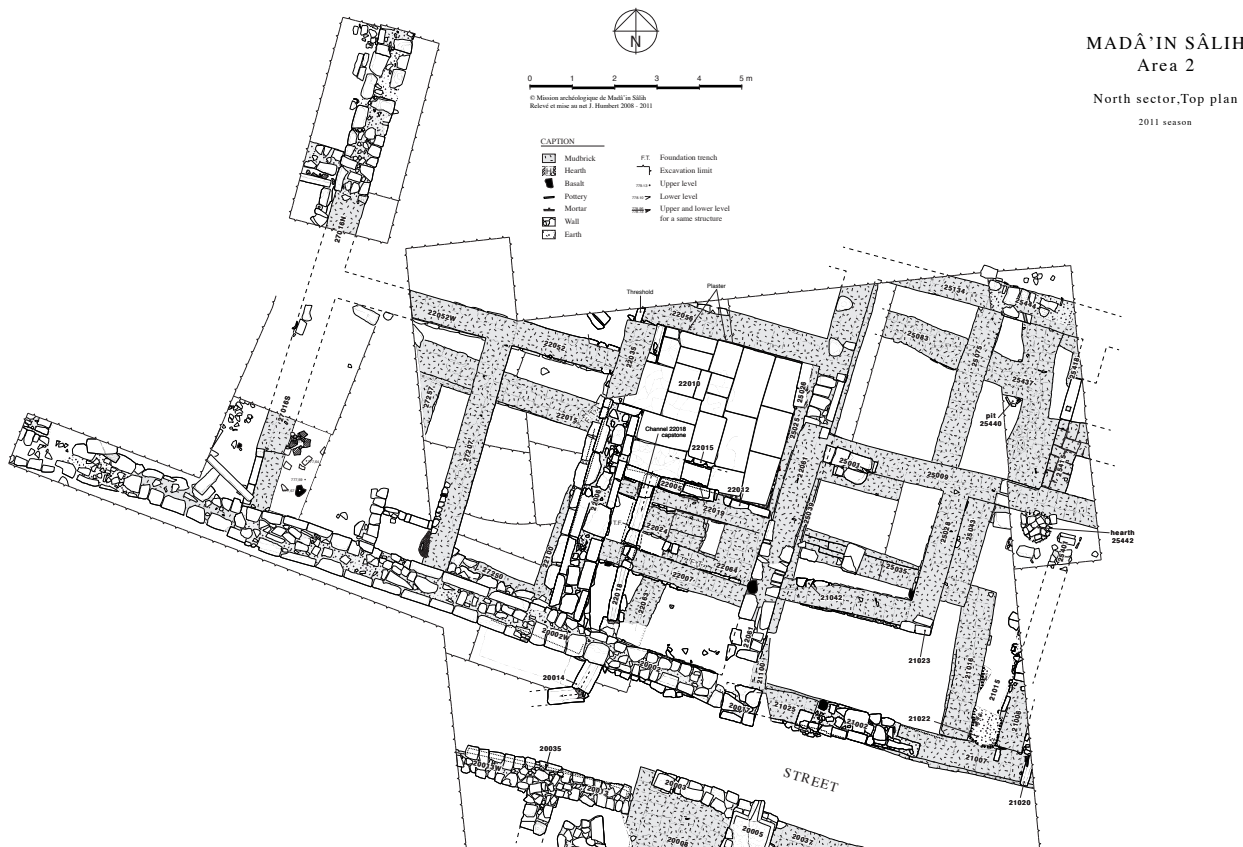


Fig. 2. Plan of Area 2 at the end of the 2011 season (©MSAP).

MADÂ'IN SÂLIH
Area 9

Top plan 2022

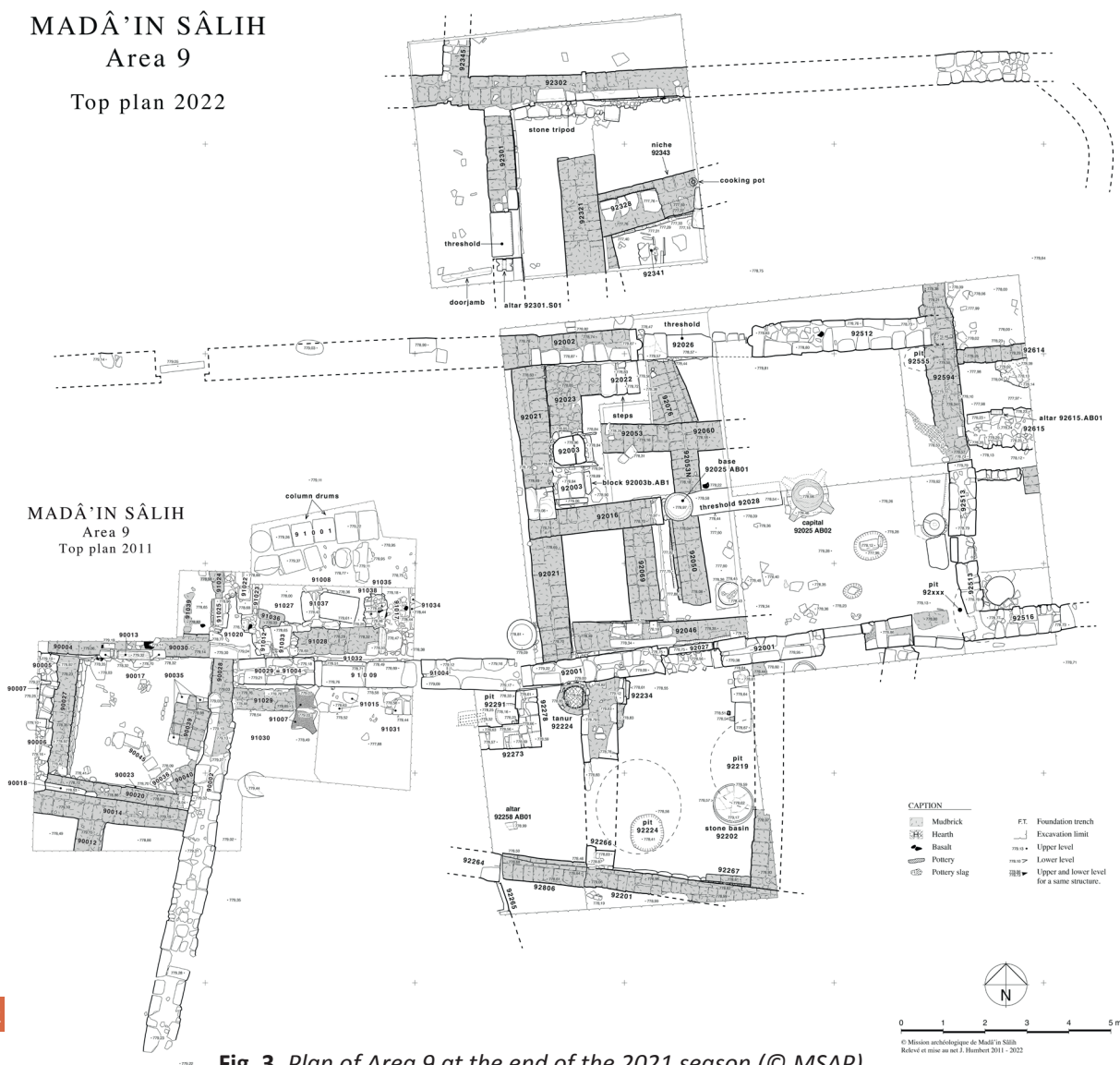


Fig. 3. Plan of Area 9 at the end of the 2021 season (© MSAP).

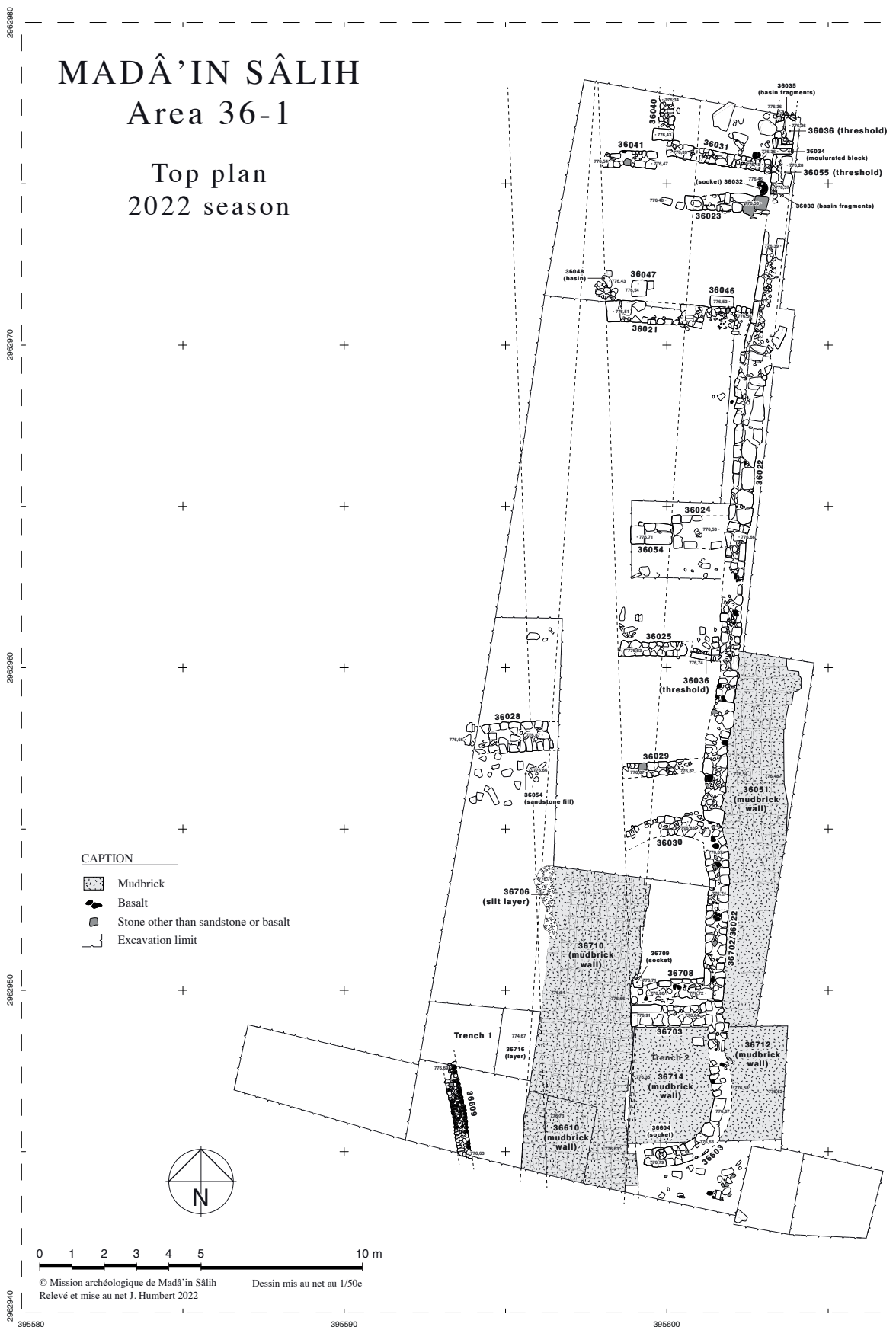


Fig. 4. Plan of Area 36-1 at the end of the 2022 season (© MSAP).

Understanding military life at Hegra

The Roman Fort (**fig. 5**) is one of the highlights of Hegra's urban features. It also represents an essential part of Hegra and its region's history after the Roman annexation of the Nabatean kingdom in 106 CE. The MSAP work in the area exposed the general layout of the fort, as well as individual rooms for storage and barracks. Continued work in a few areas will provide important additional information before proposing a final publication. Five have been selected as priorities (see **fig. 6**).

Area 35 (the so-called South-East Gate) may be investigated with potential sondages as it is an area which may be opened to tourists in the near future. The area may also be a good candidate to search for a dump linked to military activities.

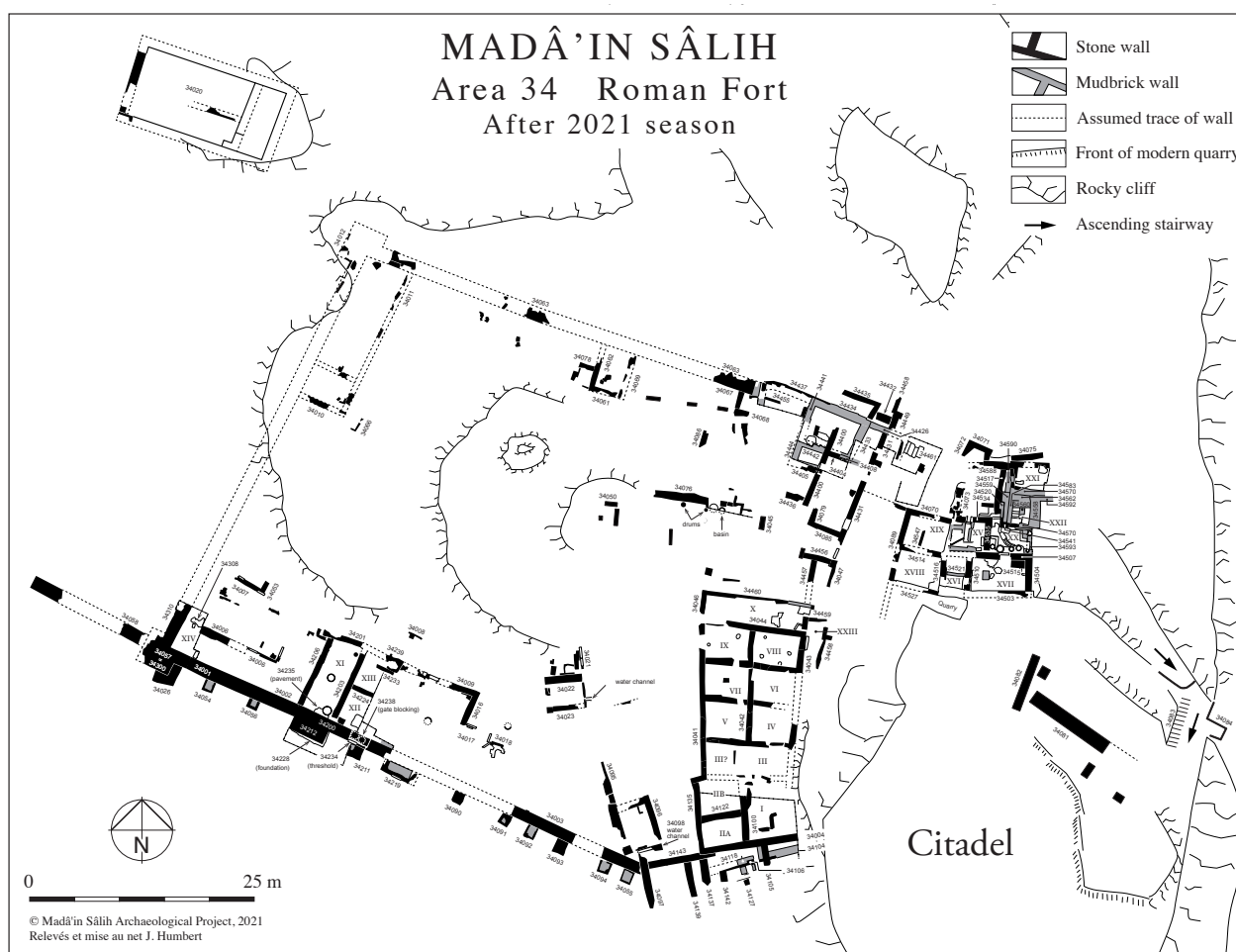


Fig. 5. Plan of Area 34 at the end of the 2021 season (© MASP).

Crafts and production in Hegra

The kilns (**Area 11**) will be excavated further in order to provide answers regarding ceramic workshops and their role within artisanal industries of Hegra. Several questions may be addressed: can we assess or quantify ceramic production at Hegra? How many people worked in the pottery industry? Where did the clay come from and how was it processed before firing? P-XRF (portable X-ray fluorescence) will be undertaken on the ceramics in order to refine knowledge on fabric, but also the origin of the clay used locally.



Fig. 6. HHACP excavation priorities within the Roman fort (Area 34) (© MSAP).

The next step will be understanding the transformation of agricultural products into edible goods. This line of enquiry will aim at understanding the links between Hegra and its immediate oasis, as well as the use of locally produced crops for daily consumption, as opposed to crops used as an item of trade and exchange (cash crops). In order to achieve this goal, all organic residues and archaeobotanical data produced by the MSAP and the HHACP will be examined in light of archaeobotanical evidence produced by the HHACP oasis survey (see below). Millstones will be examined for organic residue. Furthermore, P-XRF will be undertaken on basalt millstones found on site (e.g. in Area 34), in order to determine the origin of the basalt (the Ḥarrah?), and thus understand the relation Hegra maintained with its surroundings, and how the city exploited all of its locally available resources.

The Periphery of Hegra

The small soundings undertaken outside the Roman fort in search of the ancient dump of the city in 2021 were unfortunately not successful. The potential of the so-called South-East gate of the city for the location of this dump will be explored, but also nearby areas, such as at the Southern tip of the Jebel Ithlib (area 60), where Roman-era construction material was documented by the MSAP. The HHACP's interest in the city's periphery is justified by the fact that traces of Hegra's long-distance trading activities may be discernible there. It would be extremely useful to find traces, whatever they are, of camel enclosure(s) or caravanserai.

Wider Hegra

“Wider Hegra” will continue to be a focal point. The city’s immediate periphery is characterised by the presence of numerous wells around which archaeological structures were recorded. Besides, several hamlets or dwelling areas were identified during past surveys and their archaeological potential will be re-examined carefully. The latest (2022) report of the ECO-Seed project directed by C. Bouchaud has shown that the oasis of Hegra is still a *terra incognita* as far as macrovegetal remains are concerned. Thus, the ancient oasis of Hegra may be the only area where new data is needed before exploiting the results obtained so far. Sample coring and soundings will be undertaken in order to clarify the paleoenvironment of the oasis. Likewise the ceramic material collected in 2004 (1,174 numbered, photographed, and drawn sherds) will be studied, in order to give an initial idea of the chronology and density of occupation.

Hegra in context

Likewise, understanding the integration of Hegra in its regional context with actions such as the Hegra-Taymā’ survey will remain a key line of research. It is indeed essential to understand Hegra’s economic activities, the role(s) it played in the region in antiquity (caravan station, military post, sanctuary, etc.), its integration in the north-south incense land route, its connections with the Red Sea, etc. Some of these actions are additions to the Hegra project (Umm Zarb, Ḥismā), while others are the continuation of actions already partly undertaken (survey to Medina, Mabrak an-Nāqah). Particularly of interest to both the director and Laïla Nehmé who will be spearheading this line of research are the clear parallels with sites in the Eastern Desert of Egypt which was included in K. Schörle’s doctoral research. This adds new interesting alleyways on the relations which existed between both sides of the Red Sea in the Nabataean and Roman periods, particularly between Berenike, Myos-Hormos, al-Quşayr near al-Wajh, and Hegra. We have to mention here Sophie Ammerman’s research (master thesis, Aix-Marseille University) entitled “Nabataean use of the Red Sea in international exchanges”. Current plans involve searching for a PhD funding source for her, perhaps along the lines of Hegra’s relation to the sea.

Concluding thoughts

Many people have made the 2023 season a fruitful season, for maturing future projects, and for completing ongoing research and preparing the publications. It is not possible to name every person who has made it possible but we would like to express our gratitude and warm thanks to everyone for their devoted work. The present report is only the tip of this collective effort of individual team members and long-term institutional partners. It is to them that these last lines should rightfully be addressed.

Note:

The HHACP 2024–2028 research programme was submitted to AFALULA on August 27th, 2023.

Unfortunately, despite it being based on a very thorough and unequalled knowledge of the site and on proposals which tried to meet the need of all partners for new information, additional material on which to build future narratives for the general public, and to increase academic knowledge on the region during the first millenniums BCE and CE, this programme was not favourably welcomed by AFALULA and hence neither was it by the Royal Commission for AIUla. Archaeological research in Hegra is therefore, at the time these lines are written (January 2024), waiting for a new team.

MSAP reports online:

2021–2022: <https://hal.science/hal-03861945v2>

2020: <https://hal.archives-ouvertes.fr/hal-03131855>

2018–2019: <https://hal.archives-ouvertes.fr/hal-02869017>

2017: <https://hal.archives-ouvertes.fr/hal-01804965>

2016: <https://hal.archives-ouvertes.fr/hal-01518460>

2015: <https://halshs.archives-ouvertes.fr/halshs-01311865>

2014: <https://halshs.archives-ouvertes.fr/halshs-01122002>

2011: <http://halshs.archives-ouvertes.fr/halshs-00671451>

2010: <http://halshs.archives-ouvertes.fr/halshs-00542793/fr/>

2009: http://halshs.archives-ouvertes.fr/halshs-00548747/fr

2008: in printed form only.

The 2023 Hegra-Taymā' Caravan Survey (HTCS)



From left to right: Ahmad al-Emam, Bernard Faye, Alan Morrissey, Laïla Nehmé, Jérôme Norris, Paul Cervantes, and Dominique Cabaret.

The caravan project was sponsored by the endowment fund Arpamed, devoted to French archaeology in the Mediterranean (<https://www.arpamed.fr/>).

The 2023 Hegra-Taymā' Caravan Survey (HTCS)

Section edited by Laïla NEHMÉ,
with contributions by Dominique-Marie CABARET, Paul CERVANTES,
Ahmad AL-EMAM, Bernard FAYE, Laïla NEHMÉ, and Jérôme NORRIS

Introduction

The first objective of the Hegra–Taymā' caravan survey (HTCS) was the reconstruction of a camel caravan in order to explore, at the speed and with the means of ancient caravaneers, such as the Nabataeans, a section of a secondary itinerary of the Incense Road which connected the oases of Hegra and Taymā' and from there continued towards Mesopotamia and the Persian-Arabian Gulf (**fig. 1**). Both Hegra and Taymā' are major archaeological sites which were occupied during the Nabataean period, more precisely, in this case, during the first centuries BCE and CE. The



Fig. 1. Regional map.

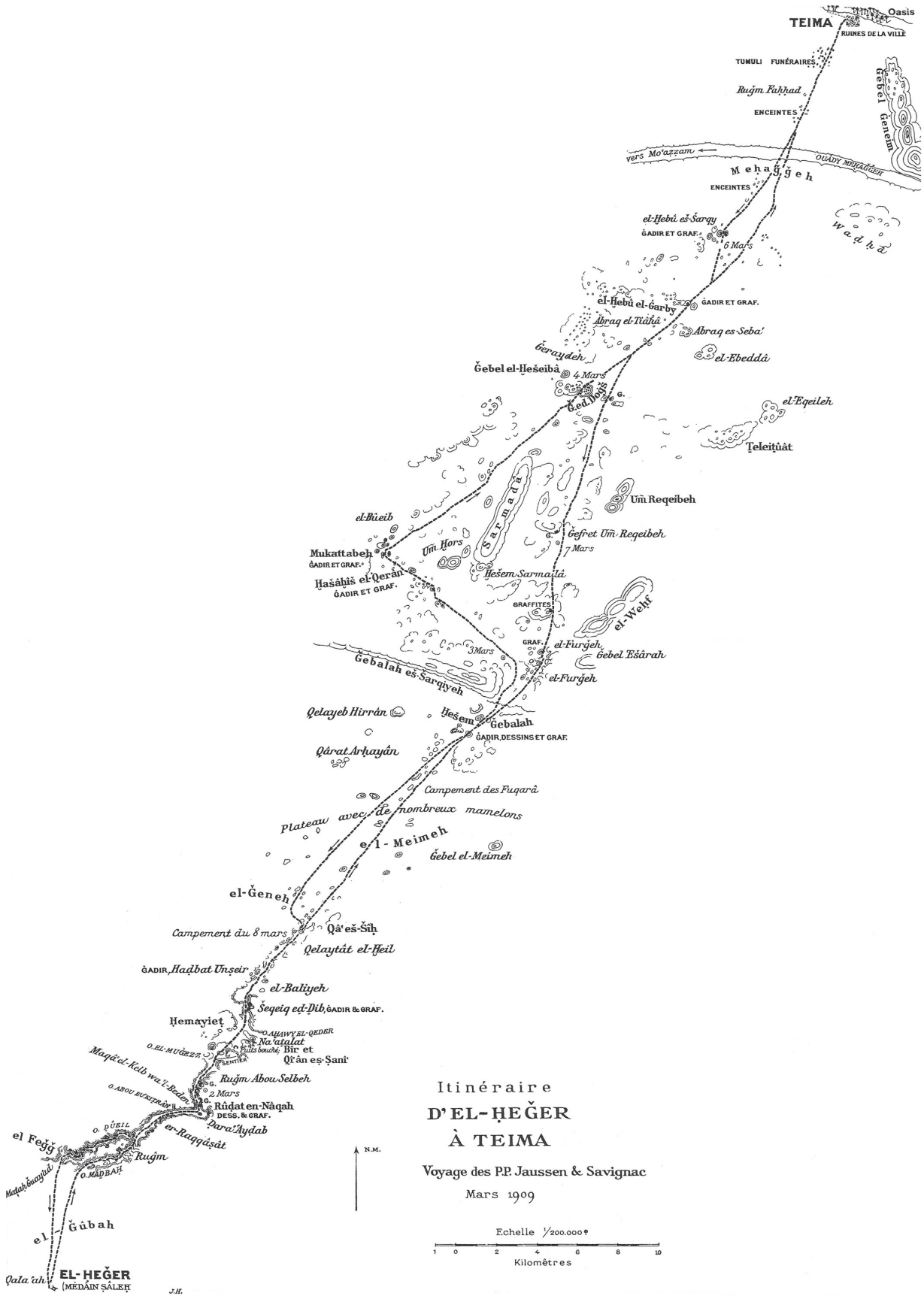


Fig. 2. The itinerary followed by A. Jaussen and Savignac in 1909.

distance between the two cities—110 km as the crow flies—seemed particularly suitable for such an experience. As an added value, it was decided to make a documentary film which would allow thousands of viewers to witness the preparation of the caravan and follow it virtually during the journey.

The second objective was to follow in the footsteps of A. Jaussen and R. Savignac, who travelled between the two cities in March 1909 (**fig. 2**), in order to reconstruct their itinerary and determine the coordinates of the sites they had identified.

The third objective was to record as many sites as possible considering the time constraints due to the means of travel chosen and to the complex time requirements for shooting the film.

The HTCS journey was undertaken between 19th and 26th of February, i.e. in eight days. Camels were used only from the third day onwards (21th–26th) because the party was not allowed to cross the Shar‘ān natural reserve with the animals, where grazing is forbidden (**fig. 3**). Two walking days were thus necessary to cross the Shar‘ān reserve from the south-west to the north-east.

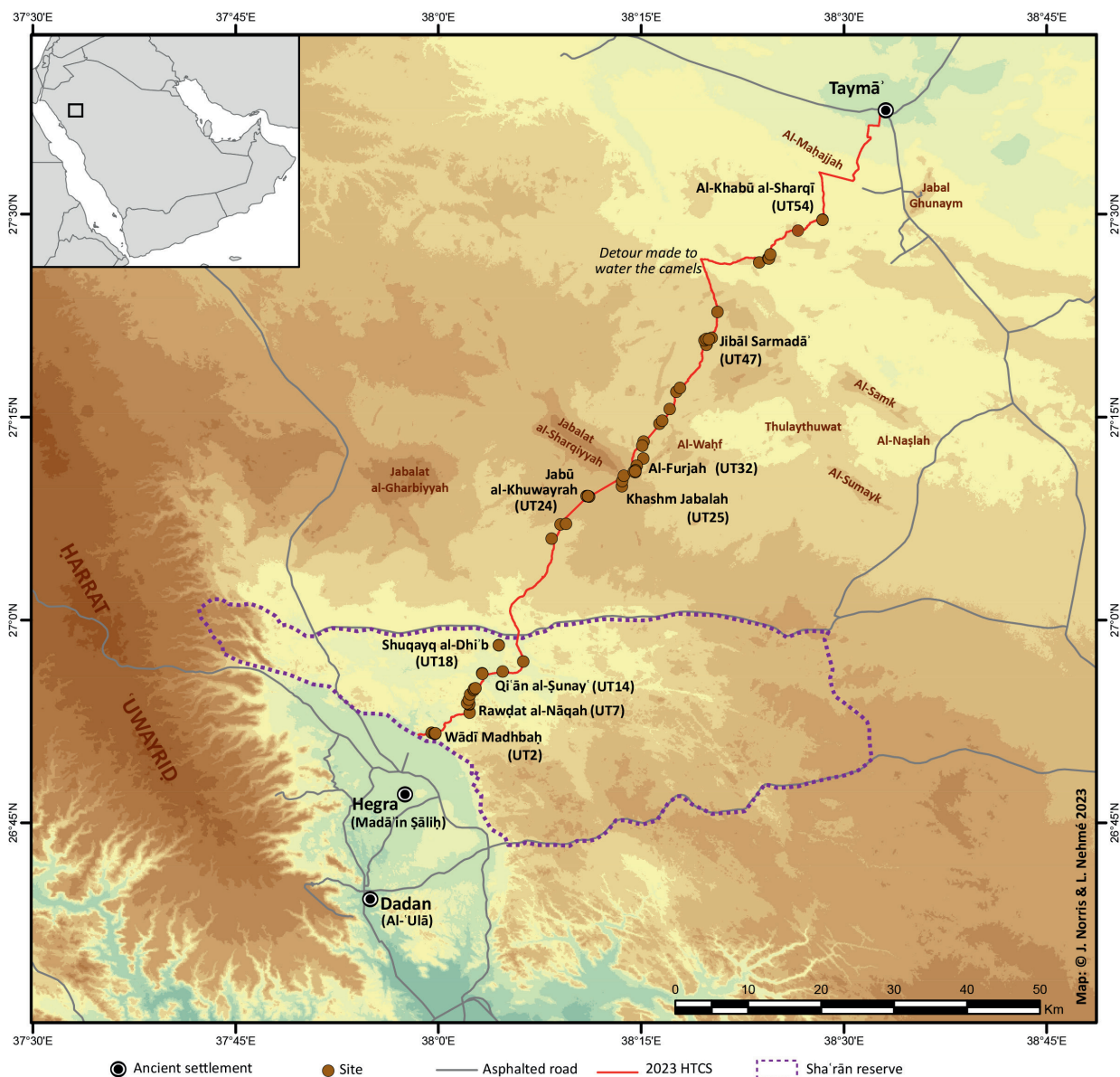


Fig. 3. General map of the itinerary followed by the camel caravan in 2023 showing the location of the sites recorded.



Fig. 4. Five members of the team (Ahmad al-Emam and Alan Morrissey are missing). From left to right: Paul Cervantes, Bernard Faye, Dominique Cabaret, Laïla Nehmé, Jérôme Norris.

The team (**fig. 4**) was composed of seven members, each chosen for his/her competence, listed here in alphabetical order:

- Dominique CABARET, archaeologist, Dominican father;
- Paul CERVANTES, MA student who studied the itinerary followed by A. Jaussen and R. Savignac between Hegra and Taymā’;
- Ahmad AL-EMAM (RCU), for his knowledge of the plants which grow in the desert and the Arabic vocabulary of natural features;
- Bernard FAYE, vet specialised in camel breeding;
- Alan MORRISSEY, expedition advisor;
- Laïla NEHMÉ, archaeologist and epigraphist, CNRS, Paris, team leader;
- Jérôme NORRIS, epigraphist, doctoral student.

The team of travellers, archaeologists, and epigraphists was accompanied by four members of a film production company (see below, § TV documentary).



Fig. 5. The arrival of the party at Taymā’.

The caravan team warmly thank all those who helped in the planning of this project, the first of its kind undertaken in Saudi Arabia in a long time. In alphabetical order: Melissa COUCH (RCU), Mathias CURNIER (Afalula), Rebecca FOOTE (RCU–Archaeology), Mike NORMAN (RCU Film AlUla), Emma GALLAGHER (RCU–Shar‘ān reserve), Christophe KOSZAREK (Jara Prod), as well as many others too numerous to name here. For their help and guidance, we would also like to thank the very efficient and knowledgeable Shar‘ān reserve team of rangers. Finally, we are very grateful to the authorities, particularly on our arrival at Taymā’, for their support in escorting the party through the city centre (**fig. 5**).

TV documentary

On the recommendation of Mathias Curnier, a TV documentary project, provisionally titled ‘Arabian Desert, in the footsteps of ancient caravaneers’, was proposed by Laïla Nehmé to Jara-prod, a Paris-based production company (<https://www.jaraproduction.com/>). The latter commissioned Alexandra Barbot and Jean-Luc Guidoin, a journalist and a film maker respectively, to write the script for a c. 45-minute film. This film was pitched to the cultural Franco-German television company Arte, which supported it for the television slot ‘Découverte & Connaissance [Discovery and knowledge, <http://pro.arte.tv/professionnels-de-laudiovisuel/programmes/decouverte-connaissance>]’. The film was completed in August 2023, but the broadcasting date is yet to be announced. It is hoped that it will be a success.

Archaeology and Epigraphy Between Hegra and Taymā'

Laïla NEHMÉ (CNRS–UMR 8167) and Jérôme
NORRIS (University of Lorraine–HisCant-MA),
with appendices by Paul CERVANTES and Ahmad AL-EMAM

State of the art

The area between Hegra and Taymā' was crossed by several travellers in both the late nineteenth and early twentieth centuries. Those who contributed much to our knowledge of the area or recorded a significant number of ancient texts and rock drawings are presented below with more detail than the others, for whom only brief references are given.

Charles Doughty travelled from Hegra to Taymā' in Februray 1877.¹ His primary aim, however, was to reach Taymā' and he does not, therefore, give a detailed account of his journey and the number of inscriptions he recorded is limited.

From 13th to 17th November 1880, Charles Huber travelled between Taymā' and Hegra.² He visited the site of 'al-Ruqqab' (Rī' al-Rukkab 1, UT009), but he did not copy the Nabataean text fragment we identified on the rock face (UT009Nab01, *šd/šr*).

Charles Huber and Julius Euting travelled together between Taymā' and Hegra starting in March 1884 (**fig. 1**).³ The itinerary they followed was, however, not identical to the one we followed in 2023, except on arrival at Hegra.⁴ We identified only two Nabataean inscriptions among the ones copied by Huber, in Wādī Madhbaḥ (p. 402 no. 26 = UT003Nab02, and no. 28 = UT003Nab03).⁵

The Dominican priests from the École Biblique and Archéologique française in Jerusalem, Antonin Jaussen and Raphaël Savignac, explored the area in 1909. In their account, *Mission archéologique en Arabie*, they recorded 56 Nabataean inscriptions, c. 400 so-called 'Thamudic' inscriptions, the majority of which belong to the category later labelled 'Thamudic B'. The Dominicans published a sketch map (see fig. 2 in the introduction) of the itinerary they followed, which P. Cervantes

1. Doughty 1884: 23–24, pl. XXIX and *fol.* 49; Doughty 1888: 517–520.

2. See Facey 2022: 191–193, and map.

3. See Huber 1891: 384–398 and Euting 1914: 208–217.

4. Maps: Huber 1891: Atlas feuille 9; Euting 1914: 208.

5. Huber 1891: 402, 652.

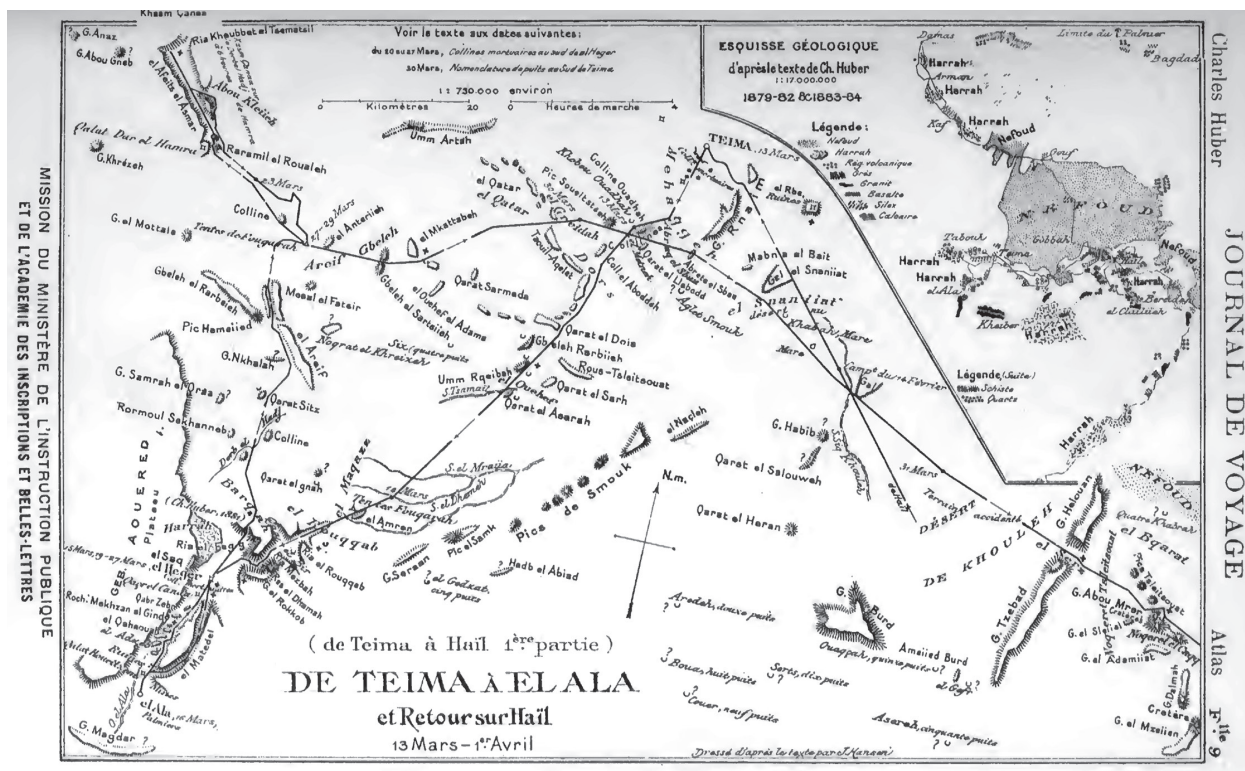


Fig. 1. Charles Huber's map of his itinerary between Hegra and Taymā² (Huber 1891: Atlas sheet no. 9).

endeavoured to trace on Google Earth as part of his MA thesis, using the detailed diary they kept on the journey (fig. 2). Since the Dominicans' exploration, several expeditions have been made in the region, in particular by the Saudi scholar Khalid al-Eskoubi, who published more than 500 Ancient North Arabian inscriptions. A younger Saudi scholar, Khalid al-Haiti [al-Ḥāyitī], also explored the area (fig. 3). In 2012 he submitted an MA thesis on the material he had collected, which he published in 2016 (siglum HNUT), followed by a doctoral thesis, submitted in 2017 (siglum HNNJT).

The location of the texts recorded in the early publications is understandably not very accurate. It is based either on textual descriptions or on more or less sketchy maps. Geographical coordinates are provided only in the most recent works, those of Eskoubi—unfortunately not always reliable—and al-Haiti, who was able to use the GPS technology.

In 1962, Frederick Winnett and William Reed's expedition in northern Arabia included the area between the two oases but their team did not record any inscription along the track they followed after they left the asphalted road south of Taymā'. This track, they say, 'lay south of that taken by Jausen and Savignac'.⁶

We can also refer to the survey carried out as part of the Comprehensive Archaeological Survey Program (CASP), which led to the recording of several sites between Taymā' and Hegra, including Rawḍat al-Nāqah (CASP 204-391), Jabū al-Khuwayrah (CASP 204-376), Waḍaḥah (CASP 204-268), Al-Khabū al-Gharbī (CASP 204-271), 'Uqaylat Umm Khanāšir (CASP 204-274), and Hirān (CASP 204-266).⁷

6. Winnett & Reed 1970: 37.

7. al-Kabawi et al. 1987: 42-48 and map pl. 33.



Fig. 2. Reconstruction of A. Jaussen and R. Savignac's itinerary (Cervantes 2021: fig. 26).

The area was surveyed more systematically in 2013 and 2015, during two seasons of the Epigraphy and ancient Landscape in the Hinterland of Taymā' project (ELHT) led by M.C.A. Macdonald (fig. 4). Using a GPS, the ELHT team recorded 54 sites in which a large number of inscriptions in various scripts and languages were photographed. More than 1725 inscriptions from the published material were included by M.C.A. Macdonald in a Filemaker database but the reading of only a small percentage was checked against the 5000 photographs taken during the field seasons. M.C.A. Macdonald very kindly put at our disposal the available data.

More or less at the same time, in the early 2010s, Khalid al-Haiti undertook a survey in the area in question here—although it was much wider (see above and fig. 3).⁸ Our caravan party passed through three of the sites al-Haiti visited for his MA thesis: Jibāl Sarmadā' 7 (UT047), Jabū al-Khuwayrah 3⁹ (UT024), and Al-Furjah 2 (UT033). The number of inscriptions presented in the MA thesis is, however, smaller than the number of inscriptions we were able to record, e.g. at Al-Khuwayrah 3, where we recorded 48 Nabataean texts, only six of which have an

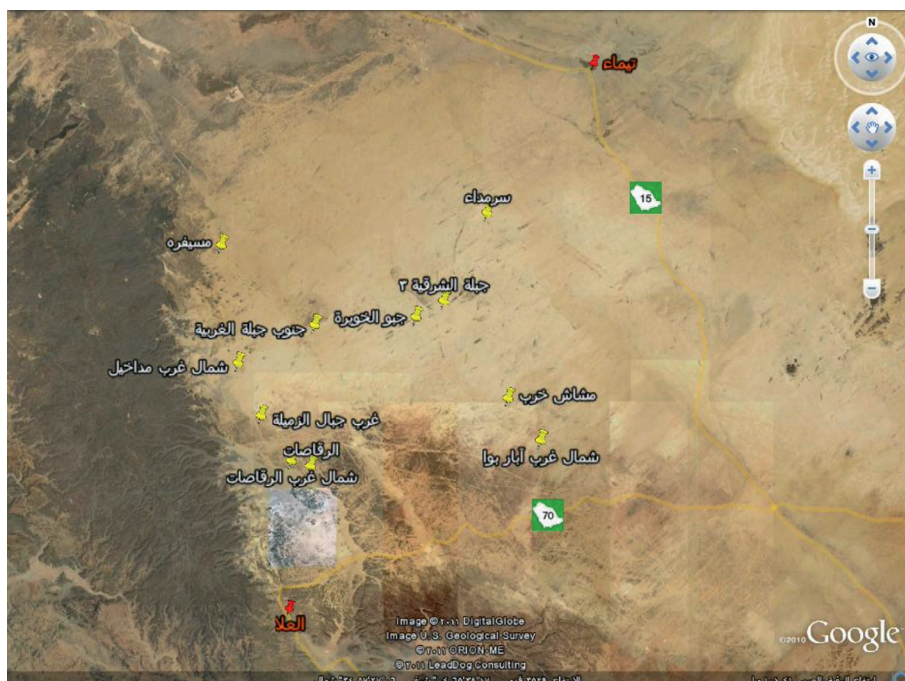


Fig. 3. Satellite image showing the sites visited by Khalid al-Haiti (al-Haiti 2016: pl. 30).

8. al-Haiti 2016: pl. 30 on p. 158.

9. Jabū al-Khuwayrah in al-Haiti 2016.

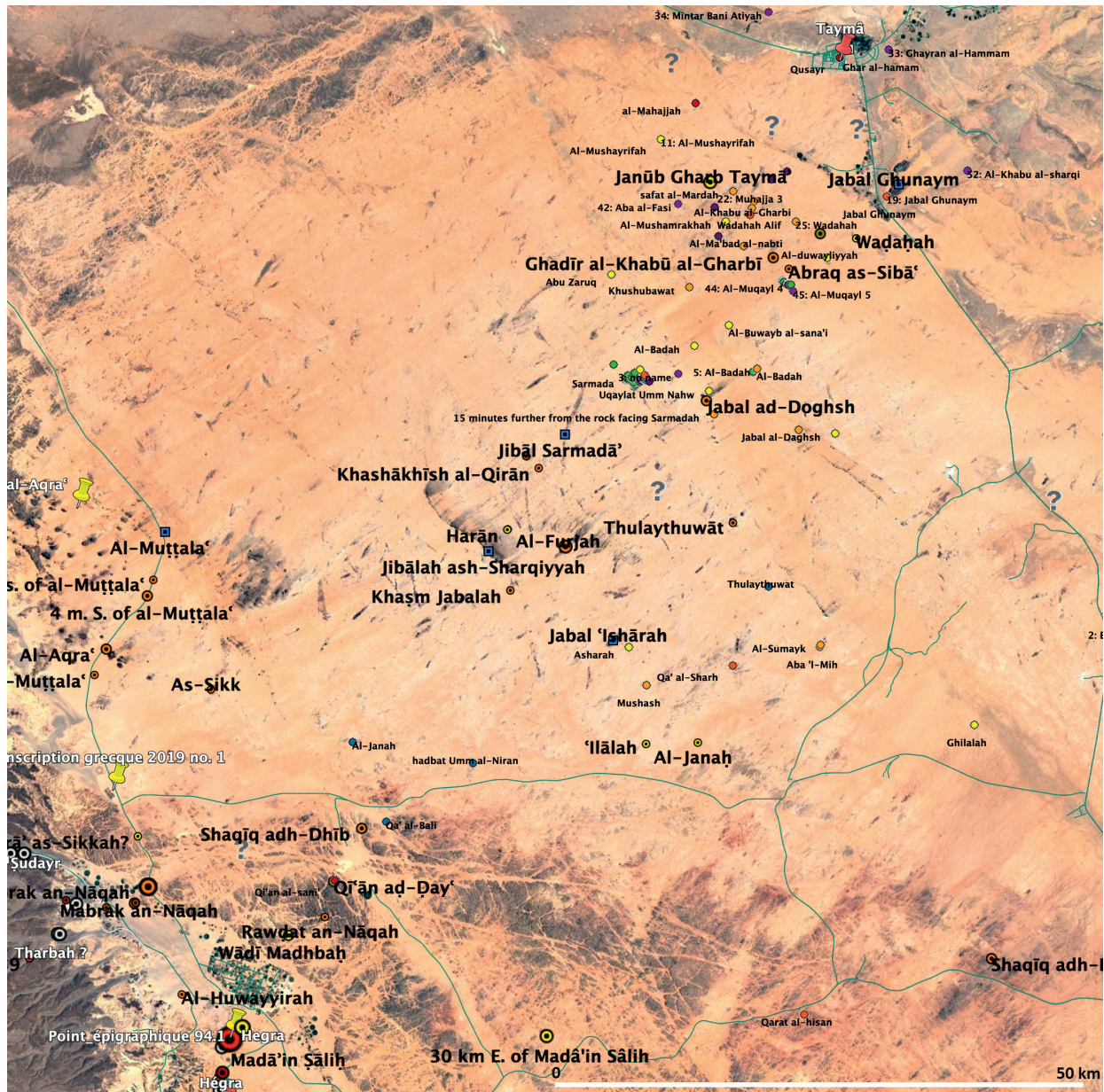


Fig. 4. Very rough draft showing the location on Google Earth of the previously known sites.

HNUT equivalent. In his doctoral thesis (HNNJT), which we were only able to read in August 2023, al-Haiti published 130 Nabataean inscriptions from 14 sites which are located mainly off the route we followed.

In 2014 Sulayman al-Theeb published 67 inscriptions from Jibāl Sarmadā' which al-Haiti had presented in the MA thesis he had done under al-Theeb's supervision. In the publication, the latter added 21 new texts from the same site, thus bringing the number of Nabataean inscriptions from Jibāl Sarmadā' to 88. As for our party, it recorded 142 inscriptions there, thus adding 55 new previously unpublished texts. In 2018, al-Theeb published a collection of 15 texts from south-west Taymā' which had been discovered by Badr al-Fageer in 2008. They come from a number of sites, for which neither the coordinates nor a map showing where they are located, is given. Six inscriptions—which were already published by al-Haiti in 2016 and by al-Theeb in 2014—come from Jabū al-Khuwayrah 3.

Finally, we should add to the groups of texts mentioned above those that were recently discovered or rediscovered by passionate amateurs of ancient epigraphy and history, either French or Saudi

Arabian. The latter regularly ‘publish’ discoveries on social media, particularly X (formerly known as Twitter). Occasionally, some of these dedicated amateur epigraphists and historians send their photographs to scholars for identification and reading but this is far from systematic. Besides, they seldom give the coordinates of the texts and the information can therefore not be used to draw distribution maps of scripts, languages, and other contents.

Methodology

Since the primary aim of the camel caravan was to follow the ancient itinerary between Hegra and Taymā’, the team concentrated on the Nabataean inscriptions, the latter usually indicating, especially when carved in numbers, the presence of an ancient track. An attempt was made to locate, at least approximately—when possible and using the available information—all the sites with Nabataean inscriptions known to lie on a relatively straight line between Hegra and Taymā’ (see fig. 4). Special attention was given to sites such as Rawḍat al-Nāqah, Shuqayq al-Dhi’b, Jabū al-Khuwayrah, Al-Furjah (not visited since Jaussen and Savignac, except for Al-Furjah 2 and 3, see above), Al-Khabū al-Gharbī,¹⁰ and Al-Khabū al-Sharqī because no accurate GPS coordinates were available for them.

Furthermore, the preparation of the caravan included drawing as accurately as possible the route followed by Jaussen and Savignac. As stated above, this was done mainly by Paul Cervantes (see fig. 2). Finally, based on the information collected in all the available sources, a hypothetical ‘Nabataean’ route was drawn and included in the team’s GPS devices which were to be used during the actual journey to navigate in the desert (fig. 5).

Numbering system

Even though the primary goal of the 2023 survey was the camel caravan experience rather than the systematic recording of inscriptions, the sites visited and the inscriptions photographed were numbered according to the system used by the MSAP project since 2019:

- site number: initials, here ‘UT’ for ‘al-‘Ulā-Taymā’ followed by a sequence number, e.g. UT018 = Shuqayq al-Dhi’b;
- inscription number: site number+abbreviation for the script (see below, under Table 1), followed by a sequence number, e.g. UT018Nab01 = first Nabataean inscription from site 18 of the al-‘Ulā-Taymā’ caravan survey.

The caravan

The animals were provided by a camel breeder, Muḥammad Salāmah al-‘Aṭawī, from az-Zalfah, a small village 110 km almost due south of Tabūk, located on the edge of Ḥarrat Abū ‘Aṭīyyah (in Ḥarrat al-Raḥā).¹¹ He and three of his younger brothers brought 12 camels in two trucks at the meeting point agreed in advance between the parties. They were all equipped with *šadād* saddles made of the usual wooden parts (vertical pommel and cantle linked by crossing sticks) and a varying number—but never large enough for people not used to camel riding—of cushions and blankets (fig. 6 and see fig. 18 in Bernard Faye’s contribution). Considering the complete lack of riding experience of the team members (except Bernard Faye) the camels were almost all systematically tied to each other while the first in line was ridden by one of the camel breeders

10. Which we did not have time to look for. Note that the site was found in January 2024 by Mohammed al-Ma’ārek, a Saudi Arabian learned man deeply interested in ancient petroglyphs and history.

11. 27.406963°/36.795431°. The area is known to be inhabited by the Banī ‘Aṭīyyah tribe.

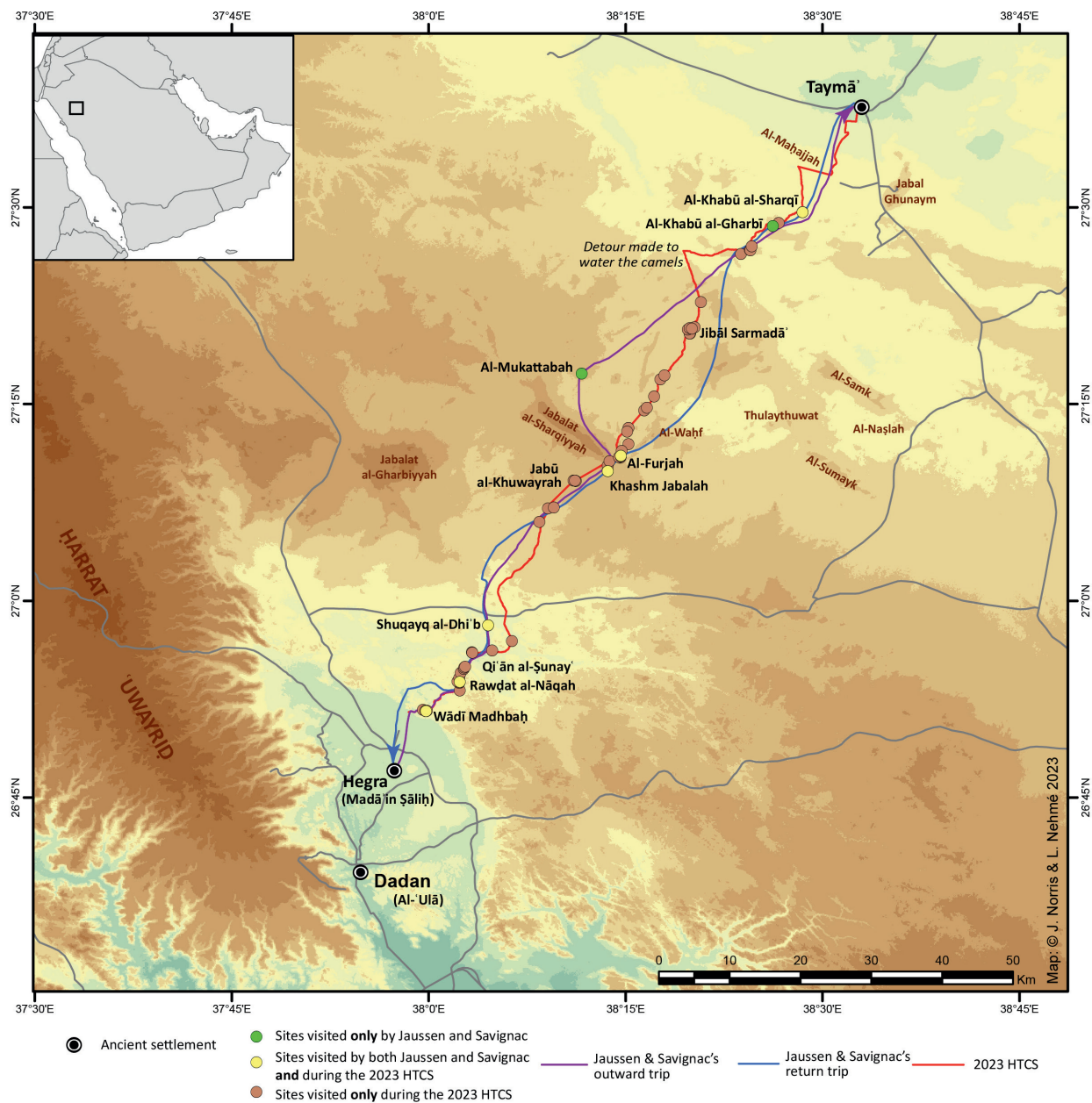


Fig. 5. The various itineraries between Hegra and Taymā' (J. Norris & L. Nehmé).

(fig. 7). The distance covered each day varied between 15 and 20 km, defined in advance—the night before—in coordination with the expedition advisor, Alan Morrissey. This is shorter than the distance normally covered by a camel caravan—c. 30 km—but the team had to take into account the time spent every day to record the sites and to film the scenes for the TV documentary, two time-consuming activities.

The camel breeders took care of the camels which pastured at night and in the morning and were also given fodder transported in the breeders' pick-up. According to Bernard Faye, they were in good health but were neither very fat (rather low hump) nor very strong. The heaviest riders among us were therefore given the strongest camels but nonetheless, a couple of incidents occurred. They only drank once during the journey, on 23rd February, the third walking day, in the area of Wādī Juraydā' (fig. 8).

As for the camping site, it was chosen every evening for the next day, according to the distance we had decided to cover and to the usual criteria applied during such expeditions: a site large

enough to host the tents, accompanying cars, and camels (fig. 9), 'protected' by rocks which provide shelters for cooking, bathing, etc. The company Ghamra Adventures (<https://ghamra.sa/>) took care of all the logistical needs of the team, and a collective tent for the hot evening meal and meetings was erected each day in advance and in the agreed location.



Fig. 6. A šadād saddle on one of the camels provided by the cameleers (L. Nehmé).



Fig. 7. Camels tied to each other during the journey (A. Morrissey).



Fig. 8. Camels watering (A. Morrissey).



Fig. 9. A typical camping site (A. Morrissey).

General presentation of the results

The caravan and the sites visited resulted in the discovery of 54 sites, 43 of which yielded inscriptions (**fig. 10**). The latter include (presented in decreasing number of occurrences):

- 432 Ancient North Arabian (ANA) inscriptions, 182 of which are unpublished;
- 243 Nabataean inscriptions, 100 of which are unpublished;
- 18 Imperial Aramaic inscriptions (IA), 10 of which are unpublished;
- 5 Ancient South Arabian (ASA), only one of which is unpublished (UT046ASA1).
- 2 Taymā' Aramaic inscriptions, UT047Nab91 and UT054Nab1. They were previously recorded and correspond to HNUT 21 (= ThNS 1) and JSNab 337 respectively;
- 1 Developing Arabic (DA, formerly Nabataeo-Arabic) inscription, unpublished (UT018DA1).
- 1 Greek inscription (UT947Gr1), which corresponds to ThNSGr 1.

Apart from epigraphy, 46 of the 54 registered sites contained rock art (see below) and only four sites included archaeological remains (UT002, **fig. 11**; UT012, **fig. 12**; UT019, **fig. 13**; and UT026, **fig. 14**), all of which consist of drystone structures. The structure at UT002 in Wādī Madhbaḥ is locally known as the grave of Hāyis al-Aydā' who was a sheikh of the Walad 'Alī tribe ('Anizah). According to our local informant, the place is known as Rawḍat al-Hāyis; Hāyis himself died during a battle between him and his nephew Farḥān al-Aydā' because of the latter's ambition to obtain the *mašyakhah*, the title of sheikh. It is said to be less than 100 years old. The date and function of the other recorded structures are unknown. The shape and position on hilltops of the structures at sites UT019 and UT026 suggest that they are funerary. Unfortunately, no pottery, lithic material, or bone remains were found in their vicinity. It should be noted that one of the cairns recorded at UT012 corresponds to the one described as *Rujm Abū Salbah* by Jaussen and Savignac, according to whom the Bedouins used to throw stones at it when passing by to ward off evil and ensure safe travel (1914: 117–118).

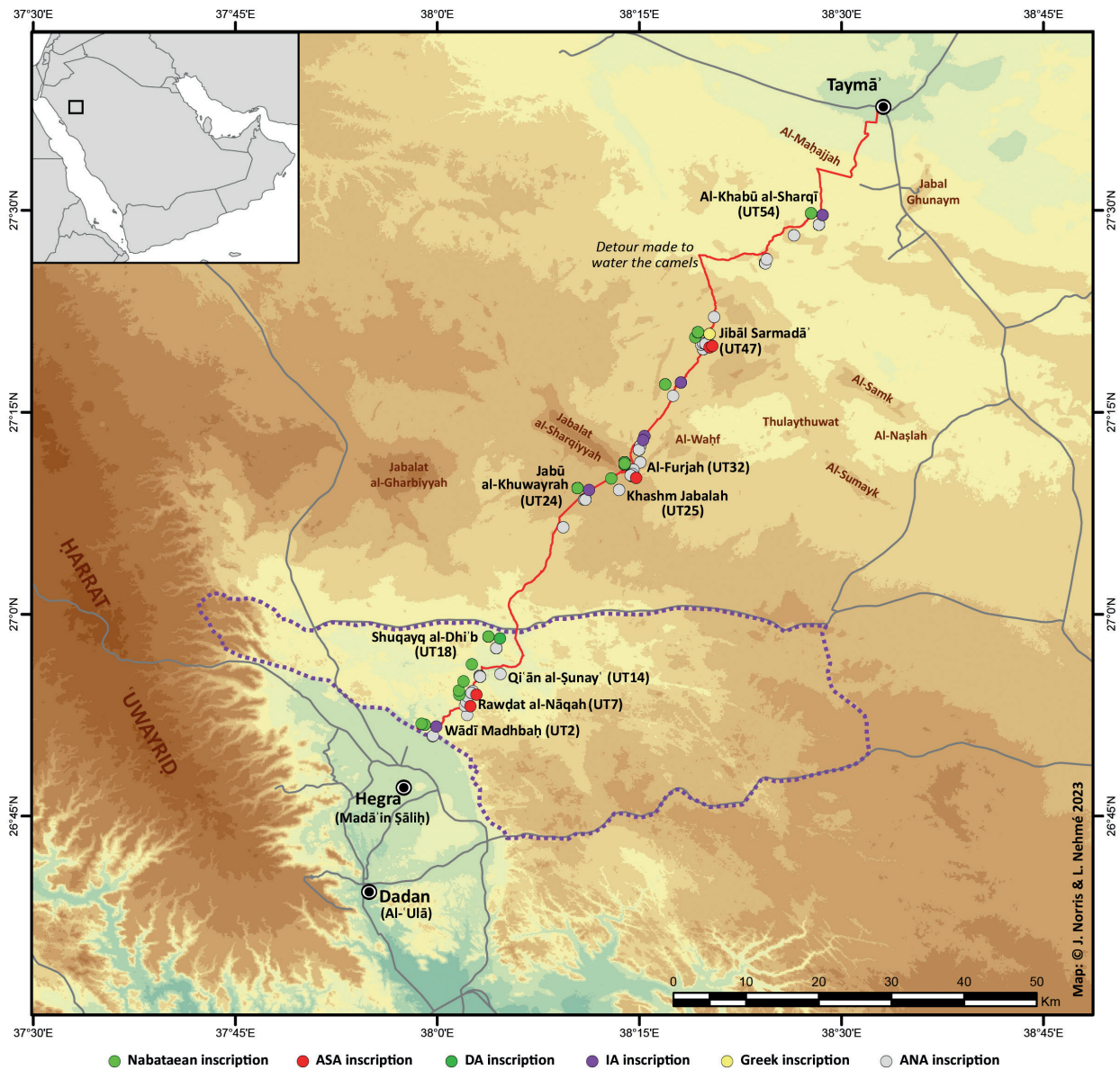


Fig. 10. Distribution map of the inscriptions. ANA: Ancient North Arabian; ASA: Ancient South Arabian; DA: Developing Arabic; IA: Imperial Aramaic (J. Norris & L. Nehmé).



Fig. 11. The grave of Hāyis al-Aydā' in Wādī Madhbah, UT002 (L. Nehmé).



Fig. 12. *Cairn UT012 (L. Nehmé).*



Fig. 13. *Cairn UT019 (J. Norris).*



Fig. 14. *Cairn UT026 (J. Norris).*

Site no.	Site name	Type	Inscriptions	Rock Art	Survey date
UT001	Wādī Madhbaḥ 1	Rock Engravings	Nabataean, MA	Wusūm	19/02
UT002	Wādī Madhbaḥ 2	Tomb of Hāyis al-Aydā'	—	—	19/02
UT003	Wādī Madhbaḥ 3	Rock Engravings	IA, Nabataean, ANA, MA	Wusūm Figurative drawings	19/02
UT004	Wādī Madhbaḥ 4	Rock Engravings	ANA	No	16/03
UT005	Al-Raqqāṣāt	Rock Engravings	ANA, MA	Wusūm Figurative drawings	19/02
UT006	Rawḍat al-Nāqah 1	Rock Engravings	MA	Figurative drawings	19/02
UT007	Rawḍat al-Nāqah 2	Rock Engravings	Nabataean, ANA, MA	Wusūm Figurative drawings	19/02
UT008	Rawḍat al-Nāqah 3	Rock Engravings	ANA	Wusūm Figurative drawings	19/02
UT009	Rī' al-Rukkab 1	Rock Engravings	Nabataean, ANA, ASA, EIA, MA	Wusūm Figurative drawings	19/02
UT010	Rī' al-Rukkab 2	Rock Engravings	ANA, EIA	Wusūm Figurative drawings	19/02
UT011	Rī' al-Rukkab 3	Rock Engravings	ANA, Nabataean, EIA	Wusūm Figurative drawings	19/02
UT012	Rī' al-Rukkab 4 / Rujum Abū Salbah	Cairns, Rock Engravings	No	Figurative drawings	19/02
UT013	Rī' al-Rukkab 5	Rock Engravings	ANA, ASA	Wusūm Figurative drawings	19/02
UT014	Qī'ān al-Ṣunay' 1	Rock Engravings	ANA, Nabataean, MA	Wusūm Figurative drawings	20/02
UT015	Qī'ān al-Ṣunay' 2	Rock Engravings	ANA	Wusūm Figurative drawings	20/02
UT016	ʿAzārah	Rock Engravings	ANA	Wusūm	20/02
UT017	Bi'r al-Balī	Rock Engravings	—	Wusūm Figurative drawings	20/02
UT018	Shuqayq al-Dhi'b	Rock Engravings	Nabataean, DA, ANA, EIA, MA	Wusūm Figurative drawings	20/02
UT019	Al-Lumaymah 1	Cairns	—	No	21/02
UT020	Al-Lumaymah 2	Rock Engravings	—	Wusūm Figurative drawings	21/02
UT021	Al-Lumaymah 3	Rock Engravings	ANA	Wusūm Figurative drawings	21/02
UT022	Jabū al-Khuwayrah 1	Rock Engravings	ANA	No	22/02
UT023	Jabū al-Khuwayrah 2	Rock Engravings	—	Wusūm Figurative drawings	22/02
UT024	Jabū al-Khuwayrah 3	Rock Engravings	Nabataean, ANA, IA, EIA, MA	Wusūm Figurative drawings	22/02
UT025	Khashm Jabalah 1	Rock Engravings	Nabataean, ANA, MA	Wusūm Figurative drawings	22/02
UT026	Khashm Jabalah 2	Cairns	—	—	22/02
UT027	Jabalat al-Sharqiyyah	Rock Engravings	—	Wusūm Figurative drawings	22/02
UT028	—	Rock Engravings	ANA, IA	Wusūm Figurative drawings	23/02
UT029	—	Rock Engravings	ANA, IA	Wusūm Figurative drawings	23/02
UT030	—	Rock Engravings	ANA	Wusūm Figurative drawings	23/02

UT031	—	Rock Engravings	ANA, MA	Wusūm Figurative drawings	23/02
UT032	Al-Furjah 1	Rock Engravings	Nabataean, ASA, ANA, EIA	Wusūm Figurative drawings	23/02
UT033	Al-Furjah 2	Rock Engravings	Nabataean, ANA, EIA, MA	Wusūm Figurative drawings	23/02
UT034	Al-Furjah 3	Rock Engravings	ANA	Wusūm Figurative drawings	23/02
UT035	Al-Furjah 4	Rock Engravings	Nabataean	No	23/02
UT036	—	Rock Engravings	—	Figurative drawings	23/02
UT037	—	Rock Engravings	—	Figurative drawings	23/02
UT038	—	Rock Engravings	—	Figurative drawings	23/02
UT039	—	Rock Engravings	Nabataean, ANA, EIA	Wusūm Figurative drawings	23/02
UT040	—	Rock Engravings	IA	No	23/02
UT041	Jibāl Sarmadā' 1	Rock Engravings	EIA	No	23/02
UT042	Jibāl Sarmadā' 2	Rock Engravings	ANA, Nabataean	Wusūm Figurative drawings	24/02
UT043	Jibāl Sarmadā' 3	Rock Engravings	ANA, MA	Wusūm Figurative drawings	24/02
UT044	Jibāl Sarmadā' 4	Rock Engravings	ANA, MA	Wusūm Figurative drawings	24/02
UT045	Jibāl Sarmadā' 5	Rock Engravings	ANA	Wusūm Figurative drawings	24/02
UT046	Jibāl Sarmadā' 6	Rock Engravings	ANA, ASA, MA	Wusūm Figurative drawings	24/02
UT047	Jibāl Sarmadā' 7	Rock Engravings	Nabataean, IA, ANA, ASA, MA	Wusūm Figurative drawings	24/02
UT048	—	Rock Engravings	ANA, EIA	Wusūm Figurative drawings	24/02
UT049	Juraydā' 1	Rock Engravings	EIA	Wusūm Figurative drawings	24/02
UT050	Juraydā' 2	Rock Engravings	ANA	Wusūm Figurative drawings	25/02
UT051	Juraydā' 3	Rock Engravings	ANA	Wusūm Figurative drawings	25/02
UT052	Juraydā' 4	Rock Engravings	ANA	Wusūm Figurative drawings	25/02
UT053	—	Rock Engravings	ANA	Wusūm Figurative drawings	25/02
UT054	Al-Khabū al-Sharqī	Rock Engravings	ANA, Nabataean, IA, EIA, MA	Wusūm Figurative drawings	25/02

Table 1. List of sites visited in 2023

(**ANA**: Ancient North Arabian; **ASA**: Ancient South Arabian; **DA**: Developing Arabic;¹²

EIA: Early Islamic Arabic; **IA**: Imperial Aramaic; **MA**: Modern Arabic)

The coordinates of the sites are not given here because this report will be made public and for safeguarding reasons it is preferable that the exact location of the sites is not given.

12. This category was formerly divided into 'Nabataeo-Arabic' and 'pre-Islamic Arabic' (now Palaeo-Arabic). Both are thus grouped under the label 'Developing Arabic' and the distinction between the two sub-categories is made only when it is clear and unambiguous.



Fig. 15. The area of Jabū al-Khuwayrah (Bing map).

Water points

The method of naming water points in Arabic varies according to their characteristics. Among the place names we recorded, three contain words which are connected with water:

– *jabū* (in Jabū al-Khuwayrah): in Lane’s dictionary, it is said to be “a watering trough in which water is collected”, “a collector of water for camels” (s.v. *jabā* and *jabū*).¹³ Moreover, *jaban* (جباناً or جبان) is said to mean “the camel-waterer’s going in advance of the camels a day before their coming to the water, and collecting for them water in the drinking-trough, and then bringing them to it”. These definitions apply perfectly well to Jabū al-Khuwayrah (fig. 15–17), which is best described as a natural trough between



Fig. 16. Jabū al-Khuwayrah from the north-west (L. Nehmé).



Fig. 17. Jabū al-Khuwayrah from the south-east (L. Nehmé).

13. <http://arabiclexicon.hawramani.com/?p=3603&book=50#f7b302>



Fig. 18. The small water pool in *Shuqayq al-Dhi'b* (L. Nehmé).



Fig. 19. The area of *Khabū al-Sharqī* (Bing map).

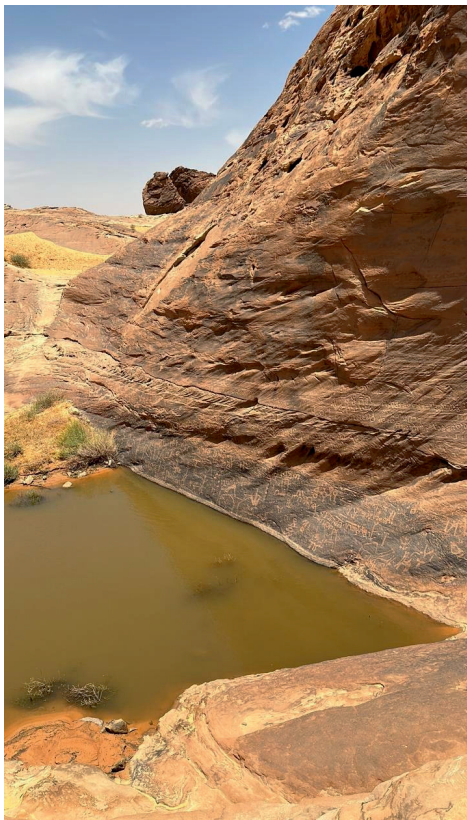


Fig. 20. *Khabū al-Sharqī* filled with water in June 2023 (M. al-Fāḍil).

sandstone walls from which it is impossible for the camels to drink directly, hence the necessity to collect the water from it and bring it to them. Note that C. Huber (1891: 142) describes a *jabū* as a small *qaltah*, i.e. a *ḡadīr* in the mountain, a *ḡadīr* being, according to his definition, a temporary pond that forms in the bed of a *wādī* or *ša'īb*; – *bi'r* (in *Bi'r al-Balī* and *Bi'r al-Ṣunay'*): “a well”, though no well was found at these locations; – *khabū* (in *Khabū al-Sharqī*): this word, which may derive from the root *vḥbw* “to hide, to conceal”, designates a natural depression in the mountain protected by a natural shelter where rainwater collects (al-Kabawi et al. 1989: 42).

During our February journey between Hegra and Taymā', three water points were visited: *Shuqayq al-Dhi'b* (fig. 18), *Jabū al-Khuwayrah* (see fig. 15–17), and *Al-Khabū al-Sharqī* (fig. 19). The first two contained water whereas *Al-Khabū al-Sharqī* was dry. Luckily, Mamdūḥ al-Fāḍil, a Saudi colleague and guide from Jubbah, who was there on a visit on 2nd June 2023 (an exceptionally wet year), took a photograph of the *Khabū* with water in it (fig. 20),

thus confirming that it was indeed a water point. However, these three water points were only seasonal, and the amount of water available in them depended on the amount of rainfall and thus varied from one month to the other and from one year to the other. The only two permanent sources of water were Hegra, the departure station, and Taymā', the destination. The geolocation of the water points allows us to measure the distance (as the crow flies) between them (**fig. 21**):

- Hegra–Shuqayq al-Dhi'b: 24 km;
- Shuqayq al-Dhi'b–Jabū al-Khuwayrah: 23 km;
- Jabū al-Khuwayrah–Al-Khabū al-Sharqī: 48 km;
- Al-Khabū al-Sharqī–Taymā' (Bi'r Haddāj): 18 km.

The distance between Jabū al-Khuwayrah and Al-Khabū al-Sharqī, 48 km, is too great to be covered in one day. It is therefore likely that the large rocks of Jibāl Sarmadā' 7, which lie more or less in the middle (26 km from the former and 22 km from the latter), were a significant landmark

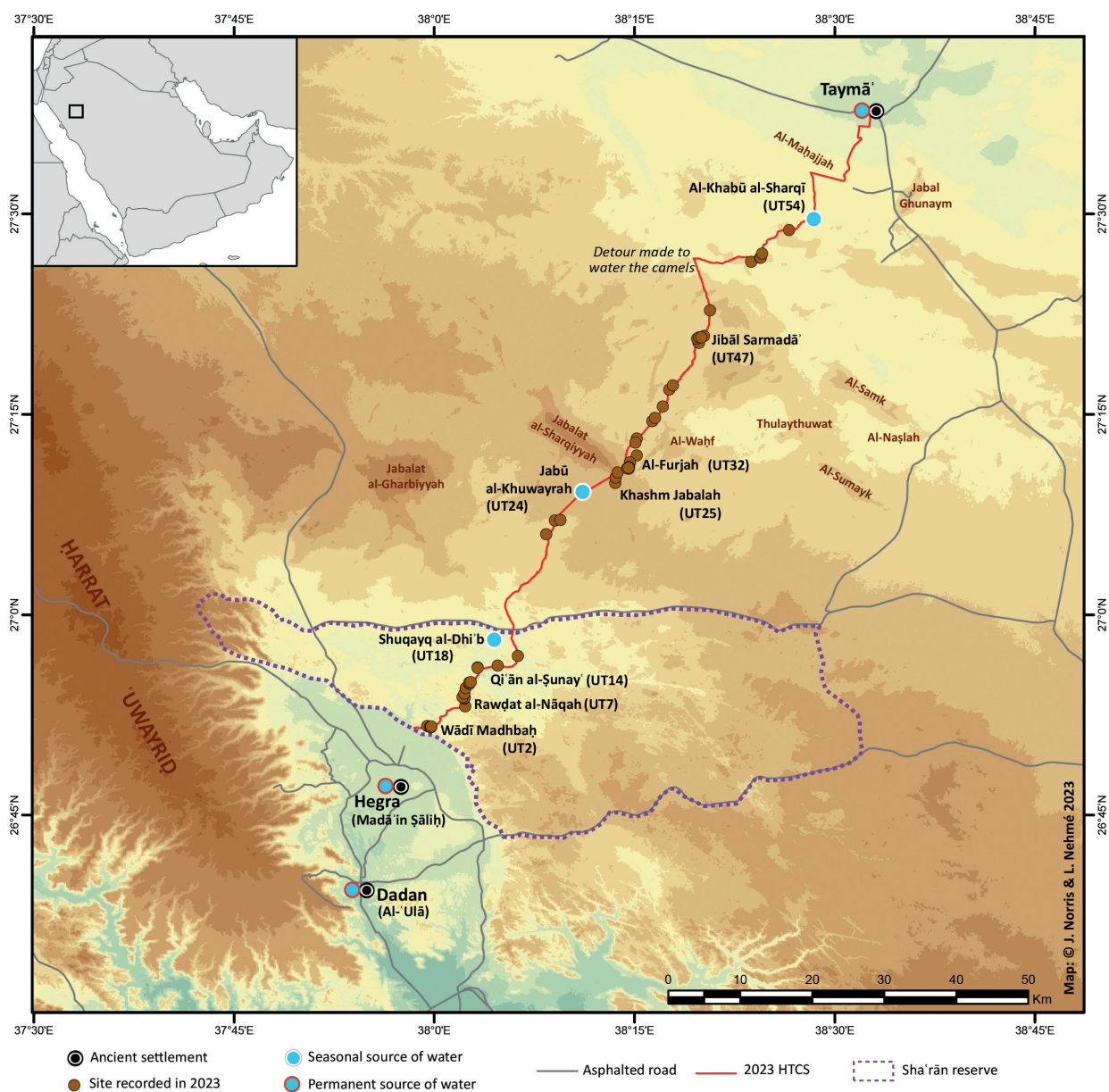


Fig. 21. The water points between Hegra and Taymā' (J. Norris & L. Nehmé).

and stopping point between the Jabū and the Khabū. This is evidenced by the huge number of inscriptions written in a variety of scripts and languages on the 10 rock faces bearing texts visible on the large rock and on the two smaller ones flanking it. Among these, c. 50 are previously unpublished Nabataean inscriptions which were not recorded in the two main scholarly works devoted to the site of Sarmadā' (al-Theeb 2014 and al-Haiti 2016).

The seasonal water points are always associated with many inscriptions,¹⁴ and looking at the Nabataean ones only, the following figures are revealing: Shuqayq al-Dhi'b (7 Nabataean and 1 Developing Arabic); Jabū al-Khuwayrah (48 Nabataean, 38 of which are previously unpublished); Al-Khabū al-Sharqī (6 Nabataean, one of which is previously unpublished). The caravans did not necessarily camp in the immediate vicinity of these places but they certainly drew water from it.

Some thoughts on the Nabataean inscriptions

The present report does not aim to offer a complete study of the inscriptions that were photographed and very occasionally copied during the journey. The latter will ultimately be included in DiCoNab, the Digital Corpus of Nabataean and Developing Arabic inscriptions (<https://diconab.huma-num.fr/>), which will be the first comprehensive online database of the Nabataean inscriptions. In the meantime, a few remarks can be made, especially on Nabataean prosopography, glimpses of which are given here.

The most important individual figures are without doubt the *strategoī*, the governors who were in charge of the administration in the Nabataean provinces and controlled the routes. In north-west Arabia, one finds them both at Hegra and along the caravan routes. Three of them were particularly active:

1. Rabīb'el (*rbyb'l*), known from a number of sites: Hegra (JSNab 34 and 43), Umm Jadhāyidh, Tabūk, Jawf, Jabal al-Munayshīr (in southern Jordan), and Sarmadā' (ThNS 7).¹⁵ Among these, three—Umm Jadhāyidh, Jabal al-Munayshīr, and Sarmadā'—are located on caravan routes, the first two between Hegra and Petra, the third between Hegra and Taymā'. His inscription at Sarmadā' is particularly flamboyant (**fig. 22**).
2. Wuraylū (*wrylw*) left four texts, one at Sarmadā' with the *strategos* Šullay (UT047Nab51 = ThNS 30), two at the site known as Al-Ma'bad al-Nabaṭī (ThNJUT 57¹⁶ and 59), and one at a site in Wādī Ruwayshid on the Darb al-Bakrah, UP059 (formerly DBv1);¹⁷
3. Šullay (*šly*) left two texts, one at Hegra (JSNab 6) and one at Sarmadā' (UT047Nab51 = ThNS 30), the latter with Wuraylū, for whom see above.

14. The figures given in this report may change slightly since they come from a preliminary, though thorough, reading of the inscriptions.

15. For the references, the date during which he was active, and the reasons he was probably the *strategos* of Hegra even if this is not said explicitly in the inscriptions that mention his name there, see Nehmé 2015: 116–117.

16. Note that the name was misread in Nehmé 2015: no. 6, p. 108–109. J. Norris suggests reading it as *gd wrylw*, i.e. “The Gadd of Wrylw”, best understood as Wrylw's protective deity (on Gadd, see Al-Jallad 2022: 60 as well as Kaizer 1997 and 1998). As this text is carved beside a (now destroyed) Nabataean betyl, it is likely that the betyl represents the Gadd. To our knowledge, it would be the first representation of a Gadd in the form of a betyl.

17. For DBv1, see the 2021–2022 report on the Madā'in Šāliḥ Archaeological Project, p. 170–171.



Fig. 22. The Rabīb'el inscription at Sarmadā', UT047Nab30 (HNUT 27) (L. Nehmé).

The available data can be summarised in the following table (Table 2):

Name	Number of texts	Hegra	Darb al-Bakra	Hegra-Taymā' route	Other
Rabīb'el	7	2	2	1	Tabūk Jawf
Wuraylū	4	—	1	3	—
Šullay	2	1	—	1	Tabūk region ¹⁸

As far as we know, Wuraylū was active only on the caravan routes whereas the two others were active, in the second half of the first century CE, both in oases and along the caravan routes. It is possible that junior *strategoī* were first sent to desert outposts before being assigned a position in a city.

A thorough examination of the available data collected before and during the journey shows that several individuals are mentioned at several sites along the Hegra–Taymā' route and sometimes in other places. They are listed below in the Aramaic alphabetical order. The identification is not always certain, however, and four levels of uncertainty have been defined, from the most to the least certain:

Level 1: father's name given, rare name(s);

Level 2: father's name given, common name(s);

Level 3: father's name not given, identical ductus;

Level 4: father's name not given, different ductus.

The first three levels can be combined with the ductus, thus if the ductus of a Level 2 group of texts is the same, it may be upgraded to Level 1, and vice versa.

18. In an unpublished text discovered in 2018 by Abdullah al-Saeed, a member of Farīq al-Sahra, and passed on for publication to L. Nehmé in 2021. It mentions "Šullay the strategos", without Šullay's father's name.

Name	Father's name	No. of inscriptions	References ¹⁹	Site names	Level of certainty
'yšw	<i>br klybw</i>	2	UT033Nab03 (JSNab 367) JSNab 267	Al-Furjah 2 Makhzin al-Jundī	1
'l'z	<i>br b'tw</i>	4	UT047Nab96 (HNUT 81, ThNS 72) JSNab 212 UJadhNab535 Unpublished text	Jibāl Sarmadā' 7 Jabal al-Thumayyid (Al-'Ulā Umm Jadhāyidh Wādī Atānah ²⁰)	1
'šlm	<i>br 'pš'</i>	2	UT047Nab138 (ThNS 48, HNUT 66) JSNab 332	Jibāl Sarmadā' 7 Al-Khabū al-Gharbī	1 ²¹
<i>wtyqt</i> (fig. 23)	—	3	UT014Nab01 (Eskoubi 2007, under no. 253) UT032Nab10 (JSNab 356) UT047Nab123 (ThNS 64, HNUT 77)	Qī'ān al-Ṣunay' 1 Al-Furjah 1 Jibāl Sarmadā' 7	4
'l'bw	<i>br škrw</i>	2	UT001Nab01 (JSNab 317) UT024Nab18	Wādī Madhbaḥ 1 Jabū al-Khuwayrah 3	1
'mrw	<i>br tymw</i>	2	UT032Nab19 (JSNab 364) UT047Nab129 (ThNS 54, HNUT 68)	Al-Furjah 1 Jibāl Sarmadā' 7	1
<i>ryny</i> (fig. 24)	<i>br nšrw</i>	3	UT024Nab38 (Al-Theeb 2018 no. 10) UT032Nab11 (JSNab 357) UT047Nab119	Jabū al-Khuwayrah 3 Al-Furjah 1 Jibāl Sarmadā' 7	1 ²²
<i>rm'l</i>	<i>br ḥyw</i>	5	UT032Nab07 (JSNab 352) JSNab 45 JSNab 47 ²³ ArNab 124 Unpublished text	Al-Furjah 1 Hegra Hegra Al-'Arniyyāt Southern Jordan	1
<i>tymw</i>	<i>br w'lw</i>	2	UT018Nab05 (JSNab 325) UM129Nab09	Shuqayq al-Dhi'b Rī' al-Sij	2
<i>tymw</i>	<i>br rwps</i>	6	UT047Nab122 ThNIS 5, 7+8, 18, 22, 23	Jibāl Sarmadā' 7 Al-Sij	2 ²⁴

Table 3: Examples of individuals identified at different sites

19. If no reference is given in rounded brackets following the survey number, the text is previously unpublished.

20. 60 km south-east of Tabūk.

21. The ductus is very similar, except for the final ' , which has a final form in JSNab 332.

22. In UT032Nab11, the father's name is not given, but *ryny* is written with the same ductus as in the other texts.

23. In JSNab 47, the father's name is not given, but *rm'l* is written with the same ductus as in the other texts.

24. Despite the rarity of the name *rwps* (Greek Roufos, Latin Rufus), the identification was given a Level 2 grade because the ductus of the texts is not identical. This is especially clear for the *s* of *rwps*, which is written in at least five different ways.

To this initial list can be added possible members of the same family:

– *trsys br zbydw*,²⁵ mentioned in Jibāl Sarmadā' 7 (UT047Nab76)²⁶ and *zbydw br trsys* in CIS II 228, considering that *trsys* is a rare name and assuming that *zbydw br trsys* was given his grandfather's name, thus obtaining the following genealogy: *zbydw br trsys br zbydw*;

– *'lksy (hprk'*, his father's name is not given) in Jibāl Sarmadā' 7 (UT047Nab66).²⁷ It is possible (but not certain) that his grandson 'Āyidū ('ydw) was the owner of tomb IGN 22 at Hegra, as stated in inscription JSNab 8.



Fig. 23. The name *ryny* in three different inscriptions from three different sites, with high certainty of identification (L. Nehmé).



Fig. 24. The name *wtyqt* in three different inscriptions from three different sites, with low certainty of identification (L. Nehmé).

– *tymw br tršw*, mentioned in Shuqayq al-Dhi'b (UT018Nab01).²⁸ The two letters below *šlm* may be read as *š{r}*, although the *r* seems to have been intentionally turned into a *w*. If this is correct, one may read *tymw br tršw šr*, i.e. “Taymū son of Taršū drew”, probably referring to the drawing visible below the text. It is possible (but not certain) that Taymū's father was the owner of the very grand tomb IGN 100 at Hegra, as stated in inscription JSNab 38 (*tršw hprk' br tymw*), assuming as above that Taymū was given his grandfather's name, thus obtaining the following genealogy: *tymw br tršw br tymw*.

The Ancient North Arabian inscriptions

As previously stated, the survey resulted in the recording of 432 Ancient North Arabian (ANA) inscriptions, 182 of which are new. The ANA texts thus form the majority of the epigraphic discoveries. They were collected in 37 out of the 74 sites recorded. Al-Khabū al-Sharqī (UT054) has the largest concentration of ANA (197 were photographed). The majority

25. Probably the Greek name Thraseas, Thraseias, or Thrasias. Note that a man bearing the same name appears in QN 12, on the Darb al-Bakrah but his father's name is different: *trsys br rm'l*.

26. = ThNS 35 and HNUT 53.

27. = ThNS 41 and HNUT 59

28. = JSNab 322 and ThMNN 380.

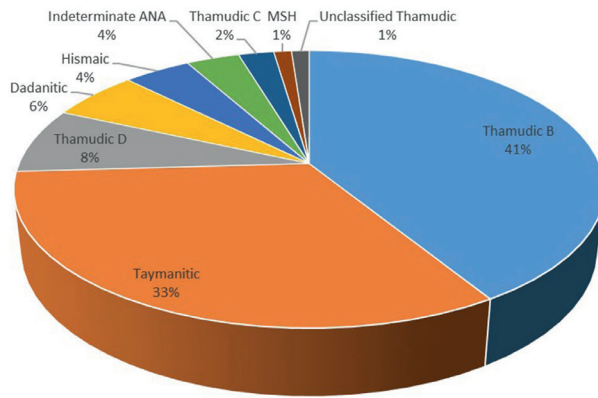


Fig. 25. *Proportion of the various ANA scripts recorded during the survey.*

were previously published by Jaussen and Savignac (JSTham 397–581) and Eskoubi (Esk A 34–139) but since many of these texts are known from hand copies only, it was important to undertake a systematic photographic survey of the site. Our exploration of the *khābū* thus resulted in the discovery of 32 texts which neither Jaussen and Savignac nor Eskoubi had seen. The second important site is that of Jabū al-Khuwayrah 3 (UT024) where 47 texts were collected, all previously unpublished. The two other sites which present more than 20 ANA inscriptions each are Jibāl Sarmadā' 7 (UT047) and Qī'ān al-Ṣunay' 1 (UT014).

The corpus dealt with in this report contains 178 Thamudic B inscriptions, 142 Taymanitic, 33 Thamudic D, 25 Dadanitic, 19 Hismaic, 10 Thamudic C, and 5 Mixed Safaitic/Hismaic (MSH) texts (**fig. 25**). In addition, the script(s) of 15 texts could not be identified with certainty either because of their state of preservation or because of the absence of diagnostic letters. Finally, five texts are written in 'Thamudic' script varieties which have not yet been defined.

Site number	Site name	Number of ANA inscriptions
UT054	Al-Khabū al-Sharqī	197
UT024	Jabū al-Khuwayrah 3	47
UT047	Jibāl Sarmadā' 7	23
UT014	Qī'ān al-Ṣunay' 1	22
UT029	—	16
UT018	Shuqayq al-Dhi'b / Qā' al-Balī	14
UT015	Qī'ān al-Ṣunay' 2	13
UT010	Rī' al-Rukkab 2	10
UT050	Juraydā' 2	10
UT032	Al-Furjah 1	7
UT034	Al-Furjah 3	7
UT046	Jibāl Sarmadā' 6	7
UT007	Rawḍat al-Nāqah 2	5
UT033	Al-Furjah 2	5

Table 4: *Sites with the largest number of ANA inscriptions*

Inscriptions in 'Oasis North Arabian' scripts such as Dadanitic and Taymanitic were considered as particularly interesting since, just like Nabataean, Aramaic, and Ancient South Arabian, inscriptions written in them are likely to provide useful information on the caravan traffic between Taymā' and al-'Ulā/Madā'in Ṣāliḥ. Indeed, as revealed by biblical and cuneiform sources, the inhabitants of

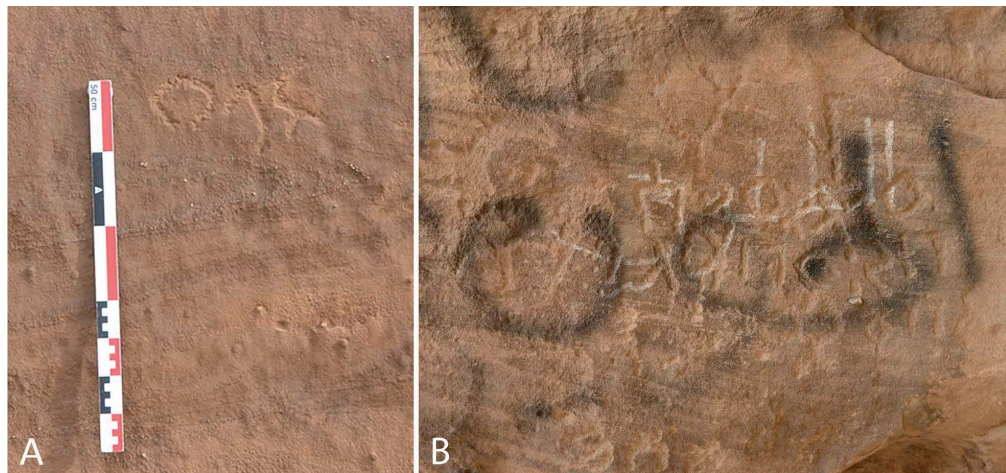


Fig. 26. (A) Dadanitic inscription UT011ANA1 from Rī' al-Rukkab; (B) Dadanitic inscription UT018ANA8 from Shuqayq al-Dhi'b (J. Norris).

Taymā' and Dadan were involved in the caravan trade before the Nabataeans (Macdonald 1997: 335–345). As a result, the discovery of either Dadanitic or Taymanitic inscriptions between the two oases may help to trace the route which connected them.

Twenty-five Dadanitic inscriptions were recorded at eight sites (UT011, 014, 018, 024, 028, 043, 047, 054) distributed along the entire length of our route. The closest site to al-'Ulā is Rī' al-Rukkab 3 (UT011), in the Sha'rān reserve. It yielded an unpublished Dadanitic signature reading *hlf*, a name that may correspond to Arabic Khalaf, Khulayf, or Khilāf (UT011ANA1) (fig. 26A). The site closest to Taymā' is al-Khabū al-Sharqī where three Dadanitic graffiti previously copied by Jausen and Savignac were photographed: UT054ANA13 (= JSTham 403), UT054ANA 29 (= JSTham 427; Esk A 115), and UT054ANA159 (= JSTham 539; Esk A 74). A particularly interesting text is UT018ANA8 (= JSLih 380 and Esk B 236) from Shuqayq al-Dhi'b (fig. 26B). No satisfactory interpretation of this text has been given so far, as illustrated by the reading suggested in OCIANA: 1. *ṭh ḥfrs*¹ 2. *bn 'bdh* 3. *bt{r}'----*, “*ṭh ḥfrs*¹ son of 'bdh {btr}'”.²⁹ The third line remains problematic but the examination of the text *in situ* made it possible to correct the two lines above as follows: 1. *'lhn'rs*¹ 2. *bn / 'bdh*, “*'lhn'rs*¹ son of 'bdh”. The text appears to be the signature of an individual known from three, possibly four, inscriptions from Madā'in Ṣāliḥ, all carved at the Dadanite watching post on the summit of Jabal Ithlib:

MS94.2Dad9: *'lhn'rs*¹ / *bn / 'bdh*, “*'lhn'rs*¹ son of 'bdh” (fig. 27A).

MS94.7Dad2: 1. *'lhn'rs*¹ [*bn*] 2. *'bdh wdd flnt*, “*'lhn'rs*¹ son of 'bdh loved such a woman (*fulānah*)” (fig. 27B).

MS94.3Dad32 (= AH 319): 1. *'lh'rs*¹ 2. *bn / 'bdh*, “*'lh'rs*¹ son of 'bdh” (fig. 27C).³⁰

MS94.4Dad7: 1. *'lhn'rs*¹ 2. *mṭl*, “*'lhn'rs*¹ depicted (this ibex)” (fig. 27D).³¹

29. http://krc.orient.ox.ac.uk/ociana/corpus/pages/OCIANA_0035798.html

30. Interestingly, the definite article which is an element of this Dadanitic compound personal name (*'lhn-¹rs*, “nobility of the lion”) appears here as *h-* instead of *hn-* as is the case in the other texts and as expected before '.

31. In the absence of the author's patronym, it is not certain whether this inscription is also by *'lhn'rs*¹ *b. 'bdh* or by another person bearing the same name. However, the close proximity of this text with the three others makes it likely that we are dealing with a single author. It is also striking to observe that this text is associated with the drawing of an ibex very similar to the one represented next to UT18ANA8 at Shuqayq al-Dhi'b.

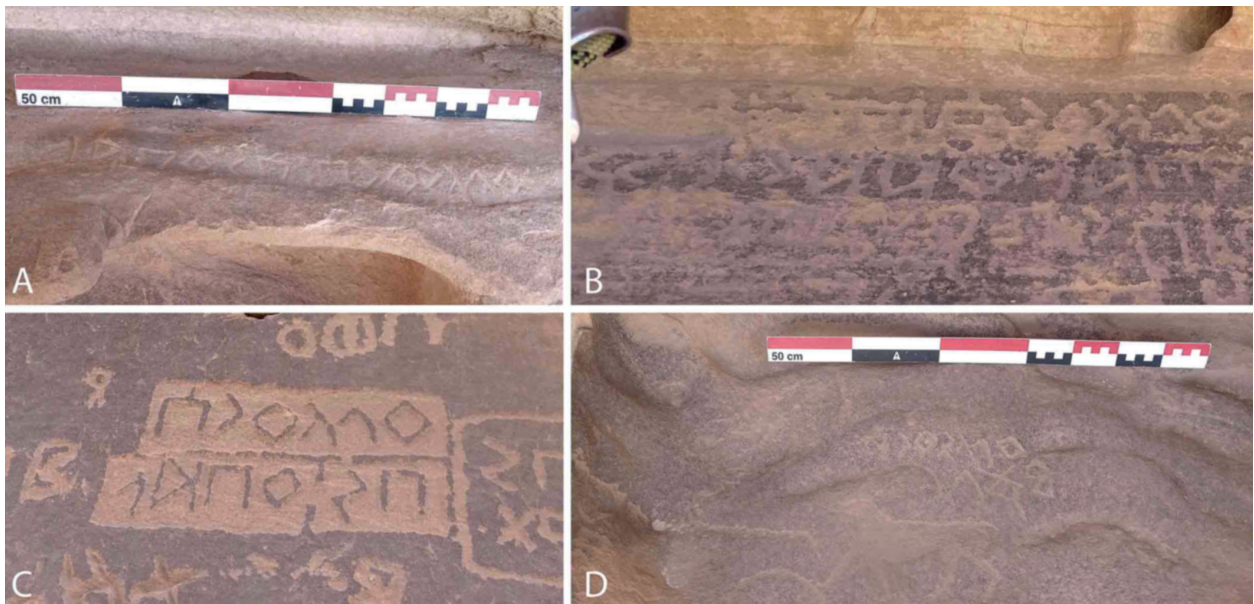


Fig. 27. Dadanitic inscriptions carved by 'lhn'rs' son of 'bdh on the summit of Jabal Ithlib. (A) MS94.2Dad9; (B) MS94.7Dad2; (C) MS94.3Dad32; (D) MS94.4Dad7 (J. Norris).

The presence of inscriptions carved by the same individual at Madā'in Šāliḥ and Shuqayq al-Dhi'b shows that both sites were connected. Similarly, we were able to confirm that the route we followed was used by people from the oasis of al-'Ulā thanks to the discovery at Jabū al-Khuwayrah of a Dadanitic inscription authored by a man named Ḥb'l son of 'bdmr (UT024ANA26). This man is mentioned in an inscription he carved at Umm Daraj, a high-place sanctuary located in the western part of al-'Ulā valley (Nasif 1988: 92, pl. CXXXI/a). Another new and remarkable Dadanitic inscription is a large three-line love text (UT028ANA3) written by a man who bears the theophoric compound name *Ys¹m¹*, which is identical to the biblical name Ishmael “may God/ 'Ēl hearken” (fig. 28). This text is engraved on the left face of a gorge between two sandstone outcrops next to drawings of camels and Thamudic B inscriptions. It reads: 1. *wdd / ys¹m¹* 2. *mr¹ly* 3. *f s²krt / m¹mrt*, “Ys¹m¹ loved Mr¹ly so may she be a long-lived prolific bride”. The phrase (*f*) *s²krt* placed after a *wdd* formula is attested in two other Dadanitic inscriptions (MS94.2Dad21 and JSLih 345). It is also found in Hismaic, Thamudic B, Thamudic C, and Thamudic D inscriptions, also after the formula *wdd PN¹ PN²*, “PN¹ loved PN²” (Tsafrir 1996: no. SV-T1; JSTham 642; Macdonald 2018: no. AbRakThamB 1; Ph 271r, etc.). In Classical Arabic, the substantive *šakirah* is applied to a she-camel, a ewe, or a she-goat “having her udder full, abounding with milk” (Lane 1585).

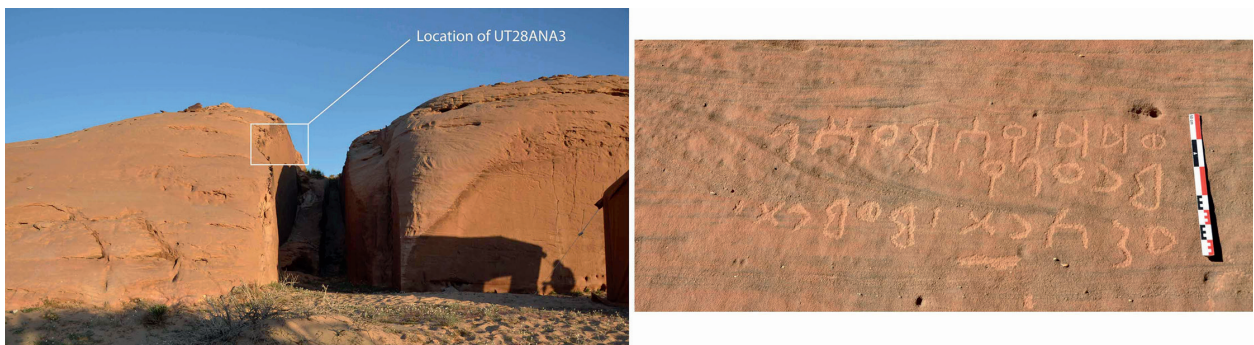


Fig. 28. The gorge at site UT28 and the Dadanitic love inscription UT028ANA3 (J. Norris).

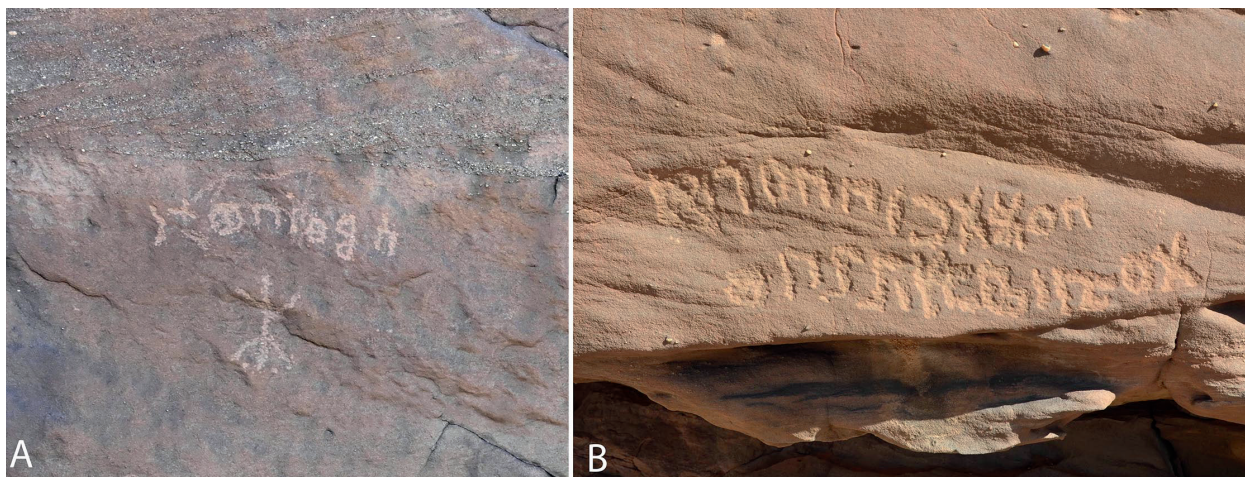


Fig. 29. Taymanitic inscriptions from Juraydā' 2 (UT050). (A) UT050ANA1 (L. Nehmé); (B) UT050ANA4 (upper inscription), and UT050ANA5 (lower inscription). UT050ANA4 reads b'ttr / b bft, "B'ttr son of Bft" (J. Norris).

Although we cannot be sure of the meaning of this term when applied to a human female, the context of these inscriptions suggests that it may be used metaphorically to express a wish for fertility for the loved woman. UT028ANA3 provides the first attestation of the word *m'mrt* in Dadanitic and, more generally, in ANA. This likely corresponds to the feminine D-stem passive participle of the root *v'mr*, equivalent of the Classical Arabic *mu'ammār* "long-lived, aged person". The Taymanitic inscriptions form a significant proportion (33%) of the ANA material recorded during the expedition but their distribution differs from that of the Dadanitic ones. Indeed, Taymanitic texts were found at just two sites. The first is Juraydā' 2 (UT050), which is only 24 km south-west of Taymā'. Naturally, one may deduce from this that the inhabitants of Taymā' were active only in the northern part of the route between the two oases. This conclusion should, however, be nuanced in the light of the evidence provided by several images of *Šlm*, the god of Taymā', recorded at Jibāl Sarmadā' 7 (UT047), Jibāl Sarmadā' 3 (UT043), and Jabū al-Khuwayrah 3 (UT024) (see below). As far as we know, the previously unknown symbol of *Šlm* from Jabū al-Khuwayrah is the southernmost sign of a Taymanite presence in the direction of al-'Ulā.

The seven Taymanitic texts from Juraydā' 2 are all new. They include one text carved by a man named *s'mw b wtr*, "S'mw son of Wtr" (UT050ANA1) (**fig. 29A**), known from an inscription he wrote at al-Buddah (Esk A 233), a site located 9 km south-east of Juraydā' 2/UT050. The authors of both texts are almost certainly the same person because an identical *wasm* (tribal symbol) is drawn near both graffiti. Another intriguing Taymanitic text from the same site is UT050ANA5 (**fig. 29B**), whose author indicates that he slaughtered—a person?—named Ġft: *'bnn / hrg / ġft*, "bnn the destroyer of Ġft".³² All the other Taymanitic inscriptions come from al-Khabū al-Sharqī. Among them, 15—unfortunately mostly badly preserved texts—are unpublished.

The Thamudic B inscriptions represent the largest proportion (41%) of the ANA texts recorded during the survey. This is not surprising since our path went through the core area where this script is attested (Norris 2018a: 189–190). The sample of texts we gathered is representative of the Thamudic B corpus. The majority fall into two types of texts: signatures of artists beside rock drawings, for which see below; and prayers, 60 examples of which were identified. Among them

32. On the meaning of the Taymanitic substantive *hrġ*, see Macdonald 2021: 178.



Fig. 30. Thamudic B religious inscription UT030ANA1 (J. Norris).

is a unique text, 1.70 m long, consisting of a two-line inscription in which five deities are invoked (UT030ANA1, **fig. 30**):

nm rḥm'l

h 'trs'm w rḏw w dṭn w d{y} w 'ts²ms¹ s'¹d-n 'l-m's'f

“By Rḥm'l, O 'trs'm and Rḏw and Dṭn and D{y} and 'ts²ms¹ help me against distressing (events)!”

The first three deities correspond to deities usually worshipped by the authors of the Thamudic B inscriptions as well as by other North Arabian populations (Norris 2018a: 192–193). As for the divine name *D{y}*, it is not attested elsewhere. If the reading of the second letter as *y* is correct, one may suggest it is a variant—or a misspelling—of the divine name *D'y* invoked in two Thamudic B inscriptions (HU 425 and an unpublished text). *D'y* corresponds to the name transcribed “Dai” (Akkadian ^{ilu}*Da-a-a*) in the Assyrian records, the name of one of the six gods worshipped by the Arabs at Dūmat in the seventh century BCE (*ANET*: 317). The last name, 'ts²ms¹, is attested in another unpublished Thamudic B inscription. Its meaning is uncertain but it is tempting to consider it as a compound of the Sumerian (Utu) and Semitic (*S²ms¹/Šmš*) names of the sun-deity, obviously influenced by the Mesopotamian figure of Utu/Šamaš (Frayne & Stuckey 2021: 321–322, 362). The word *m's'f*, which occurs at the end of the text, is attested three times in Thamudic B together with the spelling variant *ms'f*, attested another three times.³³ It should correspond to Arabic *mu'sif*, “distressing, regrettable” (Wehr 1976: 20).

Among the Hismaic and MSH inscriptions, two new texts are worth mentioning. The first is the Hismaic text UT048ANA1 (**fig. 31A**). It is an invocation to Allāt using the verb *ḏkrt* but it includes both a three-generation genealogy and a tribal affiliation: *l s¹nm bn gḏmt bn s²b ḏ-l s¹nm w ḏkrt lt gḥs²*, “By S¹nm son of Gḏmt son of S²b of the lineage of S¹nm and may Lt be mindful of Gḥs²”. The point of interest lies in the mention of the lineage of *S¹nm*, which was previously unknown. The second is the MSH text UT047ANA19 which was carved inside the natural shelter at Jibāl Sarmadā' 7 by a person named Zaydallāt (*Zydl't*). Written from right to left in one line, it reads: *l zdl't bn 'fl ḏ-l qrt*, “By Zdl't son of 'fl of the people of Qrt” (**fig. 31B**). We believe that Zaydallāt

33. Of these inscriptions, only two are published: HU 491 and ThNDK 88.

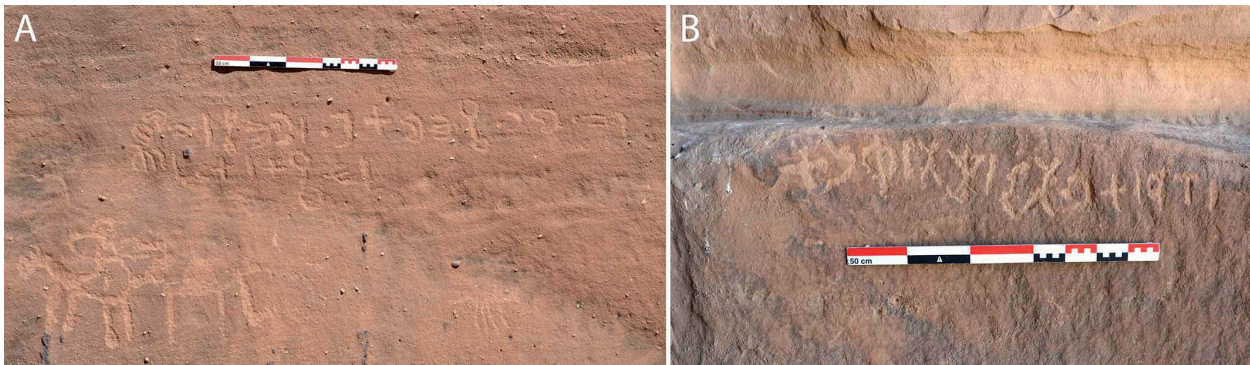


Fig. 31. (A) Hismaic inscription UT048ANA1; (B) mixed Safaitic/Hismaic inscription UT047ANA19 from Jibāl Sarmadā' 7 (J. Norris).

was a traveller from a distant region, possibly from the region of Dūmat al-Jandal (al-Jawf) where the MSH script is the dominant ANA script (Norris 2018b: 74–75, 79–88). We know of only one other reference to *'l Qrt*. It appears in an unpublished MSH text which was found precisely in the Jawf. *Qrt* is most probably the name of a settlement—and not of a tribal kinship group—namely the oasis of Qārā, 34 km east of Dūmat al-Jandal and 9 km south of Sakākā. Note that the name is presently spelled *Qārā* (قارآ) but according to the thirteenth-century geographer Yāqūt, it was originally spelled *Qārah* (قارة) (Yāqūt 7:9), and ANA *Qrt* corresponds precisely to Arabic *Qārah*. The mention of *'l Qrt*, “people of Qrt” echoes the references made to *'l Dmt*, “people of Dūmat” in a few unpublished texts from the same region as well as one reference made to Sakākā (ancient Sakākah/ANA *S¹kkt*) (Norris 2018b: 82). Another element that supports the identification of the author as an inhabitant of the Jawf is his father’s name. The name *'fl* is not particularly common in the ANA inscriptions from north Arabia, with the remarkable exception of the MSH inscriptions from the Jawf in which it represents the second most recurring name (attested 24 times and borne by 13 different individuals). With this in mind, we note the existence of one MSH text found precisely at Qārā in which the two names *'fl* and *Zdlt* occur—in reverse order: *l 'fl bn zdlt*, “By *'fl* son of *Zdlt*” (ThNQT 6). We may conclude that *'fl* son of *Zdlt* and *Zdlt* son of *'fl* were members of a family line in which the names *'fl* and *Zdlt* were passed down from one generation to the other. If this analysis is correct, this text would bear witness to the long journey made by an individual from the Jawf who, seemingly on his way to the region of al-‘Ulā, had to stop off at Jibāl Sarmadā' and, probably before that, at Taymā'.

Other types of inscriptions

Three other types of pre-Islamic inscriptions were recorded during the survey: Ancient South Arabian (ASA), Imperial Aramaic (IA), and Greek (Gr).

Ancient South Arabian (ASA)

ASA inscriptions provide direct evidence of the movement of traders involved in the frankincense trade. Unfortunately, only five texts were recorded. They include one text from Rī' al-Rukkab 1 (UT009), one from Rī' al-Rukkab 5 (UT013), one from Al-Furjah 1 (UT032), one from Jibāl Sarmadā' 6 (UT046), and one from Jibāl Sarmadā' 7 (UT047). No ASA inscription was found north of Jibāl Sarmadā'.

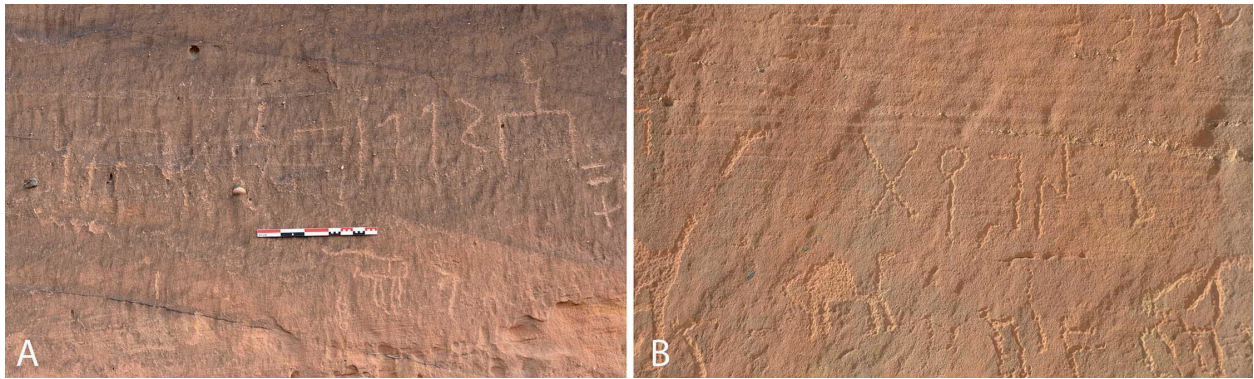


Fig. 32. (A) ASA inscription UT013ASA1 (= JSTham 237) from Rī' al-Rukkab 5; (B) ASA inscription UT032ASA1 (= JSTham 590) at al-Furjah 1 (J. Norris).

They all consist of simple signatures and only one text, UT046ASA1, is new. The others have already been copied by early explorers, although wrongly published as ‘Thamudic’. This is the case, for example, of UT013ASA1 from Rī' al-Rukkab 5, which corresponds to JSTham 237 (= HU 552; Eut 755) and reads: 's²ll / bn / ḏbyn, “s²ll son of Ḍbyn” (fig. 32A).³⁴

The small number of ASA texts we recorded between Hegra and Taymā' contrasts with the number of texts we recorded in 2021, during the survey we undertook between Hegra and Petra when 84 ASA texts were recorded (Nehmé & Norris 2022: 160–162). The scarcity of ASA texts between Hegra and Taymā' raises the question of how closely—probably not very—South Arabian traders were involved in exchanges between Taymā' and the area of al-'Ulā. This is reflected in the extreme rarity of ASA texts discovered inside the oasis of Taymā' as well as in the absence of the city's name in the so-called ‘lists of hierodules’ (Ma'īn 93–98). It is, however, worth mentioning the possible presence on the Hegra–Taymā' road of a person whose name appears on several sites along the Darb al-Bakrah. This is the author of UT032ASA1 (= JSTham 590) at Al-Furjah 1 (fig. 32B), *Ngyt*, who is likely to be the same person as *Ngyt* son of *Qdm* attested at Umm Jadhāyidh (Macdonald 2018: no. 25), al-'Arniyyāt (Macdonald 2018: no. ArASA 4), and in the Jordanian Ḥismā (Farès-Drapeau et al. 2001: 13).³⁵

Imperial Aramaic (IA)

Eighteen Imperial Aramaic texts were recorded, 10 of which are new. Like the Dadanitic and Nabataean inscriptions, the Imperial Aramaic texts are distributed along the entire Hegra–Taymā' route. The site closest to Hegra where they appear is Wādī Madhbaḥ 3 (UT003) and the one closest to Taymā' is Al-Khabū al-Sharqī (UT054). Most of them consist of a simple signature, occasionally accompanied by the blessing formula *bryk*, as illustrated in UT040Aram2: *bryk ḥylw*, “may Ḥylw be blessed” (fig. 33) and UT047Aram2, 7, and 8. There is also one interesting example of a text introduced by the *lām auctoris* particle, which may reflect an ANA influence: *l tymw*, “By Tymw” (UT040Aram1) (see fig. 33). The names of the authors of these texts generally correspond to local Arabic names. We may therefore deduce that they were not travellers from Syria or Mesopotamia

34. While Van den Branden (1950: 367) thought the text to be ‘Thamudic’, he misread the second name as *Ḍbyn*.

35. The rarity of the name *Ngyt* in ASA may support the identification of the author of UT032ASA1 as *Ngyt bn Qdm*. Note that there is one text at Umm Jadhāyidh authored by a certain *Qdm* [son of] *Ngyt* who could be his son (Macdonald 2018: UJadhASA 7).



Fig. 33. Imperial Aramaic inscriptions from site UT040 (P. Cervantes).

but members of local oasis communities. For the present, there is no way of knowing whether they came from Taymā' or the region of al-'Ulā, where the use of IA is also documented.

Greek (Gr)

A single Greek inscription (UT047Gr1) was recorded at Jibāl Sarmadā' 7 (UT047) (**fig. 34**). It was previously published by S. al-Theeb in 2014, who read it as *lailos* (ThNSGr 1). The third letter was misread, however, and is clearly not an *iota* but a so-called “lunar” *sigma*. The name should thus be read *λασλος*, “laslos”. It likely corresponds to the transcription of a Semitic name derived from a prefix-conjugation verbal form, possibly similar to the name *Ys'ʾl* which is attested once in Hismaic (al-Qudrah et al. 2012: no. 8).

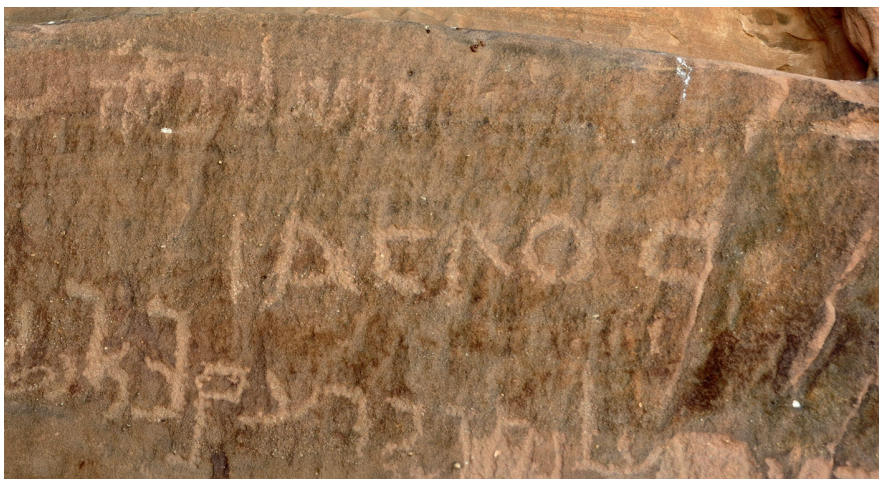


Fig. 34. Greek inscription UT047Gr1 = (ThNSGr 1) from Jibāl Sarmadā' 7 (J. Norris).

Rock art

There is a profusion of rock art in the desert region between al-'Ulā and Taymā'. It provides further evidence of the people who travelled along the route between the two oases as well as of the populations who were active in the area from prehistory to modern times. The panels depicting rock art include imagery dating from two main lengthy periods: late prehistory to protohistory, and Late Iron Age to the Nabataean period.

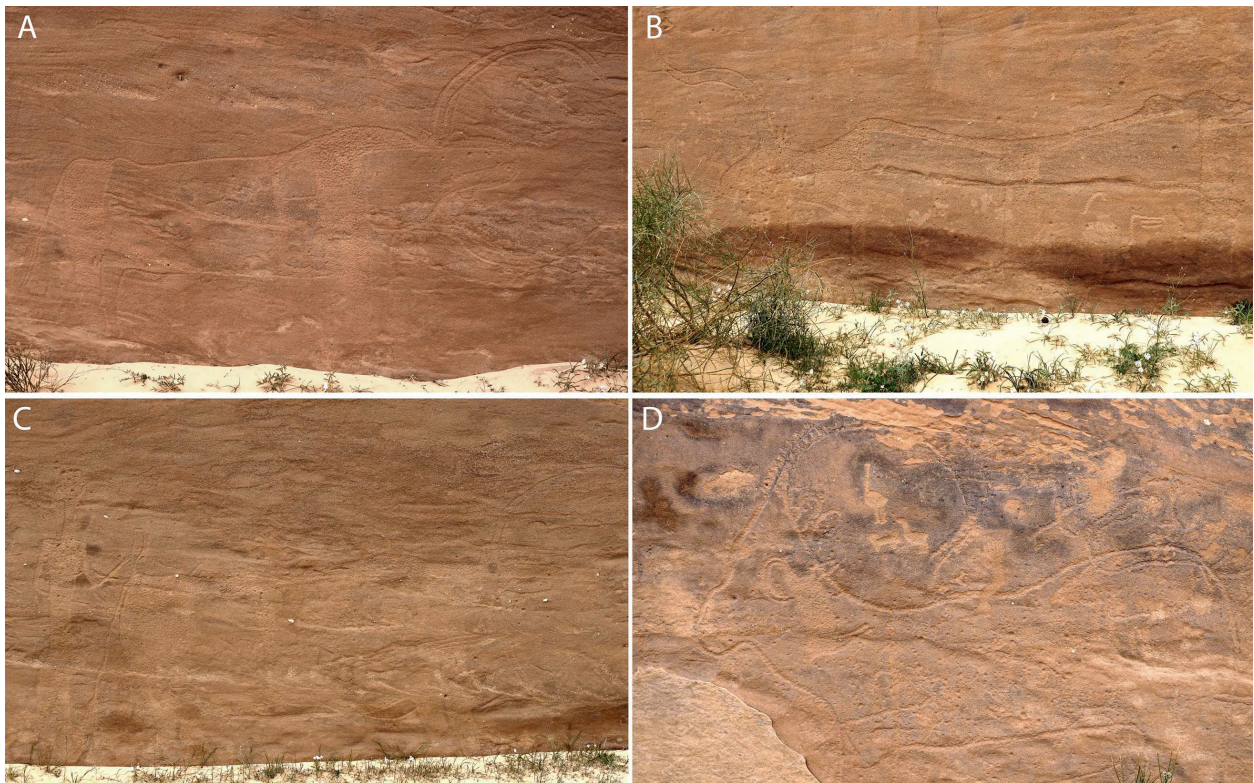


Fig. 35. Four late prehistoric figures at Jabū al-Khuwayrah 2 (UT023). (A) Large aurochs facing right; (B) large aurochs facing left; (C) a scene illustrating a man in the ‘Jubbah style’ standing behind a large aurochs; (D) a Neolithic realistic carving of an ibex (A. Morrissey).

Late prehistory to protohistory

The petroglyphs from the first period (**fig. 35**) are identifiable by their carving techniques and context: they are pecked deeply into the rock surface, their patina is very advanced, and later petroglyphs are carved over them. Among the figures which fall into this chronological range are some impressive large-sized depictions at Jabū al-Khuwayrah 2 (UT023). Among other scenes, they include several representations of cattle, one scene showing a man in the so-called ‘Jubbah style’ (Guagnin et al. 2017: 142–144) facing a bovid (**fig. 35C**), a similar scene with a Neolithic equine (onager or African wild ass), and a naturalistic depiction of a Nubian ibex (*Capra ibex nubiana*) (**fig. 35D**). It is uncertain whether we are dealing here with depictions of wild or domesticated species of cattle, but the shape of their horns and their degree of naturalism make it likely that they are wild species, most probably some extinct aurochs (*Bos primigenius*).

Another site with an impressive collection of cattle representations is Khashm Jabalah 1 (UT025). The bovids from this site are very different from those of Jabū al-Khuwayrah. They are more schematic, with their heads reduced to a narrow triangle and their horns combined in a single forward curving horn (**fig. 36A-B**). Moreover, they are also all represented with a piebald coat, which indicates that they are a domestic species. Other figures are represented with some twisted stylised horns (**fig. 36C**). All these figures fall into M. Khan’s styles XII A–C and XX, which he dates to the Chalcolithic period (1993: 94–99, 113–125). These cattle depictions are also accompanied by numerous curious grid patterns which were observed and described by Jausen and Savignac during their visit to the site on 3rd March 1909 (1914: 125–126). After having excluded the hypothesis of herd enclosures, the two Dominicans tentatively suggested that they



Fig. 36. Cattle depictions from Khashm Jabalah 1 (UT025) accompanied with enigmatic grid patterns. On the bottom right are Thamudic D inscriptions UT025ANA1 and 2 which are superimposed over a grid motif (J. Norris).



Fig. 37. Two LNEC camels at Juraydā' 1 facing right (UT049) (A. Morrissey).

were fortified camps and associated them with the single Nabataean text from the site (JSNab 329 = UT025Nab1). This is very unlikely as these motifs all show a very dark patina, similar to that of the cattle drawings. This points to a much earlier date, which is confirmed by the presence of two Thamudic D texts with a lighter patina carved above one of these dark patinated motifs (UT025ANA1, 2 = JSTham 253a–b) (**fig. 36D**).

The other images which fall within the first period are some remarkable depictions of wild camels which belong to the so-called ‘Large naturalistic engravings of camels’ (LNEC) rock-art tradition, dated to the Neolithic period (Charloux et al. 2020: 88–89). The medium-sized LNEC depiction photographed by Jaussen and Savignac (1914: 158, pl. 64, fig. 3) at Al-Khabū al-Sharqī was measured and is 60 cm high and 70 cm wide (see fig. 2 of B. Faye’s contribution in this report). One of the most spectacular finds was the nightfall accidental discovery of a panel showing two life-size LNEC representations of camels at a site close to our overnight camp, recorded as Juraydā’ 1 (UT049). The two animals are represented in outline and are both facing right (**fig. 37**). They are shown with their legs crossed to create an impression of movement and perspective, but they lack anatomical features such as hair, ears, and eyes. As far as we know, this panel represents the most south-westerly attestation of the LNEC rock-art tradition ever recorded.

Late Iron Age to the Nabataean period

The figures dating from this period are characterised by the presence of ‘late markers’ such as domestic camels and horses, as well as writings. Furthermore, the subjects are very different from those of the earlier periods. Cattle becomes extremely rare while domestic camels, domestic horses, ibex, oryx, and humans frequently depicted in hunting or warfare scenes become dominant (Guagnin et al. 2017: 146). Among the figures that can be dated to around the middle of the first millennium BCE stand the aforementioned figures of the god of Taymā’, *Ṣlm* (see above). These figures are traditionally interpreted as schematic heads of bulls (Hausleiter & Lora 2021), although Macdonald recently suggested that they may correspond to human faces with horns (Macdonald 2022: 20). The new figure we recorded at Jabū al-Khuwayrah 3 (UT024) differs greatly from all other known figures by its high degree of sophistication. It unambiguously corresponds to a *Bucranium*, very similar to the one represented on the edge of the so-called Louvre stele or on the al-Ḥamrā’ cube—without a sun-disk (**fig. 38**).

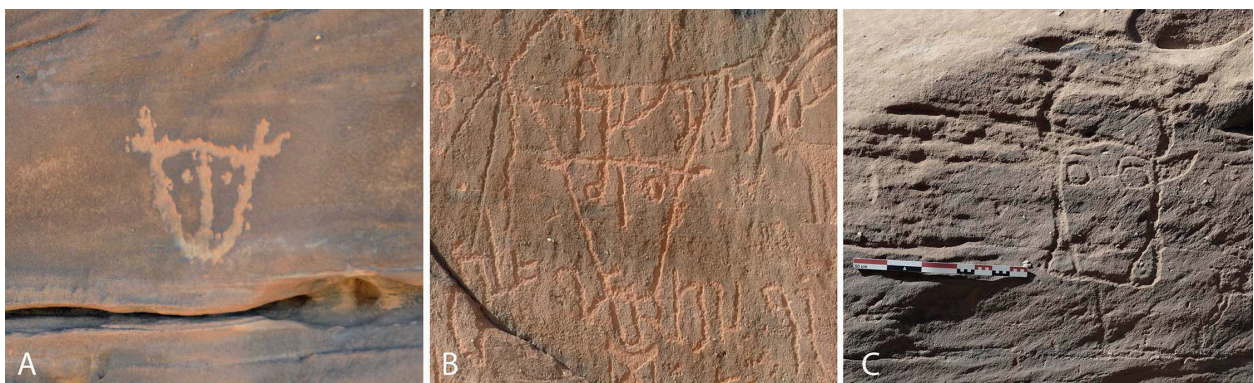


Fig. 38. Three images of *Ṣlm*, the god of Taymā’. (A) Jibāl Sarmadā’ 7 (UT047); (B) Jibāl Sarmadā’ 7 (UT047); (C) Jabū al-Khuwayrah 3 (UT024) (J. Norris).



Fig. 39. The authors standing in front of the panel of Al-Furjah 3 (UT034) depicting a procession of NAS camels (A. Morrissey).

The other figures that can be attributed to this chronological range are the numerous drawings associated with Thamudic B inscriptions, for which see above. They include 36 large- and middle-sized depictions of camels rendered in the so-called ‘North Arabian Style’ (NAS), five Arabian horses (*frs*³⁶), one ‘horse thick in the legs’ (*’bl*) (UT014ANA18 = Esk B 265), one she-ass (*’tn*) (UT014ANA6 = Esk B 254), and one scene showing a chariot pulled by equids, a lion, and a she-camel (UT014ANA03 = Esk B 252). The camels drawn according to the NAS rock-art tradition are clearly the most common type of camel depiction encountered during the survey. They are distributed along the entire length of the road, the first ones observed being those of Rawdat al-Nāqah 2 (UT007), after which the area was named (Jaussen & Savignac 1914: 115). The NAS camels present some standardised and easily recognisable features which include a long outstretched neck, a prominent semi-circular hump, and a systematic representation of the genital apparatus of the males (Charloux et al. 2020: 89–91). These animals are never depicted with tack or carrying loads, which excludes a relationship with the caravan trade and shows that what is promoted by the artists is their quality as livestock. One of the most impressive panels is that of Al-Furjah 3 (UT034) which illustrates a procession of three life-size NAS camels following a smaller than life-size one and a NAS Arabian horse, all associated with the signatures of the artists in Thamudic B (**fig. 39**). There are not many petroglyphs which can be attributed to the Nabataean period with certainty. Indeed, in contrast to the ANA inscriptions, Nabataean texts are rarely used as direct captions to rock drawings. At least two figures can nevertheless be considered as ‘Nabataean’ imagery. The first is the small drawing of a typical Nabataean niche flanked by pilasters and crowned by a pediment which stands immediately below UT018Nab1 (= JSNab 322) at Shuqayq

36. UT054ANA153, UT054ANA149, UT054ANA75, UT034ANA4, UT034ANA5.

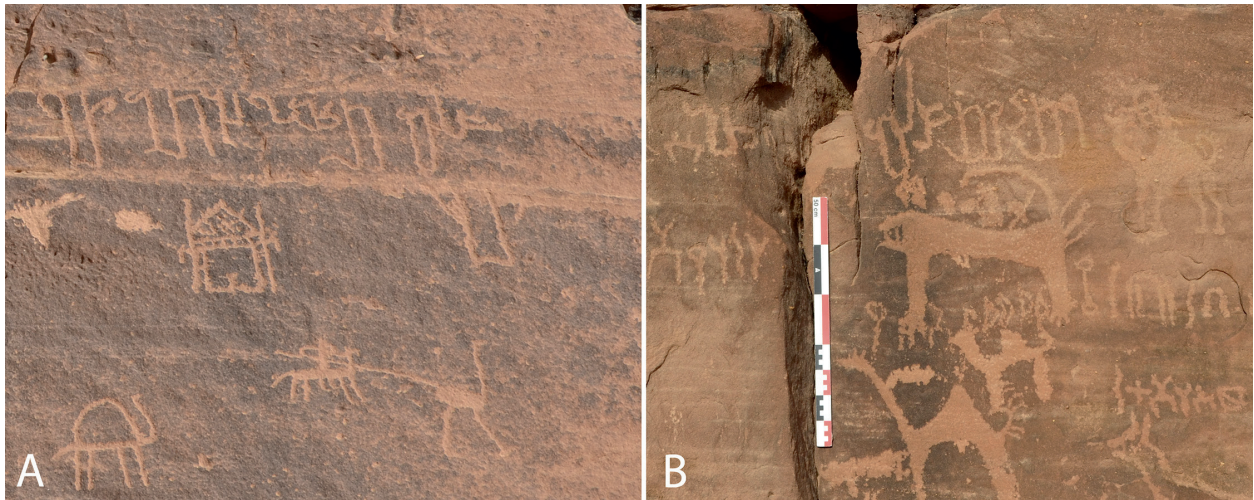


Fig. 40. (A) Nabataean inscription UT018Nab1 with the drawing of a Nabataean niche at Shuqayq al-Dhi'b; (B) Nabataean inscription UT014Nab1 accompanying the drawing of a lion at Qī'ān al-Ṣunay' 1 (J. Norris).

al-Dhi'b (**fig. 40A**).³⁷ The second is the drawing of a lion at Qī'ān al-Ṣunay' 1. Carved on the left side of the panel, the animal faces left and is surmounted by a Nabataean text reading: *wtyqt šlm šr* "May Wtyqt be safe, he drew (this)" (UT014Nab1) (**fig. 40B**).

37. It is possible that UT018Nab1 contains the word *šr*, "he drew", see above.

Appendix 1: From travel journal to satellite imagery and to the actual route

Paul CERVANTES

This short study is a comparison between the work completed within the context of an MA dissertation (Cervantes 2021), deriving from textual sources and satellite images on the one hand, and from the reality on the ground experienced during the expedition on camelback on the other.

One of the aims of the dissertation was to identify the route followed by the caravaneers within a 60 km-range around Hegra. To this effect I took an interest, among other things, in the account by A. Jaussen and R. Savignac of their expedition between Hegra and Taymā'. I therefore undertook to transpose the narrative of their journey, which was accompanied by a schematic map (see fig. 2 in the introduction to this section of the report), onto a line drawn on satellite images. The transposition of the journey section by section produced a drawing of the itinerary, some sections of which are more or less accurate while others are frankly approximate due to insufficient—if not totally lacking—data.

While the expedition was being planned, the route drawn according to Jaussen and Savignac's account was compared against that drawn independently by Jérôme Norris based on the distribution of known epigraphic sites. The two itineraries matched on a good number of sections which, before the expedition's departure, was most encouraging.

The comparison of available data in the written account with the reality on the ground has, however, provided a wealth of information. For example, in the Rawḍat al-Nāqah sector (UT006–008), no obstacles were visible on the satellite images, while in reality the situation was very different: this section of the route included a long climb followed by a dangerous descent, especially with camels. In fact, both climb and descent could be avoided (see fig. 5) by taking a detour to the north-west before rejoining the main itinerary.

The differences in the landscape and the topography have also shown that Jaussen and Savignac's account is as much detailed and easy to follow as the landscape is endowed with remarkable locations which are easily distinguishable one from the other. This is especially the case in the sector that is now designated as the Shar'ān natural reserve, while beyond Qī'ān aṣ-Ṣunay' (UT014–015), the landscape has fewer noteworthy points, the environment is less singular and the sandy and rocky plains less apparent. For these areas, Jaussen and Savignac's descriptions are less detailed and rarer—if not totally lacking—leaving only a schematic map as a compass. Taking part in this expedition has enabled us to understand the difficulty of their journey as well as their particular abilities, in view of the fact that they reached Taymā' in just four days.

Appendix 2: Plants observed between Hegra and Taymā'

Ahmad AL-EMAM (RCU)

When preceded by *, a description and illustrations of the plant can be found in the following book: Valorhiz 2020. *Native Species for AIUla Landscaping*. Paris: Afalula.

Artemisia شَيْح

* **Bladder dock** حُمَيْض - حُمَاض *Rumex vesicarius* L. (Polygonaceae) (fig. 41)

* **Boxthorn** عوسج *Lycium shawii* Roem & Schult. (Solanaceae)

* **Farsetia** *Farsetia burtonae* Oliv. (Brassicaceae)

Haloxylon رَمث *Haloxylon ammodendron* (Amaranthaceae)

* **Indian mallow** رَيْن *Abutilon fruticosum* Guill. & Perr. (Malvaceae)

* **Large bushman grass** نصي *Stipagrostis ciliata* (Desf.) De Winter (Poaceae)

* **Negev chamomile** قَرَبِيَان - قَحْوِيَان - أَفْحُوَان *Anthemis deserti* Boiss (Asteraceae)

* **Nile tamarisk** طَرَفَا *Tamarix nilotica* (Ehrenb.) Bunge (Tamaricaceae)

Orobanche هَالُوَك (fig. 42)

* **Patilla** دَعَاع *Aizoon canariense* L. (Aizoaceae)

See <https://science.mnhn.fr/institution/mnhn/collection/p/item/p00915694?listIndex=1&listCount=35>

* **Taily weed** قَرَضِي *Ochradenus baccatus* Delile (Resedaceae)

See <https://science.mnhn.fr/institution/mnhn/collection/p/item/p00915702?listIndex=26&listCount=35>

* **White broom** رَمَم *Retama raetam* (Forssk.) Webb & Berthel (Fabaceae)

See <https://science.mnhn.fr/institution/mnhn/collection/p/item/p00915700?listIndex=24&listCount=35>

* **White saskaul** عَضَا *Haloxylon persicum* Bunge (Amaranthaceae)

* **Wild fig** حَمَاط *Ficus palmata* Forssk. (fig. 43)



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Sigla

Afalula	<i>Agence française pour le développement d'AlUla.</i>
AH	Dadanitic published by Abū al-Ḥasan.
ANET	<i>Ancient Near Eastern Texts Relating to the Old Testament</i> edited by James B. Pritchard, 1969.
ArNab	Nabataean inscriptions from Al-ʿArniyyāt in Nehmé 2018.
CIS II	<i>Corpus Inscriptionum Semiticarum. Pars II. Inscriptiones Aramaicas continens</i> , Paris, 1889–
CNRS	Centre National de la Recherche Scientifique.
ELHT	Epigraphy and ancient landscape in the hinterland of Taymāʾ (Project).
Esk A	Ancient North Arabian inscriptions in Eskoubi 1999b.
Esk B	Ancient North Arabian inscriptions in Eskoubi 2007.
Eut	Thamudic inscriptions recorded by Julius Euting published in Van den Branden 1950 and Jamme 1974.
HC	Heritage Commission.
HNNJT	Nabataean inscriptions in al-Haiti [al-Ḥāyīṭī] 2017.
HNUT	Nabataean inscriptions in al-Haiti [al-Ḥāyīṭī] 2016.
HU	Thamudic inscriptions copied by Charles Huber, published and renumbered in Van den Branden 1950.
JSLih	Dadanitic inscriptions in Jaussen & Savignac 1909–1922.
JSNab	Nabataean inscriptions in Jaussen & Savignac 1909–1922.
Lane	Lane 1863–1893.
Maʿīn	Minaic inscriptions in Bron 1998.
MoC	Ministry of Culture, Riyadh.
MS94.1–7Dad	Dadanitic inscriptions from Jabal Ithlib collected during the 2020 season of the Madain Salih Archaeological Project (MSAP).
MSAP	Madain Salih Archaeological Project, 2002–2023 (CNRS/HC–MoC/RCU).
OCIANA	Online Corpus of the Inscriptions of Ancient North Arabia. http://krc.orient.ox.ac.uk/ociana/index.php
Ph	Thamudic inscriptions recorded by H.St.J.B. Philby and published in Van den Branden 1956.
QN	Nabataean inscriptions from Qāʾ al-Nuqayb in Nehmé 2018.
RCU	Royal Commission for AlUla.
ThMNN	Nabataean inscriptions in al-Theeb 2010.
ThNDK	Thamudic inscriptions in al-Theeb 2017.
ThNJUT	Nabataean inscriptions in al-Theeb 2005.
ThNQT	Thamudic inscriptions in al-Theeb 2000.
ThNS	Nabataean inscriptions in al-Theeb 2014.
ThNSGr	Greek inscription in al-Theeb 2014.
UJadhNab	Nabataean inscriptions from Umm Jadhāyidh in Nehmé 2018.

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In the Footsteps of A. Jaussen and R. Savignac Between Hegra and Taymā'. Some Reflexions

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The camel caravan from Hegra to Taymā'¹

One of the aims of the scientific exploration that took place in February 2023 was to retrace the steps of the two Dominican priests of the École biblique et archéologique française in Jerusalem, Antonin Jaussen (1871–1962) and Raphaël Savignac (1874–1951). In 1909 they had travelled by camel along this caravan trail in search of inscriptions and rock carvings. At that time the political situation was volatile, as can be seen in Maurice Sartre's remarkable analysis in his article published in *Topoi* in 1996. Bedouin tribes were becoming increasingly intolerant of Ottoman sovereignty, which the railway rendered ever more present, and Westerners were seen as spies working for Constantinople. Consequently, Jaussen and Savignac, having reached the end of their expedition, only spent one night in Taymā', pursued by a xenophobic population that scorned all foreigners. One century later, picking up the trail of the two Dominicans was to pick up where they left off, but with modern means.

Crossing the desert

Following in their footsteps, we crossed an arid desert, devoid of a single watering point for almost 130 km, ending up about 40 km from the nearest tarmacked road. We completed the journey in eight days, achieving an average of about 20 km a day. Jaussen and Savignac had made the same journey in only five days, without following the most direct route and in much more spartan conditions, getting up the moment the moon provided enough light for the camels to be willing to move. Each second was precious to them. In order to lighten the load, their caravan only carried provisions of water and a minimum amount of food. Time was of the essence as their guide was expensive, although for reasons of security, he was indispensable. Ambushes by Bedouin tribes were a risk, and a rifle was always at hand, strapped either across the shoulder or onto the camel's saddle. Finally, in order to obtain better scientific results, and despite the 30 km or so travelled on

1. The toponymy used in this report is based on a transcription of the Arabic that is as accurate as possible. The spelling of the toponyms as it appears in Jaussen and Savignac's *Mission archéologique en Arabie* has only been retained in quotations or given in brackets.



Fig. 1. R. Savignac (left) and A. Jaussen (right) (© EBAF).

the back of their mounts,² they wanted to record as many inscriptions as possible. In cases where the rock faces were studded with them, their research could take hours. The account of their expedition shows that they never abandoned copying the inscriptions until the very last moment, even when, alerted by their bodyguard, they were forced to grab their rifle as quickly as possible and adopt the firing position, though fortunately, it turned out to be a false alarm.

The daily rhythm

In imitating them 114 years later, after a few minutes we came to understand the extreme discomfort of a wooden camel saddle, inadequately padded with cushions. The camelids' smooth swaying gait did nothing to improve things. Our Western posteriors suffered torture to the point of wondering how the two Dominicans could have withstood an extra 10 km a day on average. The camel's pace is faster than a man's and can reach a speed of four to five kilometres an hour at its slowest (as opposed to three for a man). Thus, four or five hours in the saddle—half in the morning and half in the afternoon—were required each day in order to reach our destination on time.

Searching for inscriptions

However, an unforeseen problem forced us to go on foot for part of the journey. Thus perched and suffering our mounts' swaying gait, we quickly acknowledged our conceited attempts to scru-

2. The figure of 27 km is an average one which would need to be revised to take into account the wide detour made on the outward journey (see map, fig. 5 in Nehmé and Norris's text).

tinize the rock faces in search of inscriptions, especially with binoculars. Taking it in turns, we were reduced to trudging through the desert for miles, in order properly to examine the rock faces that might hold inscriptions, thereby avoiding the struggle with the constant and unpredictable movement of our mounts. The binoculars were then very useful, helping us to avoid having to get too close to distant rock faces in order to read them with the naked eye. We only diverted from the path when the game was worth the candle.

The usefulness of a good guide

There is a wealth of information on Jaussen and Savignac's expedition; they could not see any better than us and their binoculars, assuming they had them, could not rival ours in quality. One must deduce that, almost without exception, they recorded those inscriptions that their guide had led them to—unless we assume that the itinerary followed a zigzag path between the emerging rock formations, in order to get within tens of metres of the promising rock faces. The account of their expedition appears to exclude this possibility. Such an observation does not question the merit of their actions, on the contrary, it proves the seriousness of their preparation imbued with a well-founded realism: they knew that a local guide, who knew the itinerary well, would not only protect them from danger but would also lead them to the main inscription sites. With the help of hard cash, all they had to do was to let themselves be guided, without the need to be on the lookout for the smallest inscription found along the way.

Moḥammed, the intrepid guide

The two Dominican explorers chose very carefully for someone to fill this post. They explain their plan in the pages devoted to the description of the Fuqarā' Bedouin tribe's habits and customs—a tribe that ruled supreme in the region of Madā'in Ṣāliḥ. They turned their attention on the son of one of the most illustrious personalities of the desert, Moḥammad *al-'abīd*, "the servant", a freed slave who had previously been the confidant of Muṭlaq, seikh of the Fuqarā' and was, in this capacity, endowed with his authority. Jaussen and Savignac described Moḥammad *al-'abīd*'s son (who was also called Moḥammad) in complimentary terms, stating that his bravery, reputation, and authority came from his father (Jaussen & Savignac 1914: 33). They were thus advised to turn to him to plan an expedition in the desert, not least because all three men respected each other:

When we wished to make the journey to Teima, we dealt with him and it was he who, despite the considerable difficulties encountered in the realisation of our project, agreed to take us into the desert. He also accompanied us on our first exploration of Heirebeh, near el-'Ela. When confronted by the village chiefs who had threatened to kill us, he showed fearless courage boosted by his unshakeable allegiance to our cause. (Jaussen & Savignac 2014: 33–34)³

Jaussen and Savignac here tacitly admit that without a man of this calibre—Moḥammad son of Moḥammad *al-'abīd*—who was committed to their cause, they would most certainly not have taken the risk of exploring the desert on the way to Taymā'. They needed a man of courage with unchallenged authority over the inhabitants of the region. His authority derived not only from his

3. All Jaussen and Savignac's texts were translated by Helen Knox.

moral virtues but also from his father's reputation, 'Abed, Mutlaq's "man of trust"⁴ who, although a slave, during a conflict with a rival tribe had managed to kill with his bare hands the brother of the enemy sheikh, an act which earned him his freedom.⁵

Water points

During our journey on camelback, we were mainly able to rediscover the inscriptions and rock carvings that Jaussen and Savignac had found and copied. Having been visited by generations of caravaneers from all periods, the rock faces have begun to look like palimpsests. These 'books' open to all winds like giant grimoires for all to see, were often associated with water pools that form in cracks in the rock after the winter rains—the *ḡadīr* (*ḡadir*) mentioned by Jaussen and Savignac. To the desert caravaneers on a route along which nothing springs from the ground, they represented an absolute godsend, as much for them and their pack animals as for their mounts and their cattle. There was a particular abundance of texts where the rock faces around them held enough water for the precious liquid to last for months, sheltered from the heat of the sun by the rock face. The caravaneers must have made it their favourite stopping point, both to refresh themselves and to relax after exhausting days of travelling. It became a ritual act to leave, in the wake of so many others, an indelible mark on the rock faces overlooking these water pools or along the paths that led to them.

A sacred dimension?

In light of the two Dominicans' questionable terminology,⁶ one wonders whether these *ḡadīr* were not endowed with an (inevitable) sacred dimension in the eyes of the Nabataean caravaneers or those of more ancient populations. The question is particularly relevant in relation to Jabū al-Khuwayrah, reached on the third day of the expedition (see fig. 15–17 and map, fig. 21 in Nehmé and Norris's text in this report). The carved rock faces, illustrated with all sorts of beasts, including donkeys and scorpions, some depicted in a line, create a kind of procession towards the water source. More time was needed to explore the surroundings in search of potential traces of human occupation or particular arrangements in the rock. The water-filled crevice was overhung by some 30 metres by a rocky promontory whose summit was flat—a superb observation post from which all the comings and goings of the caravans could be spotted for miles around. It was a strategic location, situated a third of the way between Madā'in Šāliḥ and Taymā'.

4. Jaussen & Savignac 1914: 33: "Sometimes the freed slave can become a man of importance within the tribe: this happens when he is the sheikh's representative, a kind of major-domo who takes his interests to heart and fulfils the most important missions. He is then known as 'Abed, "servant" of the sheikh. This title gives him authority."

5. Jaussen & Savignac 1914: 33–34: "Muṭlaq, sheikh of the Fuqarâ, had a famous 'abed, Moḡammed al-'abīd, a handsome negro, tall and imposing. He is intelligent, full of courage and his loyalty is proverbial. His father had been bought as a very young child, at the public market in Mecca by the sheikh of the Fuqarâ. He grew up under his master's tent and soon earned his goodwill, thanks to his courage and honesty. In both wars and raids he was noted for his fearlessness and valour. In an altercation with the Ḥaweiṭât, he killed Moḡammed, brother of sheikh 'Awdeh abu Tâyeh, with his bare hands. He became a hero of the desert and thus gained his freedom".

6. Arabic possesses a variety of terms to describe water points in the desert: wells, pockets of water created by winter rains, salt-water lake, etc.

The Fuqarā' encampment

Whatever the case, one should consider another factor: the presence, at the beginning of the twentieth century, of a Fuqarā' encampment in the area around Jabū al-Khuwayrah. According to Jaussen and Savignac, this ġadīr was located roughly in the middle of the Fuqarā''s territory, which stretched from Madā'in Šāliḥ to Taymā':

The Šarârât, who had replaced the Beni-Šaḥer, were chased off by the Fuqarâ who are the rulers of the Ḥeġer [i.e. Madâ'in Šāliḥ]. It could be said that it is their centre of operations even though it is located at one of the limits of their territory. According to their directions, the limits of this territory are: Ḥešem Šana' between Dâr el-Ḥamrâ and Mo'aẓzam in the north; Teima in the east; Kheibar in the south; and the Ḥarrah in the west. It takes seven or eight days to walk along its longest extent. It is a relatively restricted field for the continuous migrations of a nomadic tribe. However, the Fuqarâ are not very numerous, their tents numbering just 120. Assuming an average of four or five people per household, their whole tribe amounts to five or six hundred souls. (Jaussen & Savignac 1914: 5–6)

The map indicating the two Dominicans' itinerary shows an encampment located about halfway between the ġadīr (just below 'Ḥešem Ġebalah', see map, fig. 2 in the introduction to this report) and 'Ġebel el-Meimeh', about 4 km south/south-west of the ġadīr.⁷ Following the winter rains, the distance could thus be travelled during the day, not only to put a flock to pasture along the way but also to water it, fill the water skins, and even set up camp for a few days. In fact, Jaussen's account relates a very significant anecdote in this regard: in the spring of 1909, the Fuqarā' tribe was very anxious because, following a persistent drought lasting over eighteen months, the water pools in their territory had all dried up, especially the one at al-Khuwayrah. There was not a drop of water from Madā'in Šāliḥ to Taymā', a dramatic situation for them and their flocks. Above all, they were deprived of milk from their animals. Several important members of the tribe were forced to migrate with their cattle onto the territory of other tribes, east of Taymā'.⁸

The true rulers of the desert

This evidence shows that the caravan route we explored, doubtless regularly used by traders, was in all probability also 'inhabited' since time immemorial by nomads, who claimed to be, if not its owners, certainly its beneficiaries. Indeed, if it was the case at the beginning of the twentieth century, why automatically exclude the fact that the situation might have been similar in the preceding centuries up until the Neolithic, a period during which, according to climate experts, rainfall was more abundant? Above all, this could explain the rock carvings of giant aurochs, a now

7. Figure obtained using Qgis software.

8. Jaussen & Savignac 1914: 6–7: "However, our valiant Moḥammed was exaggerating because in this terrifying maze of deep, criss-crossing gorges and valleys [the Shar'ân reserve], there is neither sufficient pasture for the flocks nor sufficient water for the men and their cattle, and we reminded him that needs must when the devil drives. The truth of this adage was evident the moment we were among the Fuqarâ. A long drought had destroyed the tufts of grass and even the shrubs that grow deep in the valleys, and nowhere could the camels find enough food to eat. The natural reservoirs dug into the rock, which collect rainwater, had dried out long ago. The whole tribe was in a state of anxiety; sheikh Muṭlaq [the Fuqarâ' tribe's great leader] was looking for pastures at some distance away. Even one of his grandsons, Šahab, had migrated six days away east of Teima to the 'Anezeh, in order to provide essential food for his camels."

extinct endemic species. There is no doubt that the ‘townspeople’ (i.e. from the oases) managed to wield their power over the ‘people of the desert’ at certain times, as in the Nabataean era. The official inscription in Nabataean characters that we spotted about 20 km from Taymā’, wishing peace to two *strategoi* (governors) at least one of whom had certainly been posted at Hegra, appears to substantiate this. There was also an inevitable osmosis between the two societies, nomads being obliged at certain times to visit oases. However, at any given period, the true rulers of the desert have been those who were able to live in it—not just to pass through it—whether or not they had been masters of the neighbouring oases. In any case, the criterium was to know to whom tribute had to be paid.

In this regard, as testified by Jaussen and Savignac, it is significant that on the one hand, each household in Taymā’ and al-‘Ulā had to pay an annual ‘tax’ (*hāwah*) to the Fuqarā’ tribe;⁹ on the other, that the central power of Constantinople had been forced to pay the Fuqarā’ quite substantial sums for several years in order to obtain the right of way for the Ḥijāz railway. This was the price to pay to gain sovereignty over the desert.¹⁰

In this context, to return to the Jabū al-Khuwayrah it is surprising that more traces of human occupation—besides rock engravings—were not immediately observed at the site. Either the desert wind has quickly rubbed out traces of a Bedouin encampment; or it is normal for desert populations to leave very few traces due to their ‘nomadism’: they simply carry their tents and personal belongings on the back of their camels. No doubt excavations would need to be conducted in order to be certain.

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9. Jaussen & Savignac 1914: 8: “This shows how the Fuqarâ, powerfully aided by the milk from their flocks, manage to procure themselves the much-needed food. To this income must be added the *hāwah* (خاوة) imposed by the Fuqarâ on the people of Teimâ and the inhabitants of el-‘Ela. In both these localities, each household is obliged to pay them one meġîdy a year.”

10. Jaussen & Savignac 1914: 8–9: “An arrangement was agreed between the sheikhs and the government, not only for the passage of the ḥajj [the great pilgrimage] but also for the creation of the railway line and free passage of trains. Here is the amount paid each month to the principal members of the tribe. The list is telling in itself. Thus, each month the Fuqarâ receive the sum of 227 1/2 méġîdys, the equivalent of almost 1000 francs, from the government. This sum does not include the 162 méġîdys which are distributed each month to the 13 Fuqarâ supervisors in charge of protecting the railway line between Ḥešem Šana’ and el-‘Ela. We would be right to be surprised by this large amount of money distributed to the nomads, but this behaviour is politically motivated. A railway line had to be built and the work done quickly. This was achieved. However, in order to reach this goal, the first obstacle had to be breached: the Bedouin’s opposition to the construction of the line, which he saw as a threat. The Bedouin was bought at a premium.”

Camels in the Rock Drawings

Dr Bernard FAYE

Introduction

According to the most common zooarchaeological, iconographic, and textual data, the domesticated dromedary camel (one-humped, *Camelus dromedarius*) has been present in the Arabian Peninsula since at least the second millennium BCE (Uerpmann & Uerpmann 2002; Curci et al. 2014), even if some recent genetic evidence seems to suggest that two main domestication events occurred: (i) around the Rub' al-Khālī desert in the south-east of the Arabian Peninsula; (ii) around the Shaṭṭ al-'Arab, in the delta of the Tiger and Euphrates rivers (Heide & Peters 2021). In the latter, which has a more humid environment, the domestication would have occurred through hybridisation with Bactrian camels (double-humped, *Camelus bactrianus*), already domesticated one millennium earlier and used as pack animals for trade in the Mesopotamian Empire. This second focus of domestication was active in the first millennium BCE. Furthermore, genotyping investigation undertaken on Saudi Arabian dromedaries allowed the definition of three genotypes with a clear difference between the genotype which originated from the south-eastern part of the country and that which originated from its northern part. The third genotype corresponds to the camel ecotypes which live in the mountainous region of the Ḥijāz (Almathen et al. 2016). In the period when the Nabataeans were active in the region explored, in the first centuries BCE and CE, the dromedary camel was clearly domesticated for about 1000 years and was used as a pack animal for the goods traded along the caravan routes, among which the so-called 'incense road' (Zohar & Erickson-Gini 2020). The evidence which appears on the rock drawings is of great importance for understanding the uses of this animal and its place in the society and economy of the Nabataeans. Throughout the trail between Hegra and Taymā', the representations of camels were numerous and varied. In the present chapter, I will describe how this diversity is expressed in the drawings and what it tells us about the gender, zootechnical characteristics, and use of this animal by humans.

Diversity of graphic types

The first criterion which can be used for the classification/typology of the drawings examined between Hegra and Taymā' is their degree of sophistication, from the simplest ('minimalist style') to the most elaborate ('realistic style') (fig. 1). This degree does not necessarily correspond to a

time period and therefore may not have any chronological implication.¹ Nor is it associated with particular sites since drawings with various degrees of sophistication coexist on the same rocks (fig. 2). It thus clearly depends on the know-how of the authors of the drawings.²

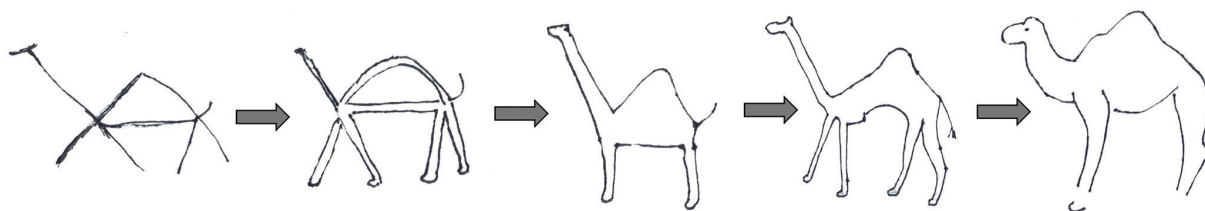


Fig. 1. Increasing degree of sophistication of the rock drawings observed between Hegra and Taymā', from the 'minimalist' to the 'realistic' style.



Fig. 2. Superimposition of various representations of dromedaries at Al-Khabū al-Sharqī (UT054). The diversity of graphic types is larger than at sites in Africa or Mongolia such as Tassili N'Ajjer in Algeria (fig. 3) and the Alashan desert in Inner Mongolia (fig. 4).



Fig. 3. Superimposition of various representations of dromedary camels in Oued Djerat (Tassili N'Ajjer, Algeria).

1. Editor's note: this hypothesis will need to be assessed against the analysis of the related inscriptions.

2. Editor's note: there are also various artistic styles and it is probable that the degree of sophistication depends on both aspects—know-how and style.

Representation of gender

In most cases, it is possible to distinguish male dromedaries from female ones. Male attributes are generally not visible but occasionally, the *dul'*, or *dullah* (palate veil), the externalisation of which is characteristic of the rutting period (fig. 5–6), and the penis sheath (fig. 7–8), are represented. Moreover, males are always represented with the tail bending downwards, as opposed to females (see below). However, although males are represented during the rutting season, no rock drawing depicts the actual mating. The specific behaviour of the male during the rut in front of the female, known as *flehmen* (specific posture with head and lips), as well as other attributes such as testicles are not represented either.

The main convention for depicting female dromedaries is the tail turned upwards (fig. 9–12), a posture which is characteristic of pregnant females in the presence of males and which starts



Fig. 4. Bactrian camel in Alashan desert (Inner Mongolia, China).



Fig. 5. Male dromedary camel with its sexual attributes visible (palate veil and penis sheath) at Ri' al-Rukkab 2 (UT011).



Fig. 6. Externalisation of the palate veil during the rut in a male dromedary.



Fig. 7. Male dromedary camel with its sexual attributes (penis sheath) visible, in the Shar'an nature reserve, in the area of Al-Raqqāsāt.



Fig. 8. Dromedary stallion with a well-developed penis sheath.



Fig. 9. Female dromedary with the tail turned upwards, in the Shar'an nature reserve (same location as fig. 7).



Fig. 10. Female dromedary with the tail turned upwards at Al-Khabū al-Sharqī (UT054).



Fig. 11. Female dromedary with the tail turned upwards at Jibāl Sarmadā 7 (UT047).



Fig. 12. Tail turned upwards in a pregnant dromedary female.



Fig. 13. Lactating female dromedary with her young camel calf at Rawḍat al-Nāqah 2 (UT007).



Fig. 14. Female dromedary camel with its rear legs tied together (UT029, no name).



Fig. 15. Restraining system used for a lactating camel

15 days after the beginning of pregnancy (Tibary & Anouassi 1997).³ Interestingly, it is the only traditional method of diagnosing pregnancy used by cameleers all around the world. Another female attribute is the udder, but it is rarely shown except in the case of suckling, as shown in a rock drawing at Rawḍat al-Nāqah 2 (UT007) in the Sharaʿān nature reserve (**fig. 13**). The female is represented with the four teats of her udder and the baby camel suckling. Note that since the tail is not turned upwards, the female is not pregnant (pregnancy leads to the milk drying out). Another representation of an udder was seen at Al-Khabū al-Sharqī (UT054) (see below). Finally, it should be noted that no representation of camels being milked was observed, which is surprising because the use of camel milk by the local population was probably common.

Camel management and use

Restraining

Along the trade route, camels cannot eat while carrying goods. They can do so only at night, when the caravan stops to camp. Usually, the camels are left free to graze around the camp, unless the caravan carries fodder. Due to the scarcity of pastoral resources, the camels may wander for long distances during the night, thus making it problematic when rounding them up in the morning. That is why the limbs of the animals are restrained with a rope using different techniques (Faye et al. 2022). The harnesses are only occasionally represented, for example at site UT029, where a rock drawing (**fig. 14**) shows the hindlimbs tied below the tarsal joint. This can be compared with the restraining technique presently used by Bedouins to limit the camels' range when moving around the camp (**fig. 15**).

3. M.C.A. Macdonald (2017: 139) mentions another reason for this convention: a female was shown with her tail curled up because that is the position which in real life she usually only adopts in preparation for mating. For a specialist of camel husbandry, this statement is clearly incorrect.



Fig. 16. 'Minimalist' drawing of a dromedary camel and its rider handling a lanyard (UT029, no name).



Fig. 17. Camel rider holding a (probable) lance (UT029, no name).



Fig. 18. Bedouin saddle composed of vertical pommel and cantle linked by crossing sticks.



Fig. 19. 'Caravan' of five camels including three with saddle and rider (?) at Jibāl Sarmadā 4 (UT044).



Fig. 20. Female dromedary camel with saddle and possibly a rider at Jibāl Sarmadā 4 (UT044). The last two, which have a different patina, may have been added later.



Fig. 21. The famous Tuareg camel saddle with its cross-shaped pommel (Agadez, Niger).

Riding

Camel caravans are usually composed of pack animals carrying goods and of one or several camels used for riding in order to manage the herd. Camel riding can also be used for hunting or even at war, as shown in some frescoes from the region (Faye 2022: 10).⁴ During our expedition, we noticed few representations of camel riding, as opposed to horse riding. At site UT029 two representations, one rather ‘minimalist’ (**fig. 16**) and one more detailed (**fig. 17**), show riders seated on a saddle placed on the hump. On the first rock carving, the rider seems to drive the camel with a lanyard, while in the second, he is holding a stick (a lance?). Both male and female dromedaries can be used for riding but the animal shown on figure 17, with its tail turned upwards, is probably a female, no doubt at the beginning of pregnancy. The saddle is represented by two vertical lines which correspond to the pommel and cantle as can be seen in current *šadād* saddles (**fig. 18**).

At Sarmadā’ 4 (UT044), a ‘procession’ of five camels, which were not originally equipped with saddles but on two of which a saddle was added later, is very well drawn (**fig. 19**). It is not clear, however, if the cross-shaped sign above the saddle (**fig. 20**) represents a rider. It is quite small compared to the animal and the patina of the sign seems to be more recent than that of the camel, in contrast to the last camel of the ‘caravan’, which definitely carries a rider.

The presence of a ‘cross’ on the saddle of the fourth camel of the ‘caravan’ may allow it to be compared to the traditional Tuareg saddle (**fig. 21**), but the latter was, to my knowledge, never

4. M.C.A. Macdonald (2017: 149) further clarifies the use of camels at war: for millennia, the nomads who bred the camels have acknowledged that these animals were of little or no use as a fighting platform and therefore used their camels to transport troops to and from battles but not as platforms from which to fight. Figure 24 here illustrates this statement which may have to be nuanced if one considers all the fighting scenes shown in the available iconography.

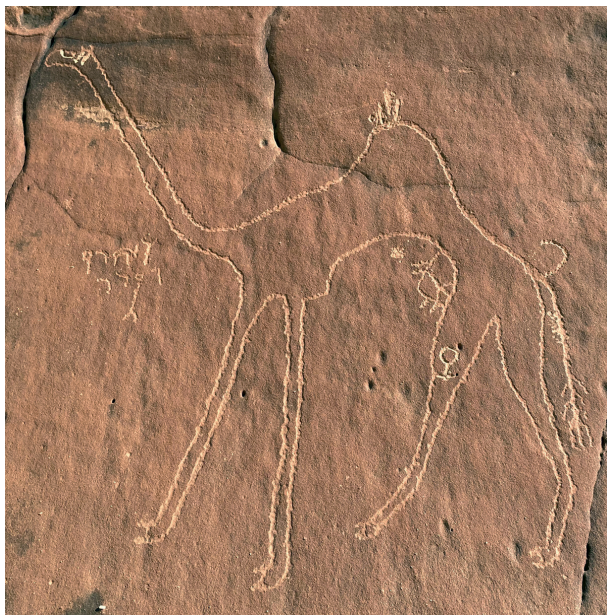


Fig. 22. Female dromedary camel with saddle showing udder and branding mark on thigh at Jibāl Sarmadā 4 (UT044).



Fig. 24. Battle scene showing warriors riding horses and one camel at Al-Khabū al-Sharqī (UT054).



Fig. 26. Hunting scene in the Alashan desert (China) where Bactrian camel riders are pursuing ibex and wolves.



Fig. 23. Hunting scene showing horse riders and ibex (UT029).



Fig. 25. Battle between dromedary camel riders in Tassili N'Ajjer (Algeria). Note the position of the saddle in front of the hump, typical of the Tuareg saddle.

described in the Middle East. In addition, the Tuareg saddle is placed in front of the hump while the North Arabian *šadād* saddle rests on top of the hump, as can be seen in the rock drawings.

Another interesting element in this 'procession' is the representation of a developed udder and of two teats on the second camel (**fig. 22**).⁵ This dromedary also has a mark on the thigh (a *wasm*, tribal mark) and two tails, one turned upwards and the other bending downwards.

5. J. Norris suggest that this dromedary was initially provided a penis sheath (with the tail turned downwards) and that it was later changed into a female by the transformation of the penis sheath into an udder and the addition of a tail turned upwards.

Finally, it is remarkable that the sternal pad is shown in this camel only. Such anatomical detail is uncommon in the representations observed during the expedition.

Hunting and battle scenes

At site UT029, a drawing showing a hunting scene involves only horses with riders pursuing ibexes and/or oryxes (**fig. 23**). At Al-Khabū al-Sharqī (UT054), a battle scene (**fig. 24**) also shows only horse riders holding lances. Indeed, the drawing of the camel on the bottom right seems to be of a different craftsmanship than the rest of the scene and may therefore be earlier or later. Yet the representation of camels in hunting or battle scenes is common in rock carving around the world, for example in Tassili N'Ajjer (Algeria) with a dromedary camel (**fig. 25**) or in the Alashan desert (China) with a Bactrian camel (**fig. 26**).

Body condition: the importance of the hump

One element which appears to be important in all the rock drawings, whatever their graphic style, is the hump. This part of the camel's anatomy is a fat reserve and is essential for surviving in the harsh conditions of the desert (Bengoumi et al. 2005). For travelling safely on the trade routes, the animals must be in good physical shape and the evaluation of their body condition is based on the volume of their hump. The cameleers are thus very attentive to the repletion of the hump because it is a guarantee of survival in the desert. This is probably why camels are always represented with a very developed hump (**fig. 27**), whatever its shape (rectangular, rounded, or pointed). Most often, it covers the entire back.

All the camel drawings we observed had one hump, but in some cases, the shape (especially rectangular) and the position of the hump covering the entire back is reminiscent of hybrid F1 in present-day Turkey (**fig. 28–29**). This hypothesis is not fanciful. In their remarkable compilation, Heide and Peters (2021) recall that hybrids and even Bactrian camels were present in the northern part of Arabia, particularly during the Nabataean period, where they could be used on trade routes (Macdonald 2020: 151). One might also suggest that some of the 'big humps' represent the pack carried by the animals, for an example of which see the Nabataean camel figurine from the Israel Museum at Jerusalem (Heide & Peters 2021: fig. 3.19, p. 48).

Grazing, browsing, watering, or wrestling?

Drawings depicting two camels face to face, crossing their necks upwards or downwards (**fig. 30–31**), are a very common sight on the route between Hegra and Taymā'. This scene may be interpreted in various ways:

- camels grazing, i.e. eating grass on pasture or fodder distributed at the evening camp, as shown on **figures 32–33**;
- camels watering (**fig. 34–35**);
- camels wrestling, as can be seen in Turkey. Camel wrestling involves only rutting males. Indeed, the camels represented on the rock drawings, which are the object of this paper, are males, as shown by their tail bending downwards. In Turkey, however, the camels involved are Bactrian (**fig. 36**) and now only hybrids F1 are used (**fig. 37**).

The face-to-face camels with necks crossing upwards are less frequent, and the best representation was identified at Jabū al-Khuwayrah 3 (UT024) (**fig. 38**). This drawing may show browsing animals. Indeed, the feeding behaviour of the camel is more that of a browser than a grazer, i.e. it



Fig. 27a–i. Dromedary camels with hyper-developed humps observed on the route between Hegra and Taymā'. In 27h, the structure on the camel's back possibly represents a litter.



Fig. 28. Hybrid F1 between dromedary and Bactrian camel (named Tülü) in Anatolia (Turkey) with the hump covering the entire back of the camel.



Fig. 29. Camel with the hump covering the entire back of the animal at Jibāl Sarmadā' 7 (UT047).

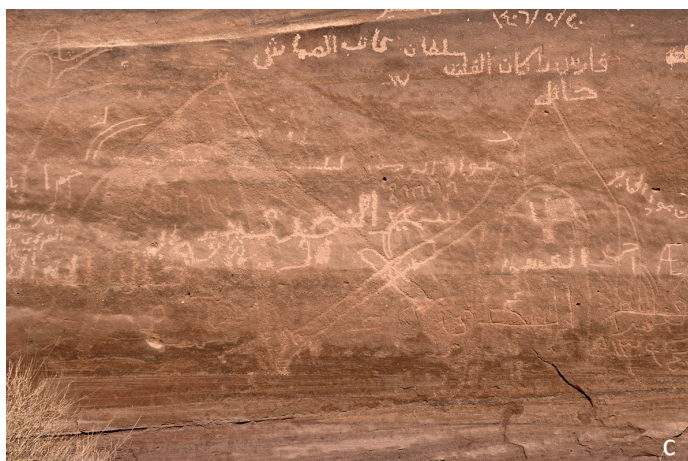


Fig. 30. Grazing camels face to face crossing their necks downwards. Left and centre: Rī al-Rukkab 2; right: Rawḍat al-Nāqah 2.



Fig. 31. Grazing camels face to face crossing their neck downwards at Rī al-Rukkab 1.

Fig. 32. Grazing camels (Al-Bāḥah, Saudi Arabia).



Fig. 33. Distribution of fodder at the camp (Dhofar, Oman).

prefers to eat tree leaves (notably acacia) than grasses. In doing so, it uses its long neck to reach the leaves up to a height of 2.5 to 3 m (fig. 39). Note, however, that acacia trees are now quite rare between Hegra and Taymā', except around Hegra (fig. 40). When wrestling, the camels do not show their aggressiveness by raising their head and stretching their neck upwards; rather, they try to bite the lower part of the limbs. However, camel wrestling is heavily regulated, trained animals are used, and it is considered more of a Turkish-Mongolian tradition. Conversely, in case



Fig. 34. Dromedary camels watering face to face (Talgar, Kazakhstan).



Fig. 35. Watering camels (Nefud desert, Saudi Arabia).



Fig. 36. Camels wrestling (Anatolia, Turkey).



Fig. 37. Camel-wrestling festival (Aydin, Turkey).



Fig. 38. Face-to-face camels with their necks crossing in upward position at Jabū al-Khuwayrah 3 (UT024).



Fig. 39. Camels browsing trees (Almaty oblast, Kazakhstan).



Fig. 40. *Tree vegetation in present-day Hegra.*



Fig 41. *Male dromedary in grazing position at UT028.*



Fig. 42. *Fighting male dromedary camels during the rutting period (Douz, Tunisia).*

of ‘natural’ fighting between male dromedaries during the rutting season, the attitude of the animals can be different, with necks crossing upwards during their face-to-face fighting (**fig. 42**). It is therefore difficult to draw a conclusion from these representations. Figures 30 to 39 involve males, sometimes represented with their attributes (penis sheath), and with their mouths appearing to bite the feet of the camel opposite, exactly as if they were wrestling. If the hypothesis of confronting males is favoured, fighting is more probable than wrestling. However, in one case at least, where a male dromedary is represented head downwards without another male facing it, the scene probably shows a grazing camel.

The criteria describing a ‘beautiful camel’.

Representations of camels may correspond to specific criteria of beauty, at least for the more sophisticated drawings.

Camels are not only an important element in the pastoral and trade economy; they were—and still are—a key element of the traditional culture. The people of the Arabian Peninsula have, for a long time, regarded camels as an essential animal. ‘Beauty contests’ are very popular in Saudi Arabia and in other Gulf countries, and it may be interesting to compare some of the criteria of camel beauty (Al-Amri 2020) used in those contests to the way camels are represented in the rock drawings. Six criteria are still used:



Fig. 43. 'Beautiful camel' at Rī' al-Rukkab 2 (UT011).



Fig. 44. Male dromedary camel selected for a beauty contest today (Abu Dhabi, United Arab Emirates).



Fig. 45. Camel with no coat colour at Al-Khabū al-Sharqī (UT054).



Fig. 46. Camel with coat colour at Al-Khabū al-Sharqī (UT054).



Fig. 47. Piebald camel with coloured legs at Al-Khabū al-Sharqī (UT054).



Fig. 48. Azarghaf camel with pied coat (Fuerteventura, Canaries Island, Spain).



Fig. 49. Zargeh camel with two colour coat (Al-Tā'if, Saudi Arabia).

- a. a long and fine neck;
- b. a straight and sufficiently high hump, with a good consistency, positioned on the rear part of the camel's back;
- c. a head looking straight ahead, with long ears;
- d. long legs, harmonious with the hock joint;
- e. a long and wide tail with smooth hairs;
- f. an abdomen forming a harmonious arch-shaped curve (not barrel-shaped), the line of which blends with the curve of the rear ribs.

These criteria may be applied to the camel represented on **figure 43** (long and fine neck, long leg, lanky profile, well-positioned hump, horizontal head and long ears, long tail), which can be compared to the male dromedary camel selected for a beauty contest in the United Arab Emirates shown on **figure 44**.

Regarding the colour of the coat, three categories were observed: 1. absence of colour (**fig. 45**); 2. full-coloured body (**fig. 46**); 3. apparent pied colour (**fig. 47**). Note, however, that presently, according to Volpato et al. (2017), pied camels (*Azarghaf* breed) are observed only in western Africa (**fig. 48**). Indeed, figure 47 appears to show a camel whose legs and belly only have a different colour, as can be observed in the present-day *Zargeh* breed in Saudi Arabia as described by Abdallah and Faye in 2012 (**fig. 49**).

Conclusion

The representations of camels in the rock drawings carved along the itinerary followed by the expedition are extremely varied. Camels are the overwhelmingly represented animal. Other species such as horse, cattle, and wild fauna, to name only three, are much less numerous. This reflects the cultural and economic importance of this animal along the ancient trade routes and pasturelands in the region.

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The Hegra Pottery Workshops, 2022 Season

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The February–March 2022 season in Madā'in Šāliḥ/Hegra allowed the exploration of the area located in the northern part of the ancient city (sector 11). During a 2021 pedestrian survey, several areas had yielded intriguing quantities of kiln wall fragments and misfired pottery sherds. It was therefore hypothesized that this part of the ancient city was the potters' district. At least seven kiln areas were identified, all showing the same concentration of elements resulting from the destruction of the kilns and the production of pottery (**fig. 1–2**). Three of these areas (11000, 11200 and 11300) were the subject of further investigations in 2022 to determine the shape and function of these kilns, their date, and the type of pottery they produced.

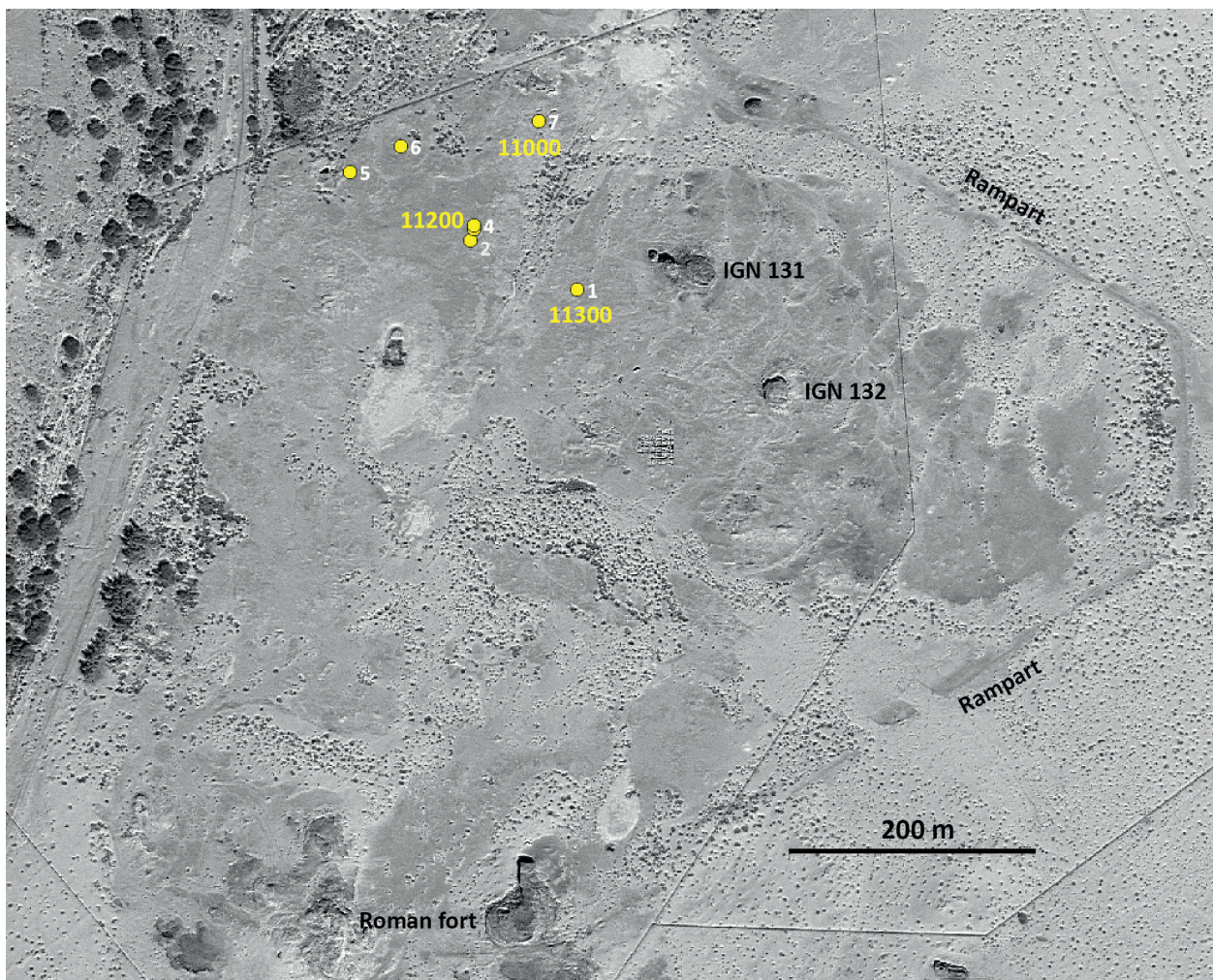


Fig. 1. Sectors of the documented kilns (© L. Nehmé, MSAP).



Fig. 2. Aerial view of the 11000 trench, covered with fragments of kiln walls (© E. Botte, MSAP).

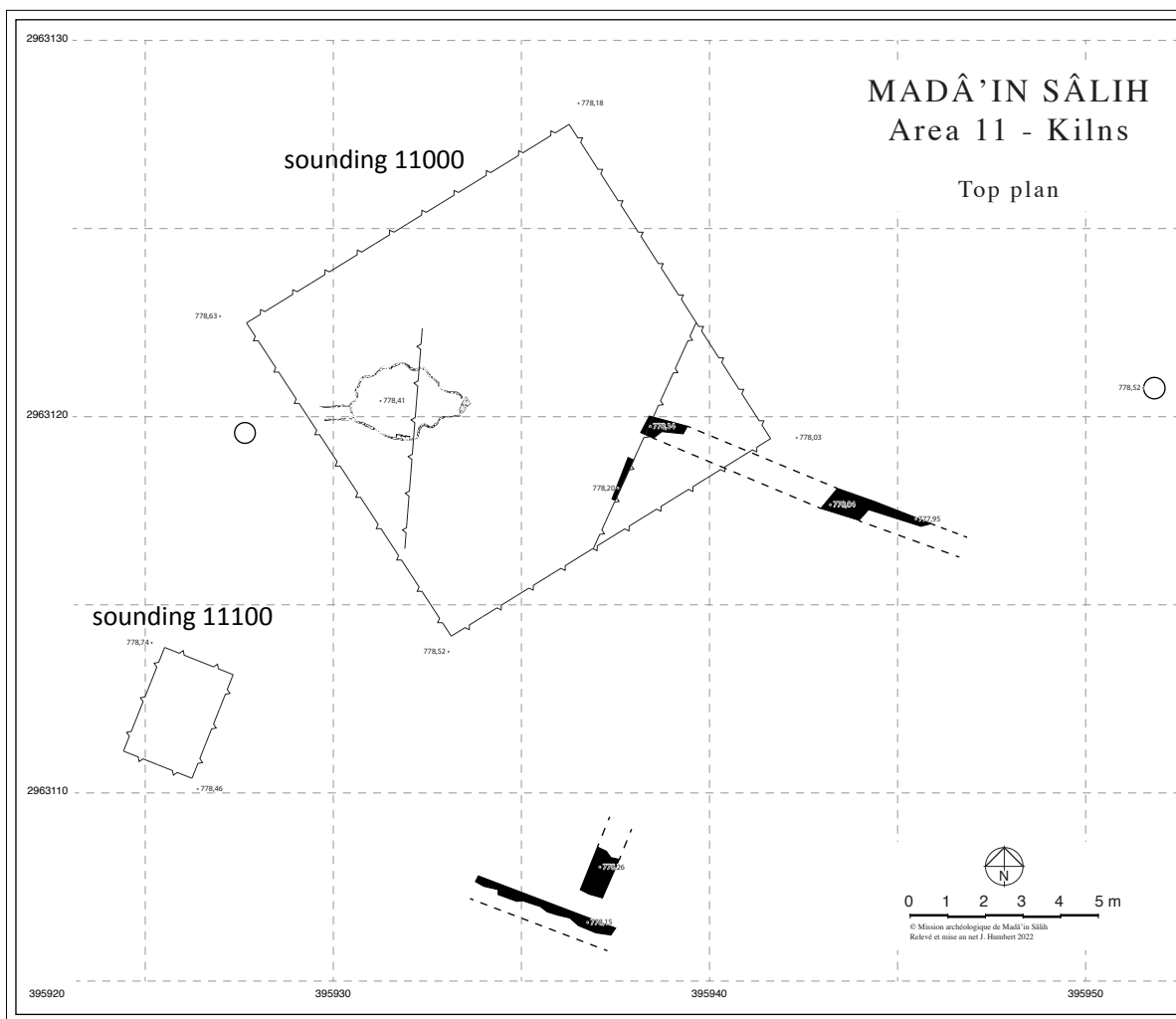


Fig. 3. Plan of trench 11000 (© J. Humbert, MSAP).

Sector 11000 (no. 7 fig. 1)

In a 10 m² trench (**fig. 3**) we were able to uncover a circular kiln (11007), 2 m in diameter, with a firebox opening toward the east (**fig. 4–5**).

The kiln floor was not preserved *in situ* but was found collapsed in the sounding carried out inside the kiln. It was made of raw mud-bricks, with a wall 0.60 m thick (11008). The sounding did not reach the bottom of the heating chamber and the firebox because these were more than 1 m down. The walls of the heating and firing firing chambers were probably not protected by luting,

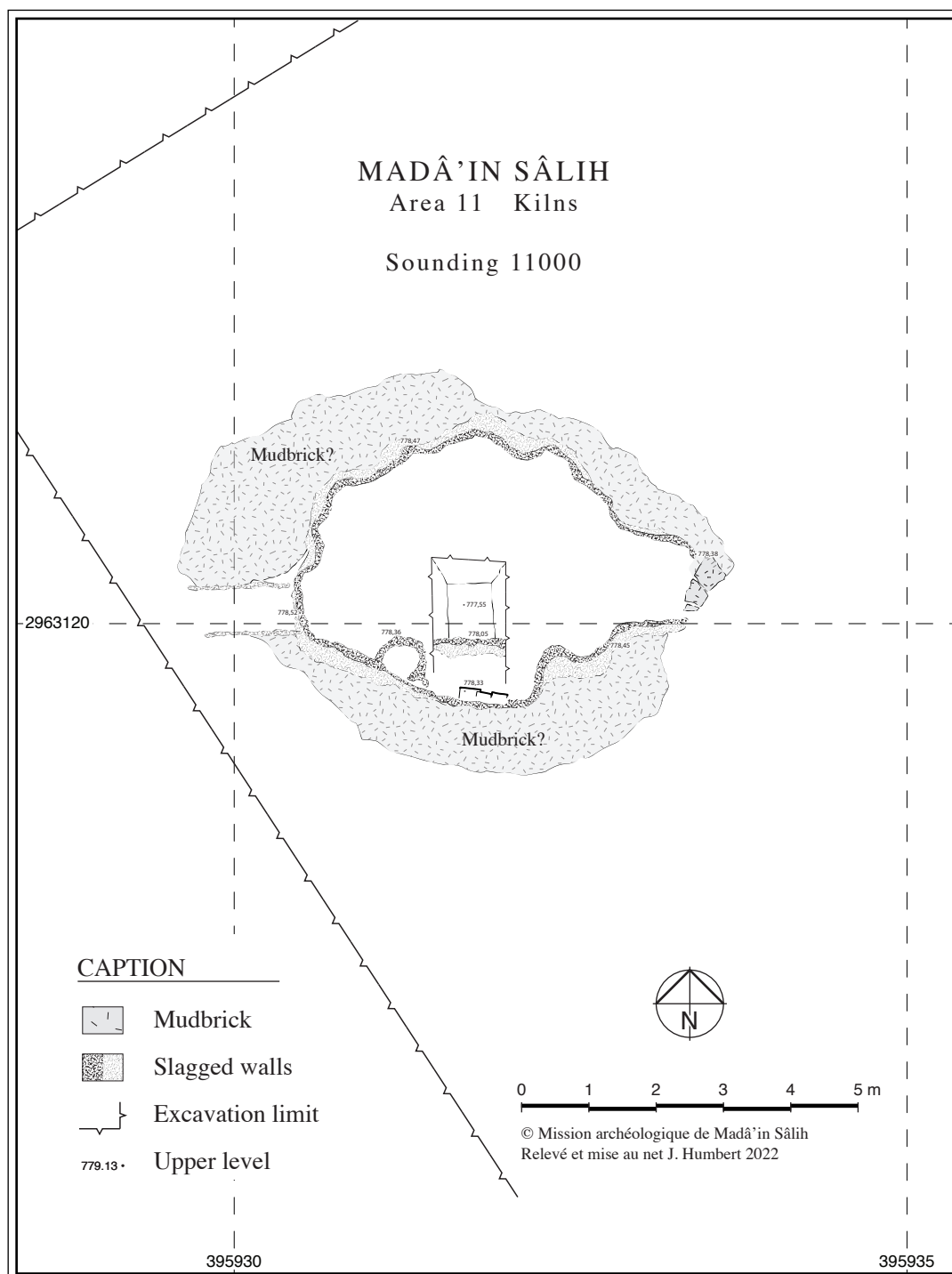


Fig. 4. Plan of kiln 11007 (© J. Humbert, MSAP).



Fig. 5. Drone view of kiln FR 11007 (© E. Botte, MSAP).



Fig. 6. Detail of a vitrified kiln wall fragment (© E. Botte, MSAP).



Fig. 7. Detail of the surface of locus 11006, dismantling/destruction level of the firing chamber (© E. Botte, MSAP).

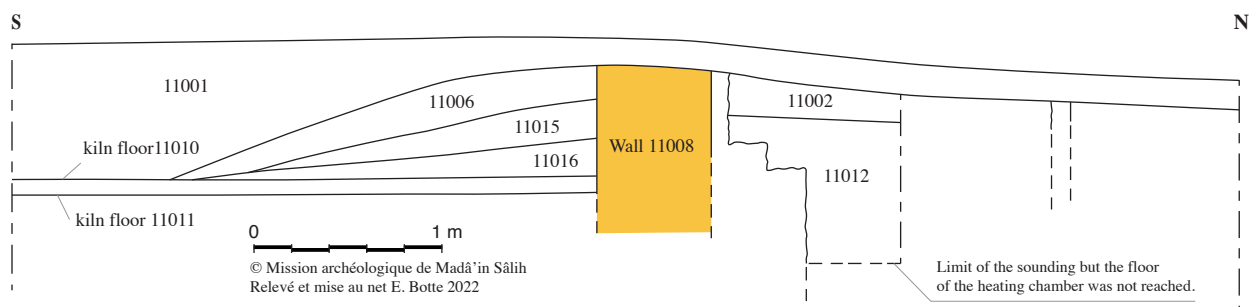


Fig. 8. South–north section of kiln FR 11007 (© E. Botte, MSAP).



Fig. 9. Drawing of vessel 11001_P26 (© MSAP).

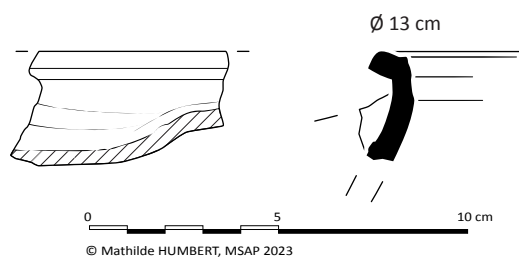


Fig. 10. Drawing of vessel 11001_P31 (© MSAP).

as observable on other pottery kilns, and thus the mud-brick wall in contact with the fire melted several centimeters deep (fig. 6).

We can conclude from this type of construction that the firing chamber, which was not protected against high temperatures during the firing of the vessels, was destroyed after each batch. This hypothesis is confirmed by the presence of two levels of destruction (*loci* 11006 and 11016), both with large quantities of melted kiln walls (fig. 7–8).

In the immediate vicinity of the firebox, in the northern corner of the sounding, there was a large layer of charcoal (*locus* 11009), which must correspond to one of the systematic clearings of the firebox. A sample taken from this level, part of which was radiocarbon dated, yielded 22 MNIs (minimum number of individuals), mostly from cereals and charcoal fragments of angiosperms and Amaranthaceae (C. Bouchaud study). Two other samples, taken from the 11006 and 11013 destruction levels, yielded the same profiles of cereal remains, while *locus* 11013 yielded charcoal composed primarily (81 out of 100) of date palm.

As for the pottery discovered in this trench, studied by C. Durand and Y. Gerber, *locus* 11001 yielded 962 fragments, consisting in part of wasters produced in the kiln. These essentially constitute a pithos (11001_P26) (fig. 9) and a jar (11001_P31) (fig. 10). The dating proposed by the ceramologists for these two items is the 1st/2nd centuries CE.

From the analysis of the furniture from the 11006 destruction layer (855 fragments), which suggests a 2nd century CE date, it must be concluded that kiln 11007 ceased to be active after this period.

Sector 11200 (nos 3–4 fig. 1)

Approximately 100 m south of the first trench, a second trench 4 m wide was opened. As with the 11000 trench, the surface of the area was covered with wasters and kiln fragments. The trench revealed the presence of two kilns in the northern and southern parts of the trench (fig. 11–12). The first (11203) is the best preserved. Rectangular in plan, its visible dimensions are 2.40 x 1.40 m, with the wall of the heating chamber 0.40 m thick. We can reconstruct a kiln approximately 3 m long and 2 m wide. The kiln floor (*locus* 11209), partially preserved at the bottom of the kiln (over about 0.50 m), rested on raw mud-brick pillars built at the same time as the sides of the walls. The kiln firebox, located outside the limits of the trench, opened to the east. As in the case of kiln 11007, the firing chamber of the vessels was not permanent and was dismantled after each batch.

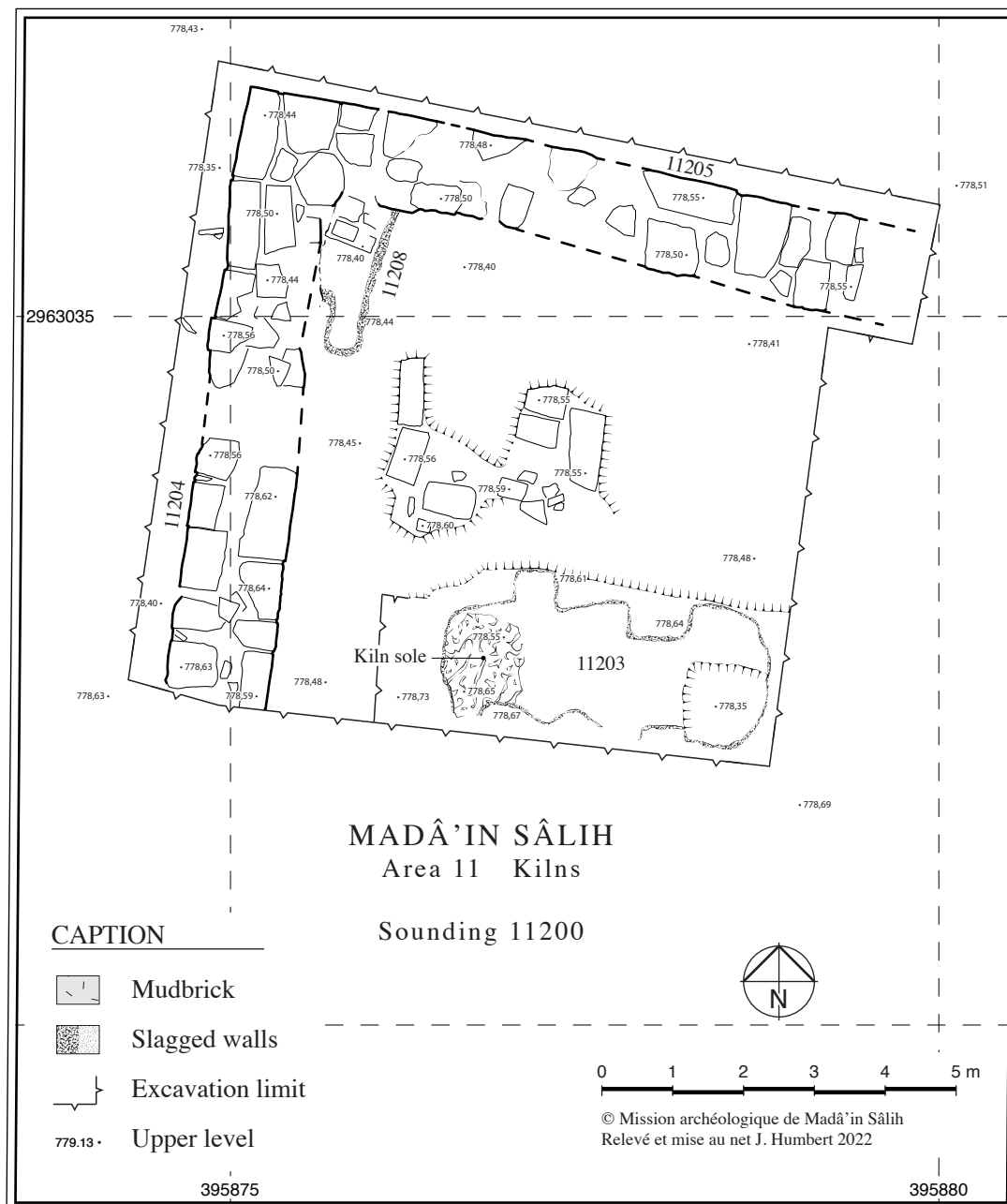


Fig. 11. Plan of trench 11200 (@ J. Humbert, MSAP).

In the northwest corner of the trench, another kiln was found (11208). It is, however, very poorly preserved as it was cut by two walls (11204 and 11205). On the plus side, this shows that the area was modified at least after the use of the kiln. It differs in this respect from kiln 11007, which was installed in an area that apparently was not modified after its abandonment.

In addition, a thick layer of charcoal (*locus* 11211) was unearthed at the entrance to the kiln (**fig. 13**). A sampling of the whole of this level allowed the palaeobotanists to establish that it consisted essentially of the remains of *Amaranthaceae*, a small bush growing in the sandy plains and already well attested over the whole site. A radiocarbon date for the charcoal is still to come. The ceramological analysis established that the misfires discovered (at least 26 identified fragments) in *locus* 11201 belong to pithoi, culinary pottery (11201_P06 and P07) (**fig. 14–15**) and fine pottery (11201_P08) (**fig. 16**). The proposed date for this lot of pottery is the 2nd/3rd centu-



Fig. 12. Drone view of trench 11200. In the southeast corner is the rectangular kiln FR 11203, while in the northwest corner kiln FR 11208 appears cut by the 11204 and 11205 walls (© E. Botte, MSAP).



Fig. 13. Detailed view of locus 11211 (© E. Botte, MSAP).

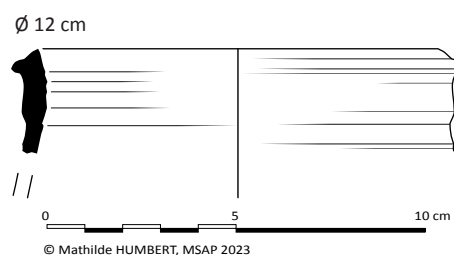


Fig. 14. Drawing of vessel 11201_P06 (© MSAP).

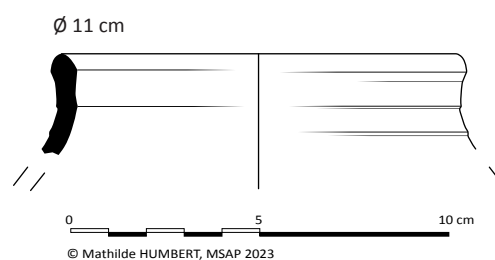


Fig. 15. Drawing of vessel 11201_P07 (© MSAP).

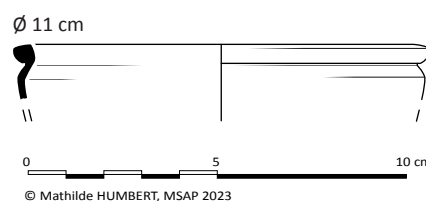


Fig. 16. Drawing of vessel 11201_P08 (© MSAP).

ries CE. However, there is a fused pottery mass comprising at least seven superimposed pottery objects (11201_P09), whose proposed date is the 4th century CE. This indicates that the kilns in this area were in use over approximately two centuries.

Sector 11300 (no. 1 fig. 1)

We have finally carried out the surface cleaning of a third kiln (11301). Also of a rectangular plan, it is characterized by the fact that the kiln floor (11302) showed on the surface with and still contained melted vessels fused to its surface (*locus* 11303) (**fig. 17**). Based on the initial clearances, the firing chamber appears to be 2.60 × 1.30 m.

We do not have ceramological data on the possible dating of this kiln.



Fig. 17. View of the kiln floor of kiln 11301. The wasters from the last batch are still in situ (© E. Botte, MSAP)

Conclusion

At the end of this first season on the pottery kilns of Hegra, several elements are worth noting. Pending the radiocarbon dates on the charcoal discovered in sectors 11000 and 11200, which will refine the chronology, it seems that the uncovered kilns all share the characteristic of having non-permanent firing chambers built of raw mud-bricks and dismantled/destroyed after each batch. The two uncovered kilns (11007 and 11203) open to the east. The first is a circular kiln dating from the 1st/2nd centuries CE, while the second one is rectangular and dates from the 2nd/3rd centuries. In future investigations it will be worth noting if the kiln shape constitutes a chronological element or if it is simply a random aspect of the finds. The kiln shape could in fact simply depend on the type of objects that were fired in it. It is too early to decide between these two hypotheses at this stage.

Pottery Report, 2023 season

Yvonne GERBER (University of Basel), Caroline DURAND (Associate member, CNRS-HiSoMA), Muzhira AL-QAHTANI (King Saud University, Heritage Commission)

The goal of the Madâ'in Sâlih 2023 study season, under the responsibility of Yvonne Gerber and Caroline Durand, was to finish all the not-yet-studied pottery of the previous campaigns and to discuss and finalize our common understanding of those pottery assemblages which will be published in Volume 1 (Pre-Nabataean and Nabataean periods) and Volume 2 (2nd–5th century CE). We were assisted by Muzhira al-Qahtani, who was trained to sort the pottery material, and Mathilde Humbert, who was in charge of the visual documentation.

The pottery study of MS 2023 focused on following areas:

- Pottery from the kilns (Area 11, 2 boxes, excavated in 2022);
- Pottery from the Roman fort (Area 34, some boxes from 2021 and all boxes with surface pottery);
- Pottery from Area 6 (a few boxes from the years 2017 and 2020);
- Pottery from Area 92 (2 boxes, from the years 2021 & 2022);
- Pottery from Area 36 (excavated in 2022, and a few boxes from 2021).

Area 11 – The pottery kilns

During the 2022 season, four areas located in the northern part of the residential area and previously identified as potential pottery kilns have been investigated. Three of them, numbered 11000, 11200, and 11300, revealed remains of kilns (Botte 2022). However, no structures were discovered in the fourth zone, numbered 11100.

In the Area 11000, *loci* 11001, 11002 and 11003 show a mix of jar fragments and wasters. Typical kiln wasters (11001_P26, 11001_P33) and misfired rim sherds (e.g., rim 11001_P31) were mainly found in *locus* 11001 (**fig. 1**). The jars can be dated between the 1st and the 2nd century CE. *Locus* 11006 corresponds to the dismantling/destruction of the firing chamber of kiln 11007. The pottery material includes a few slaggy sherds as well as a few body sherds with purple patches. However, the rest of the pottery do not show evidence of misfiring or overfiring, and no clear wasters could be identified. Based on the diagnostics, the majority is more likely dated to the 2nd century CE, mixed with earlier elements (pre-Nabataean and Nabataean periods).

The pottery coming from *locus* 11101, which is not related to any kiln structure, can be dated between the late 1st century BCE and the first half of the 1st century CE. Three very worn late sherds are probably intrusions.

Lastly, the pottery material coming from the clearing of Area 11200, from *locus* 11201, although previously thought to be dated to the same period than the first two areas, seems later. The diagnostic sherds can be dated to the 2nd–3rd century CE, while the large waster formed by melted vessels could be dated even later, maybe to the 4th century CE.

In conclusion, it seems that the excavated pottery kilns from the 2022 season were mainly in use after the Nabataean period. A selection of wasters and misfired ceramic samples have been taken to clarify the technical firing processes during ceramic production (see fig. 1).

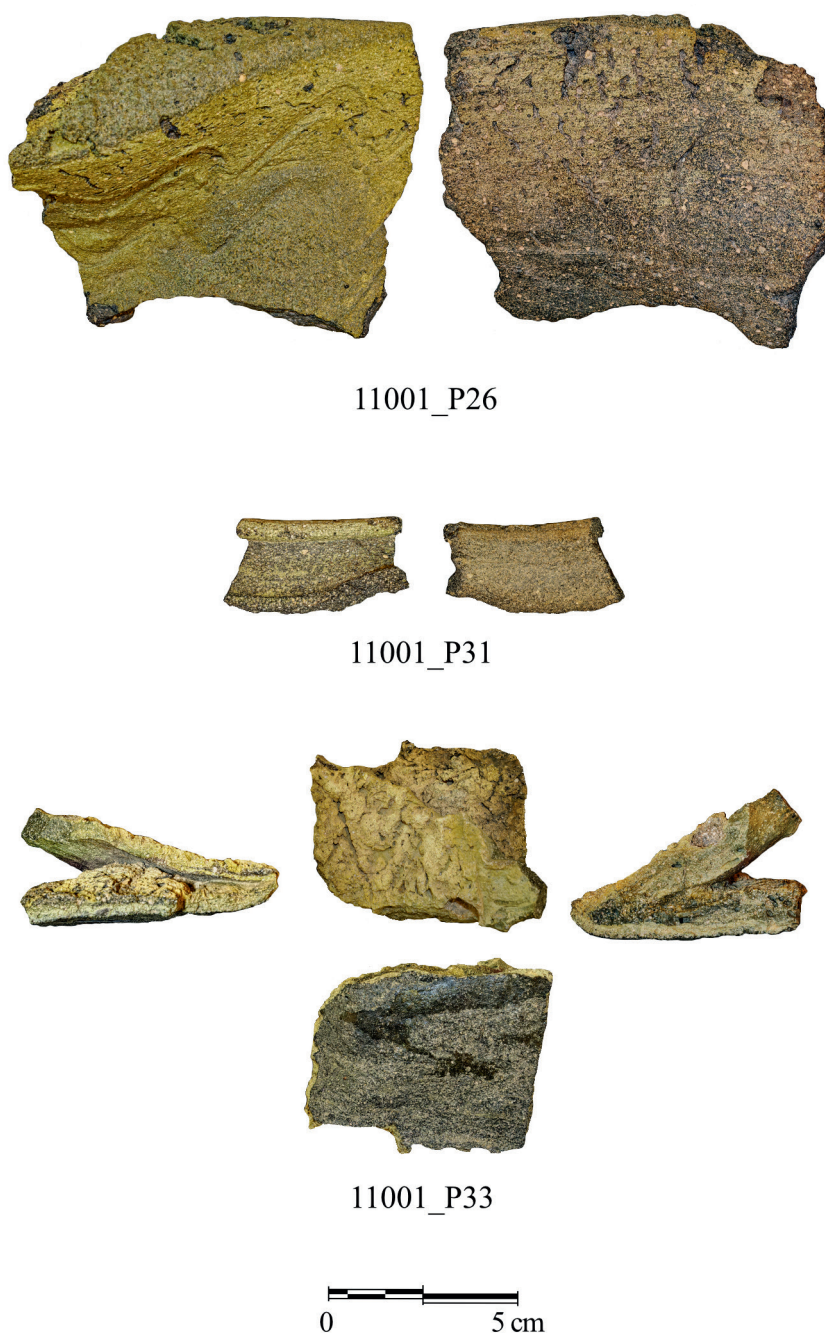


Fig. 1. Area 11

Area 34 – The Roman fort

For Area 34, the 2023 season focused on two topics: chronology and area review. First, it was necessary to delve deeper into the matter of being able to distinguish between 2nd and 3rd century CE ceramic forms and fabrics. Secondly, the completion of all ceramic reviews of the Roman military fort implied data reviews, including the remaining surface *loci*. The latter has been completed, while the former is still in progress and will probably only be completed after a careful re-examination of the pottery in coordination with the stratigraphy in the preparation of the pottery from Area 34 for the final publication (either Pottery Volume 2 or Volume ‘Roman military fort’).

A small glimpse into two *loci* from Area 34 may exemplify the similarities and differences between the 2nd and 3rd century CE local pottery. The pottery from *locus* 34582 (see Fiema 2022: 69 fig. 10; 88 fig. 42) may be dated to the 2nd century CE with a probable extension into the first half of the 3rd century (fig. 2; scale 1:3). A strainer-neck jug fragment (34582_P01), a cooking pot with long, inverted neck and bevelled (triangular) rim (34582_P02), cooking pots with short, convex neck and thickened rounded rim (34582_P03–34582_P05), a bowl with everted rim (34582_P06), a kind of globular bowl, but rather thick-walled (34582_P07), and a deep carinated bowl with angular rim, grooved on top (34582_P08), form a pottery assemblage with vessels for preparing, cooking and storing food. As of this writing, the date of the present assemblage is seen as more likely in the 2nd to early 3rd century than late 3rd century CE. The date of *locus* 34571 (fig. 3; scale 1:3) in Room XXI (see Fiema 2022: 88 fig. 42; 108), however, with a large *pithos* fragment with two handles (34571_P02, different scale), two large, rather thick-walled bowls (34571_P05, 34571_P11), cooking pots (34571_P07, 34571_P08), a jug with a long, outcurved neck and triangular rim (34571_P09), and a small pilgrim flask rim fragment (34571_P10) seems to be slightly later, (late 2nd to) 3rd century CE. Besides that, the composition of the pottery assemblage of *locus* 34571 is slightly different, the rather thin-walled cooking pot 34571_P07 (compare with Durand 2022: 204 fig. 1, 34518_P13) and jug 34571_P09 are clear indicators of 3rd-century pottery, the cooking pot seems to be an import from Petra. The date of the pilgrim flask 34571_P10 may even turn into the 4th century CE.

Area 6 – *loci* 60800, 60900, 61000, 61200

Around 50 plastic bags from Area 6 from previous campaigns (2017–2020) were studied in order to finish all pottery readings of the lower terrace around the Nabataean sanctuary (see also Gazagne 2020). The dating of these ceramic collections is very similar to those of previous years. Almost all *loci* are mixed, showing a dating range from the 1st century CE to the last occupation phase of the site (early 5th century CE). Nevertheless, for the final publication the ceramic assemblages must be carefully checked against the diagrams of this area (e.g., Gazagne 2021: 38 fig. 4, 44 fig. 17, 49 fig. 29, 54 fig. 40, 62–64 fig. 53).

Area 9 – *loci* 92000

The pottery excavated in Area 9 during the seasons 2021 and 2022 (Blanc 2022) remained to be studied. It consisted mainly of very small bags, sometimes very difficult to date. In the absence of

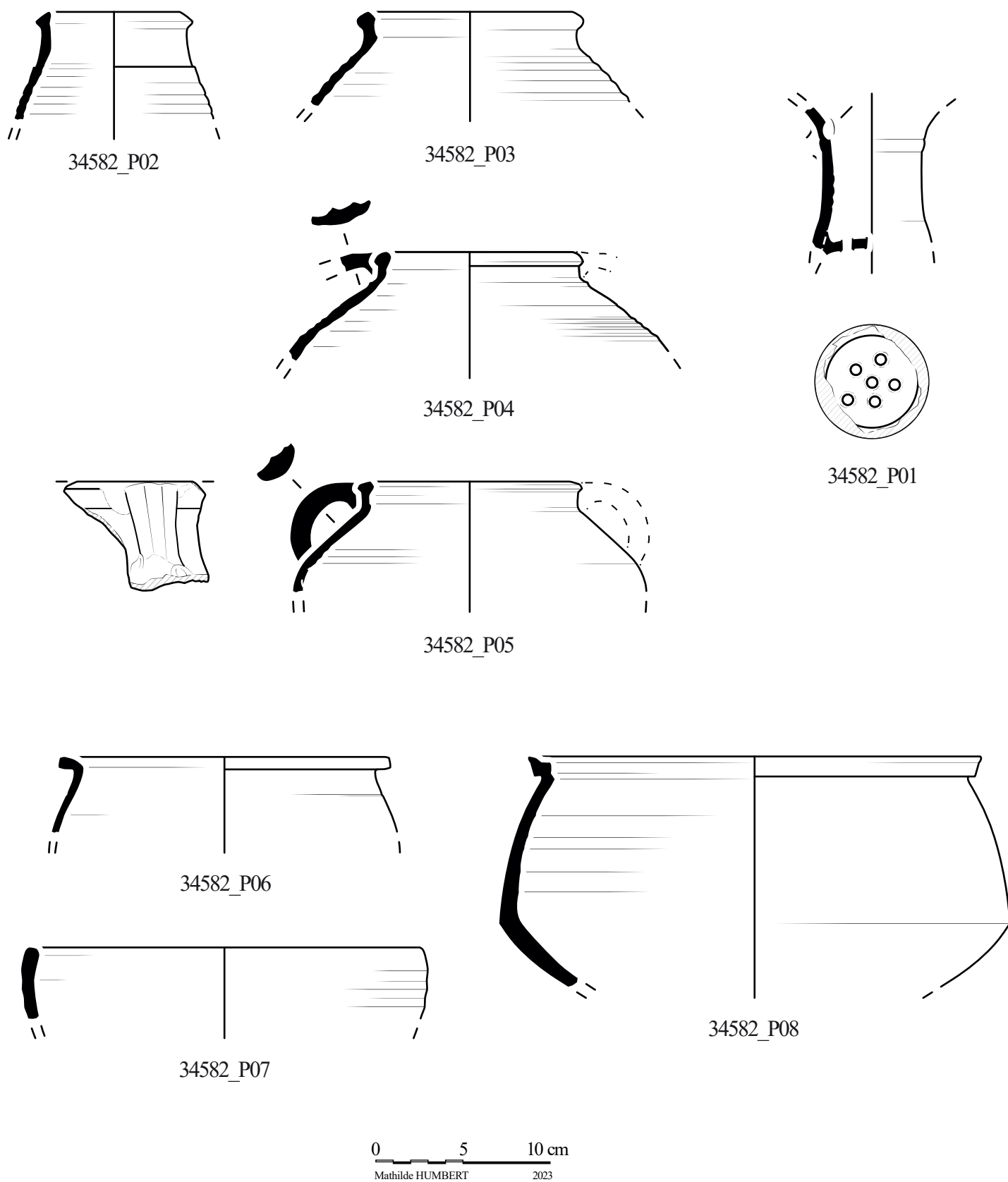


Fig. 2. Locus 34582

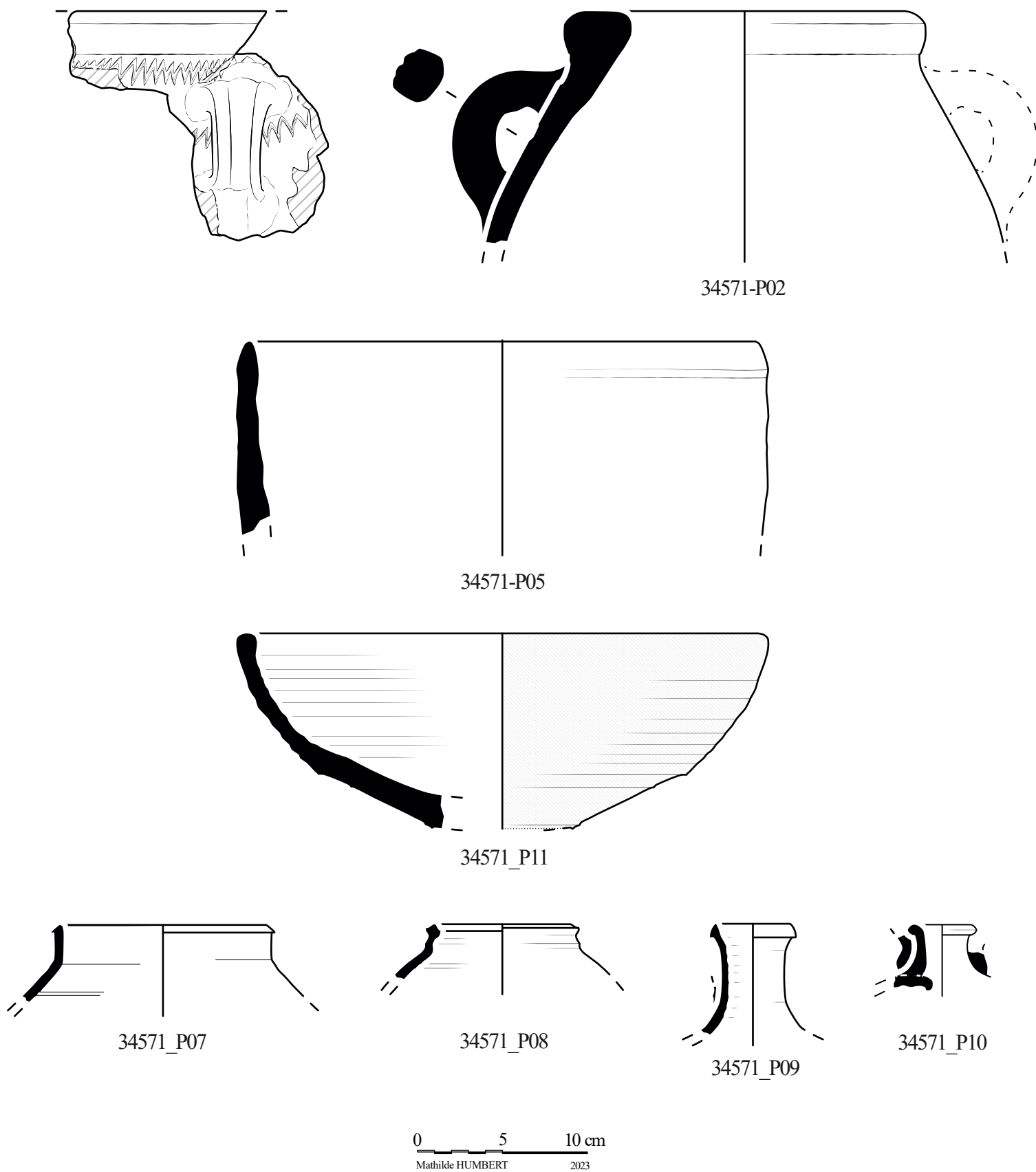


Fig. 32. Locus 34571

clear diagnostics, the dating had often to rely only on the fabric of the sherds. In the upper levels, a trough (*loci* 92097, 92098 and 92099) could be dated to the late occupation phase, probably around the 4th – early 5th century CE. A few *loci* (92233, 92242, 92507, 92527, 92537) could be dated to the same period, but most of the pottery material was mixed, with elements going from the pre-Nabataean period to the last occupation phase. In the lower layers excavated in 2022, a few homogeneous Nabataean layers have been identified: *loci* 92674, 92801, 92811, 92831, 92832, 92833 & 92834. They will be included in Volume 1.

Area 36

In Area 36, excavated in 2021 and 2022 (Al-Musa et al. 2022), a very homogeneous Nabataean context (*locus* 36576) which included almost 40 diagnostic sherds, has been documented, as well as two pre-Nabataean layers (*loci* 36575 and 36580). They will also be included in Volume 1. The large part of the investigated *loci*, however, shows mixed ceramic assemblages, with a dating range from the Nabataean period to the 4th century CE. Interestingly, the very last occupation phase (mid-4th to mid-5th century CE) of the site, as found, e.g., in the Roman fort area, seems to be missing in Area 36.

At the end of the season, 3 additional boxes of so-called ‘isolated sherds’ (which means: all important diagnostics, exceptional pottery items etc.) have been handed over to Jonathan Wilson (RCU).

- One box, *sherds drawn, but to be photographed*
- One box, *photo only*
- One box, *sherds to be drawn and photographed*

Lastly, in order to facilitate the future reorganization of the storage rooms in the museum, it was decided to label all the boxes:

- Red = The boxes labelled in red (> 109 boxes) contain studied body sherds. Those might be removed from the main storage room and, if necessary, reburied on the site.
- Yellow = The boxes labelled in yellow (> 94 boxes) should be kept inside the storage room of the museum. They contain all the diagnostics and complete vessels that we have studied and documented since 2008. We may have to return to these boxes in the coming months/years to complete the ongoing final publications. Among them, there are 35 boxes with a single yellow label that still need to be discussed with Laïla Nehmé to decide whether they should be kept or not.

The pottery database Hegra 2023 (FileMaker application) contains all relevant data to the studied pottery assemblages. There are preliminary data and *locus* datings and should not be taken as final conclusions. The pottery database is a working document and is not regularly updated despite of the evolution of our knowledge.

At the moment we see the study of the pottery from the Hegra excavations as finished. In the coming years we focus on the publication of the two volumes.

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Survey of the Arabic Islamic Inscriptions in the Jabal Ithlib. Preliminary Report

Maher AL-MUSA (Heritage Commission, MoC)

This is a preliminary report on the Arabic inscriptions from the Islamic period surveyed in the Jabal Ithlib area at Hegra (al-Ḥijr/Madā'in Šālih). The survey began in 2017 and was followed by two additional field seasons, in 2018 and 2023. The reason for launching this survey was obvious: obtain at last—after a failed attempt in 2004 by a member of the MSAP team who never submitted a report despite several reminders—a catalogue of the Arabic inscriptions from the Jabal Ithlib, by far the place where the concentration of these inscriptions is the highest. Besides, it seemed very important to document the Islamic period at the site, especially since the latter is so far absent from the excavations. Finally, the contents of these inscriptions has a cultural, religious, and economic interest, and it is possible to examine through them the role of al-Ḥijr as a station on the Levantine pilgrimage route (the *darb al-ḥajj al-shāmī*) which connected the Levant to the cities of Mecca and Medina.

During the 2017 season, an exploratory tour in and around the Ithlib mountain was carried out in order to evaluate the quantity of Islamic inscriptions and set up a methodology. During the following two seasons, each inscription was properly recorded and photographed.

The Jabal Ithlib

Jabal Ithlib is located north-east of Hegra. It consists of two north-west to south-east parallel ranges of huge, very high, sandstone rock massifs separated by mountain rifts or faults known as *mathālib*,¹ from which the mountain's name derives. A wadi separates them and flows from south-east to north-west down to the narrow pass which now forms the entrance of the so-called Sīq.

Jabal Ithlib is a unique natural formation and it contains many Nabataean rock-cut monuments, the most famous of which is the so-called Dīwān, a large *triclinium* widely open on the outside. Others include several open-air *triclinia* and a number of niches, some of which contain up to three betyls. The area was supplied with water through an ingenious hydraulic installation consis-

1. Ibn Manẓūr, *Lisān al-'arab*, s.v.

ting of a natural water reservoir, two rock-cut canals, and a plastered rock-cut cistern, all linked to each other. Inscriptions in other scripts and languages include Thamudic D, Dadanitic, and Nabataean, all previously surveyed and studied by the MSAP.

Historical background

In this report, we will focus on the Islamic period, which is the least known of the site then known as *al-ḥijr*, a name which is the exact equivalent of the Nabataean name *ḥgr'* (Ḥijrā) since the Arabic definite article *al-* placed before *ḥijr* corresponds to the Aramaic definite article *'/ā* placed after it. It is well known that Hegra was an important stop on the so-called incense trade route, particularly in the first century BCE and the first century CE, when it was under Nabataean control. At the dawn of Islam, in 7 AH, Muslim troops conquered Wadi al-Qurā. In 9 AH, Prophet Muhammad went through al-Ḥijr on his way to lead the Battle of Tabūk. Following the expansion of Islam, the old trade route that passed through al-Ḥijr witnessed a revival of activity because it was followed by caravans of pilgrims coming from the Levant and other regions and heading to Mecca and Medina. It became known as the *Darb al-Ḥajj al-Shāmī*, also as the “*Tabūkiyyah*” because it went through Tabūk. Al-Ḥijr remained a stop where pilgrims could rest and be supplied with food and water. In the 9th century AH, al-Ḥijr was named in one of the sources as *Madā'in Ṣāliḥ*, after one of its governors named Ṣāliḥ. The latter was one of the descendants of 'Abbās ibn 'Abd al-Muṭṭalib (al-Anṣārī 2005). Al-Ḥijr is mentioned by many historians and travellers, among whom al-Ḥasan ibn 'Abdallah al-Isfahānī (died in 311 AH), Muḥammad ibn Aḥmad al-Muqaddasī (died in 380 AH), 'Alam al-Dīn al-Barzālī (died in 739 AH), and al-Ḥasan al-Dimashqī (died in 779 AH).

In the Ottoman period, during the reign of the Sultan Abdülhamid II, the *Ḥijāz Railway* was built along the Levantine pilgrimage route. It was achieved in 1908, when the railway reached Medina, and al-Ḥijr was a major station because it was a maintenance and repair centre. Traces of the Levantine pilgrimage route are still visible in al-Ḥijr, the most important being an imposing fort, a well, and a reservoir pond.

The Arabic inscriptions from the Jabal Ithlib should now be added to the available sources. Their calligraphy varies according to the period during which they were written. Their contents is also interesting and provides new information on those who were present in al-Ḥijr.

Survey plan and methodology

To ease the recording of the inscriptions, the Jabal Ithlib was divided into three areas (**fig. 1**). The 2017 season was devoted to surveying the northwestern section of the Jabal. In this section, most of the Islamic inscriptions are concentrated on each side of the entrance to the *Sīq*, inside the *Dīwān triclinium*, on the cliffs flanking the *Sīq*, in the area surrounding the cistern, and on the rock face in front of it.

In 2018, the southwestern section of the Jabal Ithlib was surveyed, and many inscriptions were recorded there. Some are easily accessible while others are very high and are therefore more difficult to read. They are concentrated north and south of the rock-cut Nabataean small sanctuaries on the west side of the wadi which divides the Jabal Ithlib in two parts. One also finds them on the rocks flanking the natural reservoir which provides water to one of the canals that feeds

one of the canals which brings water to the Nabataean cistern (MsAr33). Finally, there are some inscriptions outside the Jabal, on its west side, as well as in the area of the quarry south-west of it. In 2023, scattered rock massifs located east of the Jabal were surveyed. They contain much fewer inscriptions than the three other areas.

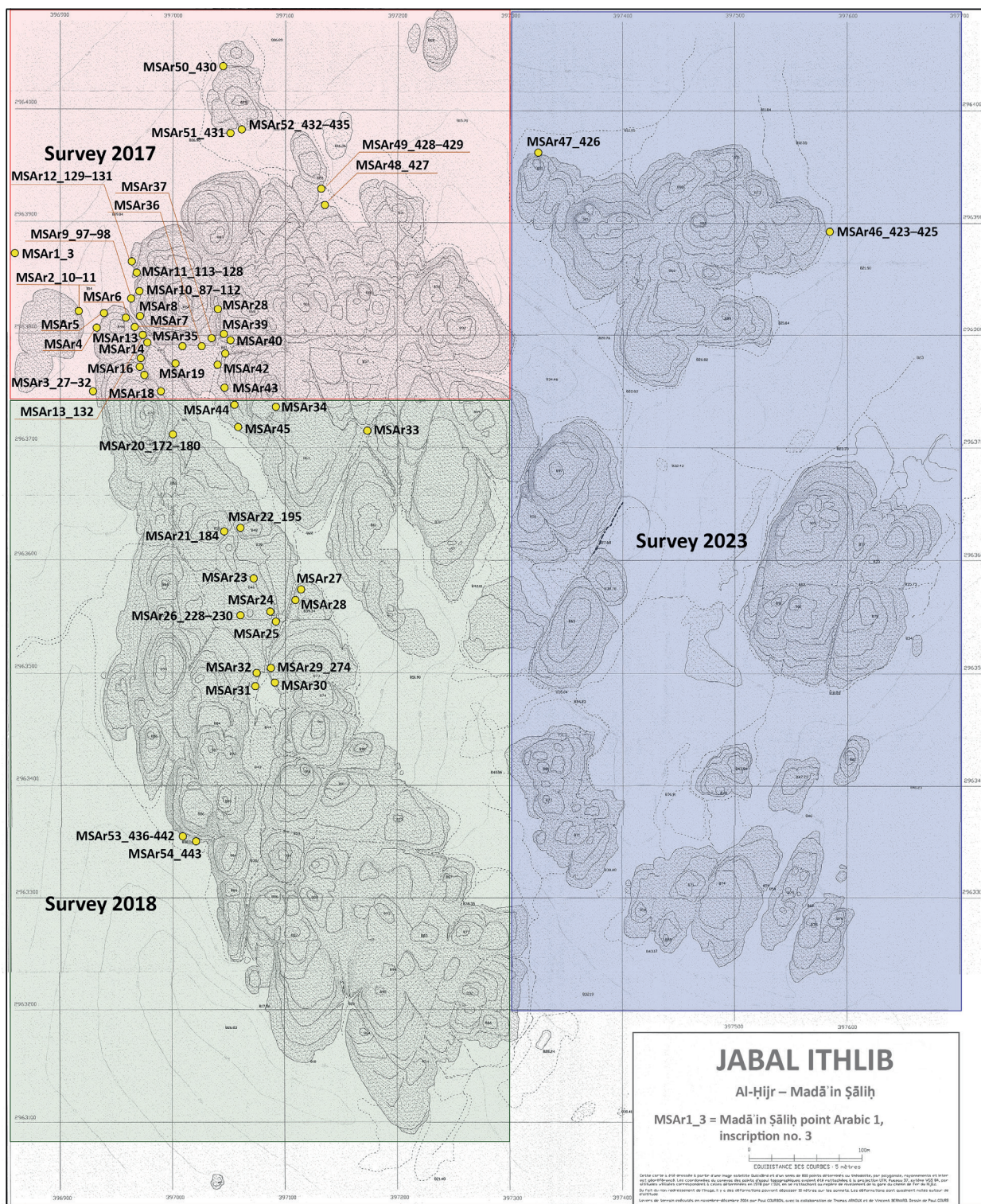


Fig. 1. The Jabal Ithlib and the areas surveyed in 2017, 2018, and 2023.

The recording of the inscriptions followed several steps. The first was to collect information on the Levantine pilgrimage route in the historical, geographical, and literary sources, and to identify the inscriptions which had previously been recorded. The second was to undertake the survey itself, locate and number the epigraphic points, determine the number of inscription(s) each one contains and number the latter. The third was the study of the inscriptions themselves: palaeography, type of incision, number of lines, reading, translation, date, personal names, commentary. The fourth, and last step, was the search for parallels in neighbouring sites of the pilgrim road or further away.

General statistics

Between 2017 and 2023, 443 Arabic inscriptions from the Islamic period were recorded, distributed in 54 epigraphic points (see the table below and the map fig. 1). This is much more than the inscriptions recorded so far, in particular by H. al-Kilābī.² The reasons that explain the concentration of Arabic Islamic inscriptions in the Jabal Ithlib may be found in the availability of water, in the fact that it offers large shaded areas and is therefore suitable for resting in summer. One may also mention the fact that the ancient caravan route itself ran a few hundred metres to the east.

Points	Inscript. nos	Full number	Points	Inscript. nos	Full number
Pt. 1	1–9	MSAr1_1 to MSAr1_9	Pt. 28	257–266	MSAr28_257 to MSAr28_266
Pt. 2	10–26	MSAr2_10 to MSAr2_26	Pt. 29	267–275	MSAr29_1267 to MSAr29_275
Pt. 3	27–32	MSAr3_27 to MSAr3_32	Pt. 30	276–278	MSAr30_276 to MSAr30_278
Pt. 4	33–36	MSAr4_33 to MSAr4_36	Pt. 31	279–293	MSAr31_279 to MSAr31_293
Pt. 5	37–45	MSAr5_37 to MSAr5_45	Pt. 32	294–300	MSAr32_294 to MSAr32_300
Pt. 6	46–49	MSAr6_46 to MSAr6_49	Pt. 33	301–324	MSAr33_301 to MSAr33_324
Pt. 7	50–59	MSAr7_50 to MSAr7_59	Pt. 34	325–327	MSAr34_325 to MSAr34_327
Pt. 8	60–67	MSAr8_60 to MSAr8_67	Pt. 35	328–333	MSAr35_328 to MSAr35_333
Pt. 9	68–86	MSAr9_68 to 86	Pt. 36	334–343	MSAr36_334 to MSAr36_343
Pt. 10	87–112	MSAr10_87 to MSAr10_112	Pt. 37	344–352	MSAr37_344 to MSAr37_352
Pt. 11	113–128	MSAr11_113 to MSAr11_128	Pt. 38	353–377	MSAr38_353 to MSAr38_377
Pt. 12	129–131	MSAr12_129 to MSAr12_131	Pt. 39	378–380	MSAr39_378 to MSAr39_380
Pt. 13	132–137	MSAr13_132 to MSAr13_137	Pt. 40	381–382	MSAr40_381 to MSAr40_382
Pt. 14	138–140	MSAr14_138 to MSAr14_140	Pt. 41	383–387	MSAr41_383 to MSAr41_387
Pt. 15	141–142	MSAr15_141 to MSAr15_142	Pt. 42	388–397	MSAr42_388 to MSAr42_397
Pt. 16	143–147	MSAr16_143 to MSAr16_147	Pt. 43	398–416	MSAr43_388 to MSAr43_397
Pt. 17	148–167	MSAr17_148 to 167	Pt. 44	417–420	MSAr44_417 to MSAr44_420
Pt. 18	168–171	MSAr18_168 to 171	Pt. 45	421–422	MSAr45_421 to MSAr45_422
Pt. 19	Unclear	—	Pt. 46	423–425	MSAr46_423 to MSAr46_425
Pt. 20	172–180	MSAr20_172 to MSAr20_180	Pt. 47	426	MSAr47_Ar426
Pt. 21	181–190	MSAr21_181 to MSAr21_190	Pt. 48	427	MSAr48_427
Pt. 22	191–198	MSAr22_191 to MSAr22_198	Pt. 49	428–429	MSAr49_428 & MSAr49_429

2. She recorded eight inscriptions from the Dīwān and the Sīq in her PhD.

Pt. 23	199	MSAr23_199	Pt. 50	430	MSAr50_430
Pt. 24	200–217	MSAr24_200 to MSAr24_217	Pt. 51	431	MSAr51_431
Pt. 25	218–227	MSAr25_218 to MSAr25_227	Pt. 52	432–435	MSAr52_432 to MSAr52_435
Pt. 26	228–232	MSAr26_8 to MSAr26_232	Pt. 53	436–442	MSAr53_436 to MSAr53_442
Pt. 27	233–256	MSAr27_233 to MSAr27_256	Pt. 54	443	MSAr54_443

The contents of the inscriptions

The texts can be divided into two categories: commemorative and religious. They reflect the cultural and linguistic background of their authors as well as their religious vocabulary repertoire. The commemorative inscriptions include the personal names of their authors often, but not always, followed by their father's name, and sometimes the name of the clan or tribe to which they belong (**fig. 2**). A few inscriptions contain place names which may be the birthplace of the author or the place where he came from. This is the case MSAr2_10 in which the city of Ḥamāt, in northern Syria, is mentioned (**fig. 3**).

There are numerous inscriptions with a religious contents. These include, in addition to the name of the authors, a number of formulae among which the following: request for forgiveness, assertion of monotheism (**fig. 4**), trust in Allah (**fig. 5**), belief in Allah (**fig. 6**), holding fast to Allah, relying on Allah, requesting repentance, seeking refuge in Allah by fear from hell, seeking paradise, seeking mercy, hope in Allah, praising Allah (**fig. 7**), supplication for believers (men and women), and blessings upon Prophet Muhammad. Some early Islamic ones include other formulae such as “in Allah is my relief”, “Allah is my Lord”, “Allah is the protector of Zayd” (**fig. 8**), in addition to inscriptions that only mention “Allah”.



Fig. 2. Inscriptions MSAr9_97–98, carved left of the Dīwān. The bottom one reads:

أنا عبد الله بن طريف الجهني ثم المالكي
'anā 'abdallāh bin ṭarīf al-juhanī ṭumma
al-mālikī, “I am 'Abdallāh bin Ṭarīf al-Ju-
hanī, then al-Mālikī”.



Fig. 3. *Inscriptions MSAr2_10 and 11.* The upper one reads: اللهم اغفر لجاد بن هلال التنوخي ولأهل حماة آمين رب العالمين من المسلمين allāhummma ḡfir li jād bin hilāl al-tanūḫī wa li 'ahl ḥamāt 'āmīn min al-muslimīn, "Oh Allāh, forgive Jād bin Hilāl al-Tanūḫī and the inhabitants of Ḥamāt, Amen, Lord of the Worlds of the Muslims". The lower one reads: عمرو بن بكار يثق بالله والقاسم ابنه amrū bin bakkār yaṭīqu billāh wa al-qāsim ibnuhu, "Amr bin Bakkār trusts in Allāh, and al-Qāsim his son".



Fig. 4. *Inscription MSAr1_3.* It reads: يشهد أبو هريرة بن إسماعيل ألا إله إلا الله yašhadu 'abū hurayrah bin 'ismā'īl 'allā 'ilāha illā Allāh, "Abū Hurayrah bin Ismā'īl bears witness that there is no god but Allāh".



Fig. 5. *Inscription MSAr21_184.* It reads: الله ثقة حسين بن مراد Allāh ṭiqaṭ ḥusayn bin murād, "Allāh is trustworthy, Ḥusayn bin Murād".



Fig. 6. *Inscription MSAr22_195.* It reads: بالله يؤمن السائب بن مسلم billāh yu'min al-sā'ib bin muslim, "Al-Sā'ib bin Muslim believes in Allāh".



Fig. 7. *Inscription MSAr26_228–230.* It reads: الحمد للذي لا ينبغي الحمد إلا له al-ḥamdu lillaḡī lā yanbaḡī al-ḥamdu 'illā lahu, "Praise be to Him who should only be praised".



Fig. 8. *Inscription MSAr29_274. It reads: الله ولي زيد* allāh waliyy zayd, “Allāh is the protector of Zayd”.



Fig. 9. *Family inscription MSAr13_132. It reads:*

القاسم بن بكار يسأل الله النجاة من النار وأحمد بن عمرو بن بكار وبكار وإسماعيل بن سليمان
 qāsim bin bakkār yas'al allāh al-najāṭ min al-nār wa 'aḥmad bin 'amrū bin bakkār wa bakkār wa 'ismā'īl bin sulaymān, “*al-Qāsim bin Bakkār asks Allāh for salvation from hell, and Aḥmad bin 'Amr bin Bakkār, and Bakkār, and 'Ismā'īl bin Sulaymān*”.

Conclusions

The most important results of the Jabal Ithlib survey are the following:

- the inscriptions fall between the first and the fifth century AH. This conclusion is based on the personal names mentioned in the inscriptions and on the palaeography;
- none of the inscriptions is dated;
- some inscriptions are from members of the same family, whether they are carved beside each other or in the same group of texts (**fig. 9**).
- inscriptions in different locations in the Jabal are written by the same author, for example in the area of the Dīwān and further inside the massif. One name, 'Amr ibn Bakkār, is repeated eleven times in eight different epigraphic points: MSAr1_2, MSAr4_33, MSAr5_42 and 45, MSAr9_79, MSAr10_94, MSAr11_113 and 124, MSAr13_132, MSAr17_154 and 160;
- the state of preservation of the inscriptions varies according to whether they were affected or not by erosion and other natural factors such as water and wind. The inscriptions of some epigraphic points were particularly difficult to read due to weathering (e.g. points 17–19, 42–45 (**fig. 10**)).
- when inscriptions are presently very high on rock faces, one may assume that they were more easily accessible when they were carved, possibly because of the presence of sand dunes in front of them.



Fig. 10. A rock face east of the Nabataean cistern showing how erosion impacted the inscriptions.

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Archaeozoology Report

Jacqueline STUDER (Museum of Natural History of Geneva)



Fig. 1. Archaeozoology on the roof of the excavation house.



Fig. 2. Twisted horncore of a male goat with a chop mark at its base, locus 34571, post-Roman.

The 2023 season of the Madâ'in Sâlih Archaeological Project (MSAP) included the study of archaeozoological remains collected during the 2021 and 2022 excavation seasons as well as a review of the faunal assemblages from Area 6 collected in 2020 (in the so-called Nabataean sanctuary). The bones selected for review were retrieved from the Conservation Centre of the former al-'Ulâ Museum and taken to the MSAP excavation house for further selection and in-depth analysis before being returned for storage.

It was also planned to harmonise the existing faunal database and complete it with archaeological data, with the aim of proceeding towards future publications. As a result, only faunal material from homogeneous and/or well-dated archaeological contexts were dry-cleaned and analysed in detail, following the same procedure as the one applied since the first archaeozoological season I participated to, in 2010.

The choice was therefore made to focus on areas 34, 35, and 61, with the study of two boxes from the Roman fort (Area 34), several bags from Area 35 (the so-called South-east gate), two boxes from the sanctuary (Area 61) and half a box from Area 92. In the case of Area 34, the choice of *loci* was discussed

with the area supervisor, Zbigniew T. Fiema, and the two pottery specialists, Caroline Durand and Yvonne Gerber. In the case of Area 61, the choice was based on a list established by the archaeologist in charge of the Area, Damien Gazagne, coupled with the dates provided by the analysis of the pottery. The bone remains from the other areas were not studied in the end because no clearly datable *locus* was available.

As a result, 2427 bones from 30 *loci* were examined. They are dated to the following periods:

- 889 to the Nabataean period;
- 437 to the 2nd and 3rd centuries CE;
- 1036 to the late 3rd-early 4th centuries CE;
- 65 to the post-Roman levels.

This season concluded a rich 13-year collaboration that has made it possible to acquire a large corpus of 40,000 studied animal remains from over 50 species of molluscs, fish, reptiles, birds and mammals. The quantitative and spatial analyses of this data will make it possible to identify the dietary habits of the citizens and soldiers who lived or were stationed at Hegra. It will also give information on the management of a city's waste, on the use of animals in rituals and, above all, on the evolution of the exploitation of fauna over a thousand years (4th–2nd century BCE to 5th–6th century CE).

Review of the protection strategies used in the various areas excavated by MSAP* at Hegra

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In February 2023, the Madâ'in Sâlih team discovered that the winter of 2022 had been harsh, with particularly heavy rainfall causing flash floods and severe run-off. The latter damaged various excavation areas in the so-called Residential Area more than in the previous ten years. It is possible—to be confirmed on the basis of observations in the coming years—that local climatic conditions are changing. These would be characterised by the increasing severity of the winds (thus erosion and/or sand loss) and by flash floods. Among other effects, there was substantial sand loss over one year which was particularly noticeable in several areas.

The decision was therefore made to take the opportunity in the 2023 study season to review the protection strategies and the conservation of all the previous excavation areas, in order to both determine a short to mid-term conservation strategy and remedy the most obvious conservation problems. Decisions concerning long-term conservation management plans will be taken later, by a proper site conservation manager, in coordination with the Royal Commission for AlUla (RCU).

Methodology

First, all areas and sections were carefully examined and documented (Feb. 7–9). Plans of each area were annotated in order to define the conservation priorities and establish a working strategy for the short-term preservation of the site. A colour-coded system was then established: red for immediate backfilling or other action; green for less urgent backfilling or other required action. Red was to be done in 2023, green in 2023 if possible, or else next year.

All the consolidation measures that were taken in each area are presented below. Note that an experiment on the conservation material—geotextile—was also carried out. Indeed, in various locations in Area 9 (see below), geotextile from the Dadan Archaeological Project was used instead of the one generally used by the MSAP so that they could be compared. The reason for

* Madâ'in Sâlih Archaeological Project.

this experiment is that we were informed by RCU conservators that the geotextile used at Dadan, which comes from the company Alyaf in Jeddah, quite often stuck to the stones and was therefore not suitable for protection. In the areas where two protection layers were used, i.e. a plastic mesh (green) *and* geotextile, the latter on top, the geotextile did not stick to the stones and the preservation of the archaeological structures was more efficient (in Dadan Area C for example). In Hegra, the geotextile used by the MSAP, which came from Tabuk (provider unknown), was thinner and torn in places, but it did not adhere to the sandstones and therefore proved to be suitable. Comparison of both qualities of geotextile in a year will hopefully allow us to determine which one is best suited for Hegra.

Most of the excavation areas were relatively well preserved—especially when previously back-filled, restored with mudbricks or covered with geotextile. Besides, the 30–40 cm-high stone and soil ‘dams’ set up by the MSAP teams in order to divert the run-off and prevent it from entering trenches and thereby damaging the archaeological structures or unfinished sondages proved to be efficient and it was decided to continue using them until a more appropriate long-term management plan can be created under RCU guidance.

Based on the review of the state of preservation drawn by each area supervisor, the list of measures to be taken urgently (red on the plans) or less urgently (green) was established and those measures are detailed below.

Area 1

Sand was added in several rooms (rooms 10110, 10112–10113, 10184–10185, 10189) and in the eastern part of street 10183, in order to partially fill these areas and prevent rains from undermining the mudbrick foundations. To the southwest of the trench, a long stone-and-soil dam was erected to divert water from the area. Beside this action, one location (context 10178) needed to be consolidated with wooden planks to prevent the door jambs from collapsing.

Area 2

Area 2 north

The area presented few to no immediate conservation concerns, probably because it was fully backfilled and the walls were restored more than ten years ago. Sand was added in some of the rooms in contexts 25418 and 25415. Along the southern side of the east-west street in the southern part of the area, sand was added to reinforce and stabilise the corner of wall 20003. Finally, two small stone-and-soil dams were erected north-east and east of the area to divert run-off.

Area 2 south

The area presented no immediate conservation or preservation concerns for the same reason as above.

Area 6, IGN 132

This area presented a few immediate preservation concerns, mainly caused by water flowing down from the top of the outcrop during rainy episodes. Since the examination of the previously erected stone and soil dam showed on the western side of the outcrop proved to be efficient, it was decided to continue using this device.

Thus, on the east side of the outcrop, a dam was erected between the north-east corner of sounding 11 and the south-west corner of sounding 10 (see the 2020 report, fig. 2 p. 36). A north-west to south-east dam was also erected to protect the general area of sector 68.

Area 9

It was obvious that Area 9 would benefit from preservation actions, but we had to take into account the fact that this area is to be excavated again in future seasons. A north-south stone and soil dam was erected on the east side of the area. As mentioned in the introduction, two qualities of geotextile were also used here to determine which one would be the most efficient in Hegra.

Thus, the ‘Dadan’ geotextile was used in the following locations:

1. in Trench D on top of mudbrick wall 92321;
2. in Trench E on top of the south-eastern part of wall 92001, threshold 92548 (= stones) and to cover the sediment around;
3. on capital 91007 uncovered in 2011 and since then protected by a jute bag and mudbricks. It was cleaned, photographed, and measurements were taken. It was then covered with the ‘Dadan’ geotextile. The area around it was protected with the mudbricks made by Ibrahim al-Sabhan for the restoration as well as by newly brought sand.



Fig. 1. Trenches A & B with backfilling both sides of threshold 91009 to compensate sand losses since last season (2022), view from south-west.



Fig. 2. Trench C, walls 92002 and 92003, threshold 92026 and staircase 92022 backfilled with sand from the 2022 season, view from east.

Sand from 2022 was added in trenches A and B on either side of threshold 91009 (**fig. 1**). In Trench D, a quick consolidation of the mudbrick wall left under wall 92301 was undertaken, maintained with a filling made of stones and pebbles topped with sand. Two truckloads of c. 12 tons of light orange sand had been brought in 2022 to backfill Trench C. That year, we had decided to completely backfill this trench up to the level of threshold 92026. Due to the packing of the material and aeolian deterioration, we noticed that in 2023 around 15 cm of backfill were missing. The filling of the trench should indeed be around 2 m high in the deep sounding made in the north-eastern corner of the trench. In 2023, only one truck was used, and the sand was slightly more orange.

Additional backfilling of old sand in Trench C (+ 15 cm) was added to reach the level of threshold 92026 and of staircase 92022 (**fig. 2**). This probably represents a 15% loss of the sand deposited last year. Trench C was thus filled further with new sand above the reconstructed walls 92021, 92016, and 92046 (**fig. 3**). Mixed (stone and mudbrick) wall 92546 was fully cleaned before it was protected with the 'Dadan' geotextile and new sand. 'Dadan' geotextile was also used on wall



Fig. 3. Trench C, wall 92003 on the right, walls 92021 and 92016 back-filled, view from east.



Fig. 4a. Trench E, east part, north-east corner, after initial consolidation of the baulk with flat stones and wet earth, then with pebbles, view from south-east.



Fig. 4b. after the final backfill of the area.

92001, on threshold 92548, on the mudbricks of wall 92546 as well as on sandy-clay sediment. Also, backfilling of the area of capital 92025_AB02 with new sand and backfilling the eastern sectors of Trench C with old sand were carried out.

In Trench E, southern part: inside room 2, whose threshold 92548 bears a Nabatean letter, the basin drawn in situ by Jean Humbert in 2022 was moved, as was a long stone block (61 x 22 x 23 cm) which belongs to the extension of wall 92001 (92546). Four basin fragments were removed, two of which were newly discovered: a large fragment forming the bottom of a complete basin preserved over about 20 cm, the lip of which is worn by rubbing; three jointed fragments with a rounded and very smooth surface (92535) deposited on the surface. Wall 92513 was reinforced with three blocks laid vertically and bound with wet soil. The cracks were filled with fine earth. A low wall consisting of three and 1/3 modern mudbrick laid flat so as to contain the backfill sand in the area of wall 92003 and threshold 92026 was built. On the eastern side of Trench E, three baulks were reconstructed with stones bound with wet earth. The south-east corner was reconstructed with two modern mudbricks. The wide cracks caused by the run-off were filled with small stones gathered 50 meters to the north (**fig. 4a**), covered in turn with archaeological soil from the cleaning of wall 92021 (**fig. 4b**). It was compacted by foot.

In Trench D, in order to support wall 92302 in its eastern part, we replaced the system used in 2022 by two courses of three and a half modern mudbricks laid on their edge (**fig. 5a**) and

completed by two others courses laid vertically to contain a filling of irregular pebbles taken from the surface 20 m to the east. Several wheelbarrows of old sand were then spread on the surface and compacted by foot (**fig 5a**).

Other actions:

- repositioning of the sculpted block 92003b_AB01;



Fig. 5a. Trench D, wall 92302 after consolidation, viewed from the South.

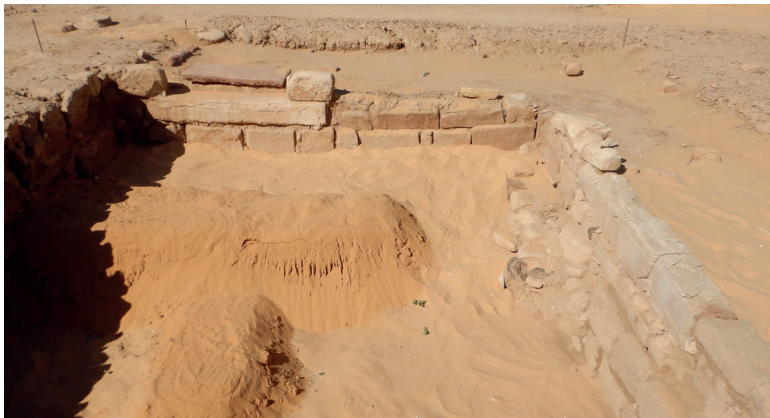


Fig. 5b. Walls 92301–92302 protected with backfill, and walls 92321 and 92326 covered with sand.



Fig. 6. Trench C, wall 92002, threshold 92026 and staircase 92022 consolidated with small stones and wet earth, view from south-east.



Fig. 7. Trench C, view from the east of the partly rebuilt wall 92021.

- shimming of staircase 92022 and threshold 92026 with small blocks bonded with wet soil (**fig. 6**);
- reassembling of wall 92021 over 1 m (five stones were put back in place and properly wedged in the back, half of a modern half was placed vertically to support a block which was in an awkward position (**fig. 7**);
- disassembling of the mudbricks made in the 2010s by Ibrahim al-Sabhan, around both parts of capital 91007. Photos and measurements of this capital were taken: between outer horns: 1.05 cm, abacus 52 cm, height 38 cm, back length 83/84 cm. The local white rock peels off and a horn is cracked. It was therefore covered with geotextile, blocked with modern mudbricks and covered with new sand;
- mudbrick wall 92321 was covered with the ‘Dadan’ geotextile and new sand.

Area 34

Area 34 comprised several areas with a few delicate features that required stabilisation. Several targeted areas were numbered in numerical order and colour-coded according to their urgency, either in green (action recommended) or red (action necessary). Efforts were concentrated on



Fig. 8. Area 34, backfill in the lowest part of Room XX.

completing everything, except what was not logistically feasible this season and marked as green. For the latter, future recommendations are presented below.

The following areas were thus targeted:

- Room XX: the lowest part of the room was backfilled (**fig. 8**) up to the level of the north-east platform or to the bottom of the water channel;
- Room XXII: the interior of the room was backfilled up to the level of the lowest stone step (**fig. 9**);
- the space between mudbrick walls 34562 and 34560 between Rooms XXII and XXI was backfilled (**fig. 10**);
- the space east of wall 34400 was backfilled, with the backfilling deposit done sloping down northward (**fig. 11**);
- the entire space south of wall 34442 up to the modern surface level was backfilled (**fig. 12**);



Fig. 9. Room XXII: The interior of the room was filled with sand.



Fig. 10. Backfill between mudbrick walls 34562 and 34560 between Rooms XXII and XXI.



Fig. 11. Backfill east of Wall 34400.



Fig. 12. Backfill South of Wall 34442.

The natural watershed west of wall 34068 should ideally be backfilled. Small stones should be placed in the rainwater-created ditch, and then covered by a layer of soil. This action could not be undertaken this season and remains a recommendation for future action.

The doorway of wall 34100 in Room I was backfilled and considered a priority. Small stones were placed under the southern doorjamb section (**fig. 13a**), then this deposit and the space of the doorway was covered by a c. 0.30 m deep layer of soil, so up to the modern surface level (**fig. 13b**). The space between walls 34142 and 34105 was backfilled as a priority (**fig. 14a–b**). The backfilling was done in a sloping southward manner.

The natural watershed ditch between walls 34003, 34097 and water channel 34098 should be backfilled first with small stones and then with soil; this could not be undertaken this season.

The space between the gate blocking and the buttress 34211 needed to be urgently backfilled (**fig. 15 a–b**). Two/three large, relatively regular ashlar were placed on top of the gate's threshold in order to completely close the space. Then small stones first and soil were deposited in the space, in a plug-in manner.



Fig. 13a. Backfilling of the doorway (Wall 34100) in Room I with small stones used to reinforce the southern doorjamb section.

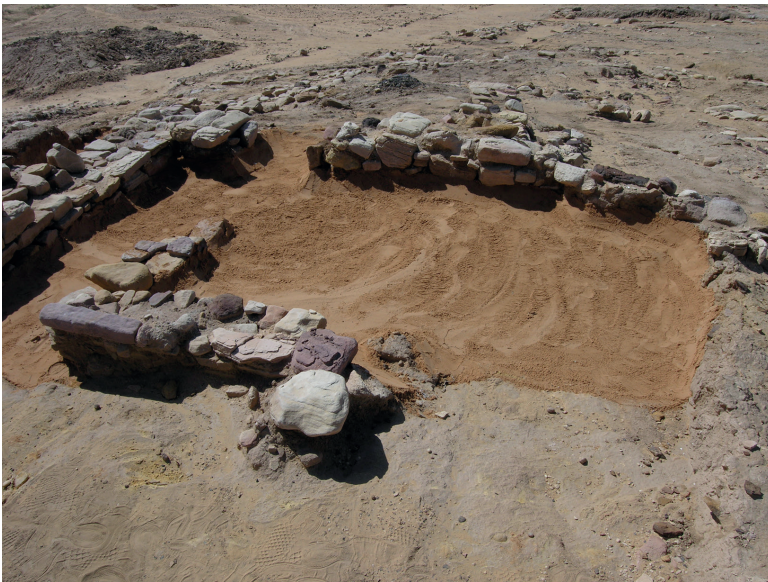


Fig. 13b. After sand backfill.



Fig. 14a–b. Backfilling area between walls 34142 and 34105.



Fig. 15a–b. Backfilling between the gate blocking and the buttress 34211.



Fig. 16a–b. Wall reinforcement and backfilling in Room XI.

The main wall reinforcement and backfilling in Room XI required immediate attention (fig. 16a–b). At first, stones were tightly placed in empty spaces under walls 34200, 34203, and 34206, as well as under the tilting large stone basin to avoid collapse. Then the backfilling of the entire room space proceeded in the following, sloping, manner: in the south (= against wall 34200) the backfilling was at least c. 0.40 m high, then continuing northward, the depth of the backfilling deposit decreased in a sloping northward manner.

The backfilling of the major watershed ditch area between walls 34007 and 34053 was completed. Likewise, the urgent recommendation that the backfilling of Trench B on the southern side of the gate and the space east of the eastern gate tower should be undertaken was successfully carried out.

The backfilling of Room X in the Eastern Barracks was finished.

Last but not least, trenches excavated in 2021 by E. Botte as test trenches were all backfilled. Several areas should eventually be covered by geotextiles once the excavation of the fort excavation is finished. Several are recommended as priorities:

- the entire area of Rooms XXI and XXII (after backfilling nos. 2 and 3);
- the area of the remains of the north-east gate;
- wall 34400 (its section uncovered in Trench D);

- the entire area of Rooms I, IIA and the area of the walls further south (to be done after the backfilling nos. 7 and 8);
- the section of wall 34200, including the blocking of the gate and the large buttress 34212, after the backfilling nos. 10 and 11 are completed)

After the end of excavations in Area 32, the following areas should also be covered by geotextiles:

- the entire area of Rooms XVII, XVI, XVIII, XV, and XX as well as the marked area north of Room XV;
- the entire area of barracks, rooms IV–IX;
- the area of the corner tower 34057 and wall 34310;
- the area of the westernmost tower 34028 and wall 34029.

Area 35

Area 35 presented no immediate concerns. The proposition is that stones were placed to delineate the area in order to protect it from rain waters, but no further action is needed. The delicate inscriptions/graffiti were protected by temporary wooden boards, which seem to be efficient/sufficient until further action.

Area 36

No immediate actions were identified for Area 36 north. Thus no further actions were undertaken this season. In Area 36 south, the only action undertaken concerns the SE part of the area, contexts 36528 and 36567, over which a layer of sand was deposited to further stabilise it.