Mechthild Ladurner
Institut für Klassische Archäologie
Universität Wien
Franz Klein-Gasse 1
1190 Vienna, Austria
mechthild.ladurner@univie.ac.at

Mechthild Ladurner

Nabataean Agricultural Settlements in Central Jordan: Preliminary Report on an Example from the Wādī ath-Thamad Region

Introduction

The regional survey in the Wādī ath-Thamad drainage basin, on which most of this report is based, was established in 1996 as a multi-period survey and has remained active in the field to the present day. The survey area is located south-east of Mādabā, centred on Wādī ath-Thamad and its tributary streams (FIG. 1). Beginning east of the desert highway, the Thamad constitutes the eastern end of Wādī al-Hīdān, which flows from the central plateau to the Jordan valley to meet Wādī al-Mūjib at its mouth. The region and some of its ancient sites were known to the early explorers of Transjordan, among them Tristram (1874: 152, 175), Brünnow and Domazewski (1904: 3-5, 26-28; 1905: 73-74, 86, 90) as well as Musil (1907: 12-13, 18-21, 108-112, 246-248), who all mention Wādī Shābik, a tributary of the Thamad[1]. Systematic archaeological research in this area began with the work of Glueck (1934) followed, some decades later, by Parker (1976, 1986); it has subsequently been continued by the Canada-based Wādī ath-Thamad Project under the direction of P. M. Michèle Daviau[2]. This project includes excavation at Iron Age and Nabataean Khirbat al-Mudayna, as well as regional survey of the surrounding area[3]. Of the 132 sites registered during previous survey seasons, at least 30 yielded Nabataean pottery[4]. This latter group of sites includes architectural structures (domestic structures, watchtowers etc.), water installations (dams, channels, cisterns and reservoirs), agricultural features (field boundaries and terraces), road sections, quarries and burial sites (see Dearman 1996; Foley 1998; Daviau, Mulder-Hymans, Foley *et al.* 2000; Daviau, Steiner, Weigl *et al.* 2006; Daviau and Foley 2007; Lykke and Ladurner 2011). Two seasons of extensive survey in 2007 and 2008, carried out by researchers from the University of Vienna, Austria have been dedicated solely to the documentation of previously known sites and the registration of new sites, attributable or partially attributable to the Nabataean period (Lykke and Ladurner 2011)[5]. Although the results presented in this paper are preliminary, these data nonetheless suggest that there is great potential for further archaeological investigation of Nabataean settlement in this region.

Pattern of Site Distribution

Three major agricultural settlements dating to the Nabataean/ Early Roman period have been documented within the Wādī ath-Thamad valley (WT-1/ Khirbat al-Mudayna, WT-6/ Ṭawqa and WT-12/ Mughur Shābik). The distribution of these sites is,

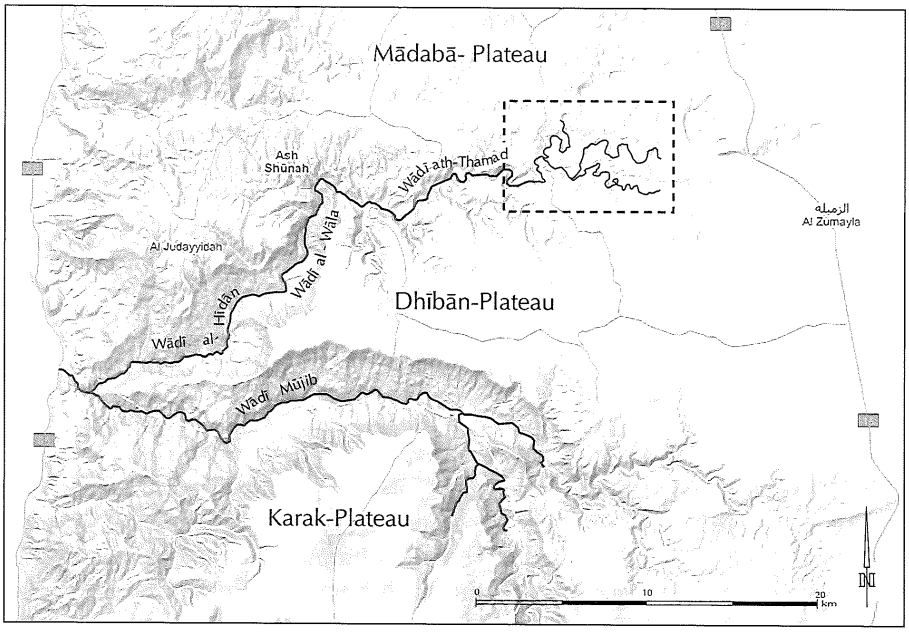
[1] For a detailed history of research in the Wādī ath-Thamad region see Daviau (2000: 279-281).

[2] An introduction to the Wādī ath-Thamad Project, its research area and goals is given by Daviau (2000).

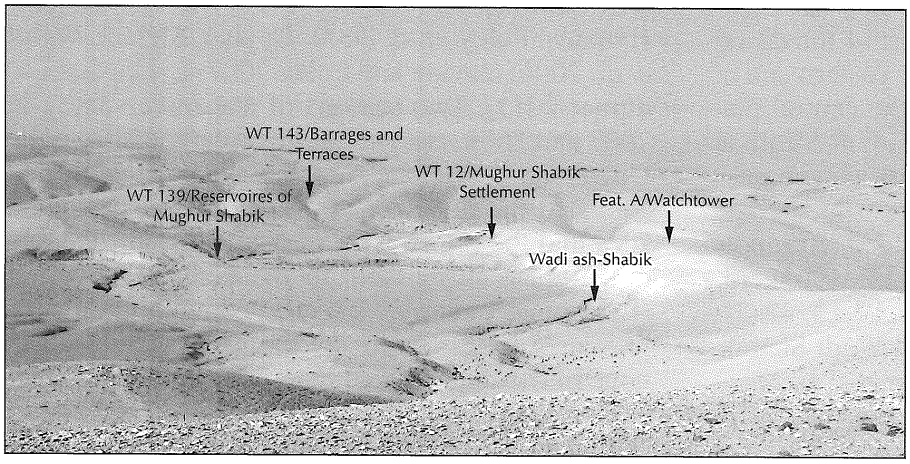
[3] The regional survey was directed in the first two season (1996 and 1997) by J. Andrew Dearman (Austin Presbyterian Seminary, Texas, USA), followed from 1998 to 2001 by Christopher M. Foley (University of Saskatchewan, Canada); it is presently carried out under the direction of Jonathan Ferguson (University of Toronto, Canada).

[4] This group includes sites with ceramics from multiple periods. The attribution of specific features or parts of these sites to a particular period is in most cases debatable, at least until confirmed by excavation. This study therefore focuses on sites that can be attributed to the Nabataean period on the basis of excavation data (Khirbat al-Mudayna) or a clear predominance of Nabataean ceramics, combined with architectural characteristics that are commonly regarded as being Nabataean (Mughur Shābik and Ṭawqa).

[5] The 2007 and 2008 survey seasons were carried out by Rainer Feldbacher, Mechthild Ladurner and Anne Lykke at the invitation of Director P. M. Michèle Daviau, in parallel with the research of Jonathan Ferguson, who dedicated himself to excavation and mapping of az-Zūna Roman fort at that time.



1. Area map showing the Wādī ath-Thamad drainage basin (modified from Google Maps 2010).



2. The topographical setting of WT-12/ Mughur Shābik and the neighbouring Sites WT-143 and WT-139 seen from north-east.

as already observed by Daviau and Foley (2007: 358-359), clearly related to specific topographical situations that facilitated exploitation of the water's flow for irrigation, as well as providing views over the surrounding agricultural land. All three sites are located close to the banks of the wadi, which meanders through a broad valley bottom and could easily be crossed by a ford in the river-bed (FIG. 2).

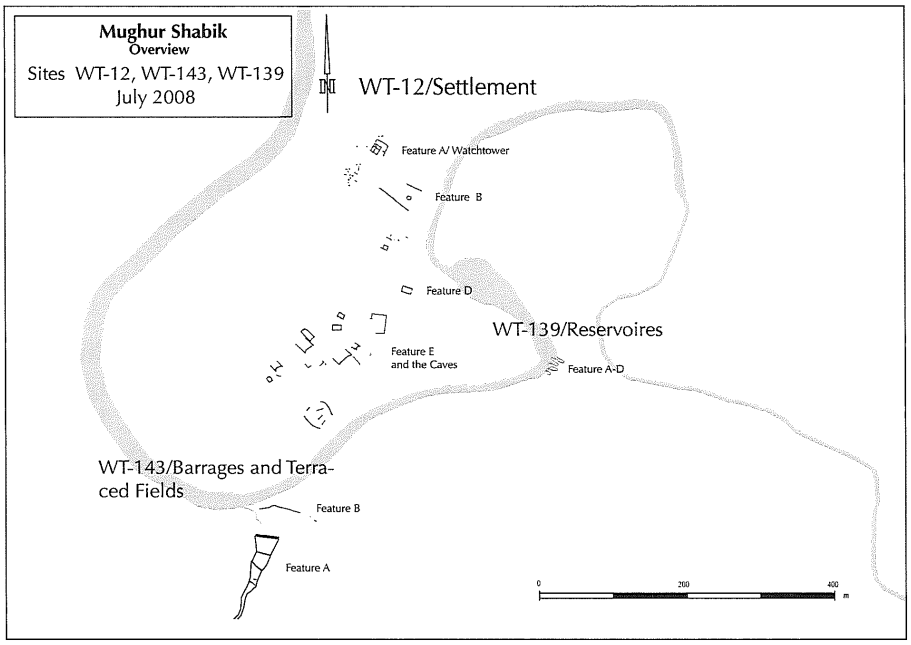
Mughur Shābik

The ancient site of Mughur Shābik, about 2km south-east of Khirbat al-Mudayna on the bank of Wādī Shābik, was probably known to Alois Musil, who mentioned the caves of "Morajer el-Gurb" on the right-hand side of the wadi, which can possibly be identified with the impressive rock-cut water-reservoirs belonging to the settlement (Musil 1907: 250)[6]. The architectural remains of Mughur Shābik, distributed over an area of approximately 9ha, are located on top and at the base of a rocky hill flanking the wadi (FIG. 3).

Feature A: Watchtower

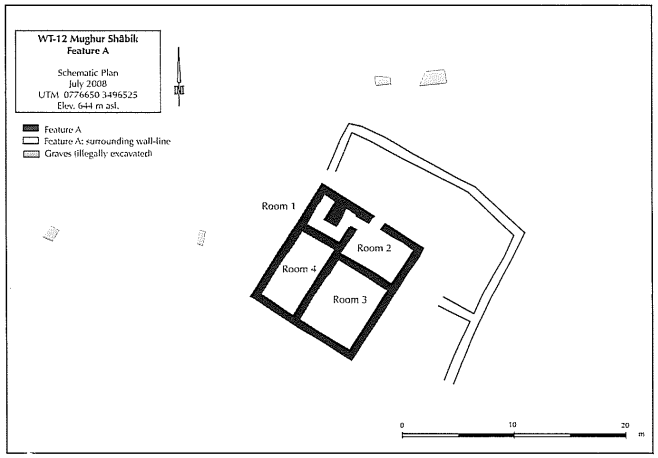
Overlooking the settlement, surrounding farmland and rock-cut water reservoirs to its east lies Feature A, a nearly square (12x11m) well-built structure on

[6] Musil (1907: 250) notes that while he was crossing the canyon of "Tla' el-Kful"he could see, to his east, the caves of "Morajer el-Gurb"on the right-hand slope of the Wādī Shābik. For the position of "Tla' el-Kful" see the area map published by Brünnow and Domaszewski (1904: Karte der Südlichen Belka, Moab & Edom, Blatt 1).



3. Schematic map of WT-12/Mughur Shābik, WT-143 and WT-139.

top of the hill at Shābik (FIG. 4). The walls of this complex, preserved to a height of 2m, are built with limestone in boulder-and-chink technique with an average thickness of about 80cm. The only entrance to the building could be observed on its north-eastern side leading into Room 2, a rectangular vestibule of approximately 3.7x 4.3m, with a doorway on its western side leading into Room 1. Illegal excavations within this nearly square (2.9x3.4m) room have exposed its walls, as well as the lower courses of a rectangular central pier measuring 1.3x1.9m. This most likely represents the central pier of a staircase leading up to the roof or to an additional floor (cf. Negev 1973) (FIG. 5). The position of the doorways between Rooms 2 and 3, as well as between



4. Watchtower/ Feature A on top of the Shābik-hill.

5. Room 1 of Feature A with its central pier for a staircase.

Rooms 3 and 4 of Feature A is unknown owing to the debris covering large parts of the inner wall-lines. It can only be assessed that there is no connection between the staircase and adjacent Room 4. The main complex is surrounded on its north-eastern and south-eastern sides by the remains of what seems to be an enclosure wall for an open courtyard (FIG. 4). This feature is not bonded to the main complex and might therefore belong to a younger phase.

Considering the well-chosen position of the building, as well as its size and layout that closely resembles other examples from the Nabataean/ Early Roman periods, e.g. Building IV of Mampsis (Negev 1988: 44-49, Plan 10), this complex is best

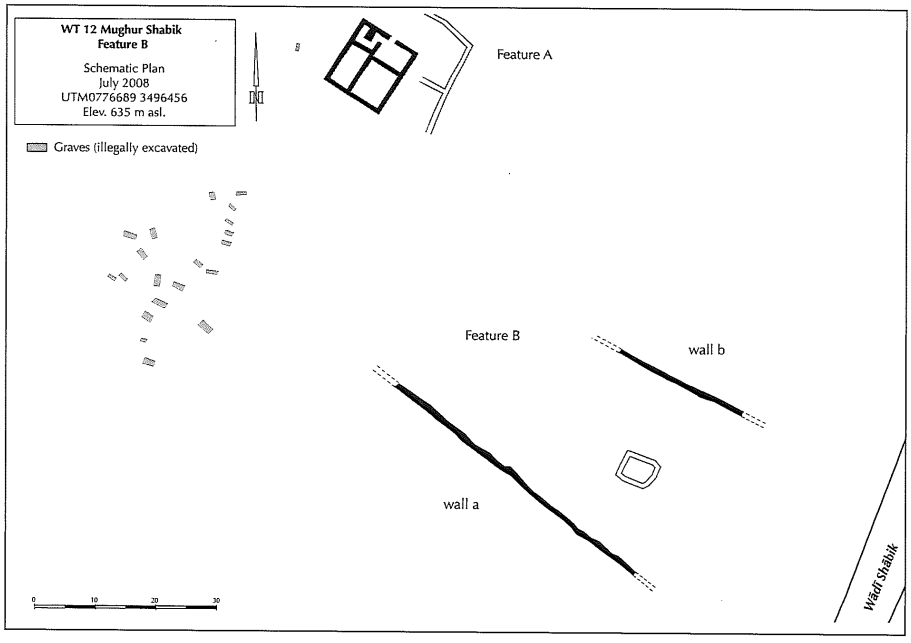
interpreted as a watchtower, guarding the settlement and the surrounding territory (c.f. Parker 1986: 115-119).

A series of looted graves were documented in the immediate vicinity of the main building, primarily on its southern side. A large number of these graves are oriented north-east/ south-west and appear to have been laid out in a regular manner. As the looters have destroyed most of the evidence, there is hardly any information with which to date them. The sole exception is a Late Roman coin (*Valerianus* on the obverse?) that is, according to locals, supposed to come from one of these graves. This would fit the second phase of the settlement as indicated by surface pottery (i.e. second half of the 3rd century).

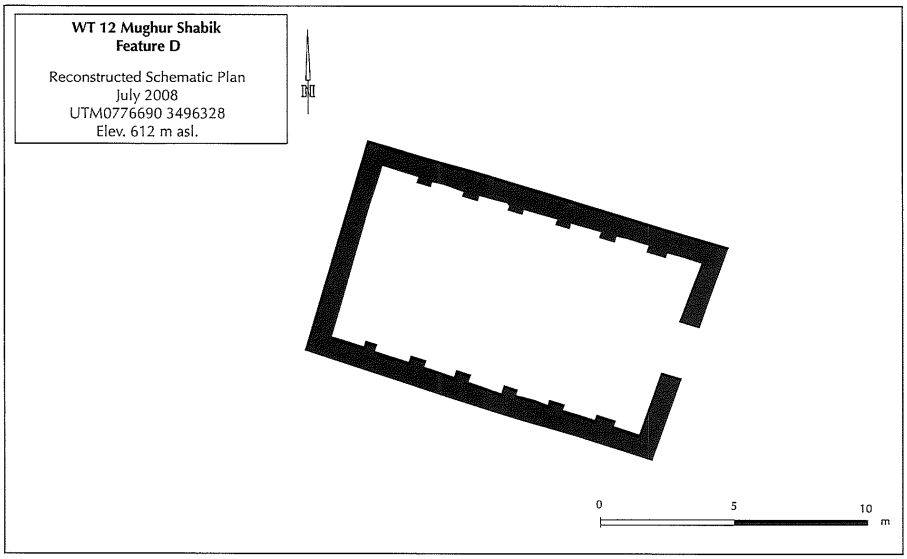
Feature B: Possible Water-Management Structure
South-east of Feature A, on the lower part of the steep slope descending towards Wādī Shābik, two walls of considerable length could be traced (FIG. 6). Feature B consists of these two walls, running more or less parallel to each other towards the wadi, as well as a small structure between their lower ends, covered in large part by debris. There are no traces of horizontal walls e.g. barrages, between the walls. Built in boulder-and-chink technique and including huge blocks over 1m in length, Wall A is preserved for a length of up to 50m and attains a considerable width of 1.20m. Wall B, constructed using the same building technique, is 22m long and less wide at 0.9m.

Owing to erosion of the wadi bank, the lower ends of both walls are lost, so their full extent and original layout unfortunately remains unknown. To date, no comparable structures seem to have been published and consequently its function is uncertain. Perhaps it was some sort of hydraulic installation, used to control the flow of run-off water from the hill at Shābik.

Feature D: Single-Chambered Building
Feature D is characterised by its isolated position, as well as some constructional details that distinguish it from all other buildings in this area (c.f. FIG. 3). This rectangular north-west/ south-east oriented structure of 14x8m, situated approximately 150m south of Feature A, most probably opened towards the wadi. Unfortunately, its poor preservation does not allow the original ground plan to be reconstructed (FIG. 7). Only one course of its limestone blocks is visible above ground level, but this is enough to show that the exterior face of the walls was embossed (5-8cm margin, carved with a dentilated chisel) (FIG. 8); the internal blocks of the building do not seem to have been dressed. Projecting boulders on the inner faces of the eastern and western walls, placed at regular intervals of approximately 1.20m, most likely represent arch-springs, a feature that is well-known from Nabataean Buildings 800 and 802 at al-Mudayna (Daviau, Mulder-Hymans, Foley *et al.* 2000). No trace of dividing walls or piers could be observed inside the building, which



6. Feature A, the looted graves and Feature B.



7. Schematic plan of Feature D.

8. Feature D: embossing of the exterior face of the walls.

is therefore assumed to be a one-room structure. Although Nabataean/ Early Roman period pottery was found in large quantities in the immediate vicinity, questions on date and function of this structure will have to remain open.

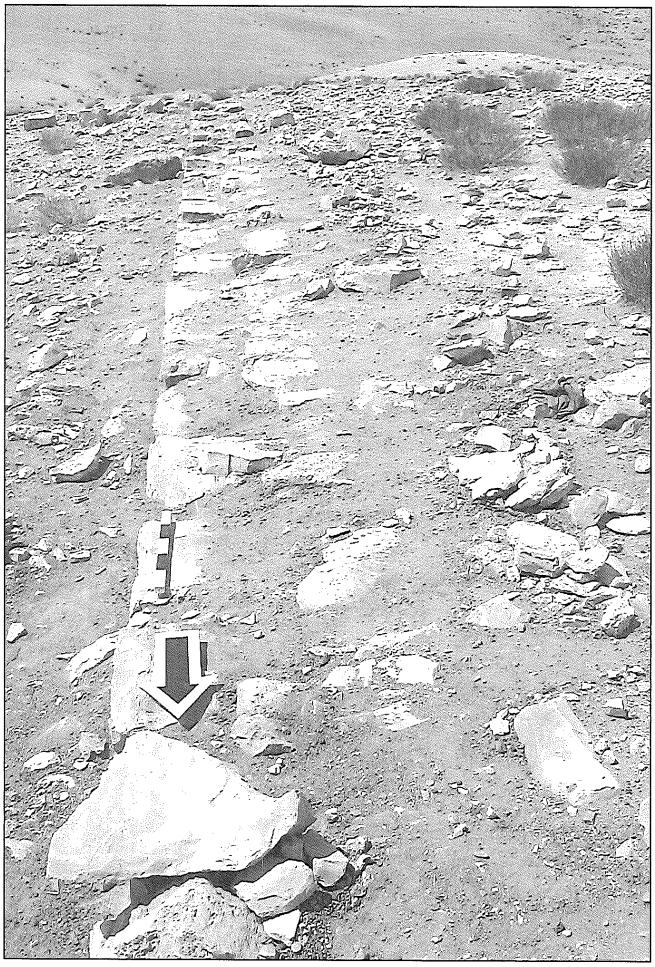
The Southern Part of the Settlement: Feature E and the Caves

The southern part of Mughur Shābik includes eight caves and a nearby free-standing hall-like structure (Feature E) (c.f. FIG. 3). Feature E, situated approximately 70m south of Feature D, has a rectangular layout of 25mx20m, with no visible interior divisions. The exterior walls in boulder-and-chink construction are narrower than those of Features A or D, reaching a width of 0.70-0.76m (FIG. 9). Particularly noteworthy is the range of objects found inside and in the immediate vicinity of Feature E, among them a limestone potter's wheel, a lozenge-shaped weight and two rotary millstones, one of basalt and the other of limestone.

The eight caves in the area immediately west and south of Feature E are presently used as animal shelters and for storage. With the exception of Cave A, they consist of a single rock-cut room (between 45 and 55m^2) equipped with ventilation holes and a courtyard in front of it, bounded by curvilinear walls (FIG. 10). In the floor of Cave A, a 1x1m opening (without steps) gives access to a lower rock-cut chamber of considerable size and a ceiling height of about 3.60m. Although there is no firm evidence for the date or function of these caves, they do share a number of features with the dwelling-caves at Petra last discussed by Kolb (2007: 146-153).

Site WT-139: Rock-Cut Water Reservoirs

Site WT-139 is situated in the bottom of a bend in the wadi, approximately 300m south-east of Fea-



9. The eastern long side of Feature E seen from north.

ture A (FIG. 11). Four parallel reservoirs have been cut into the slope, separated by baulks of bedrock (FIG. 12). The central basin, Feature B, is the only one still in use today; those to either side are partially filled with sand and stones. This nearly rectangular basin of 6.9x4.6m, has the same tool-marks as the flanking basins, but differs from the others in its layout. Basins A, C and D each have an opening of 0.8-2m, flanked on one side by an L-shaped bedrock baulk, which channels water into a tank 5-4.33m wide. All four basins are protected from the sun by bedrock 'vaulting'.

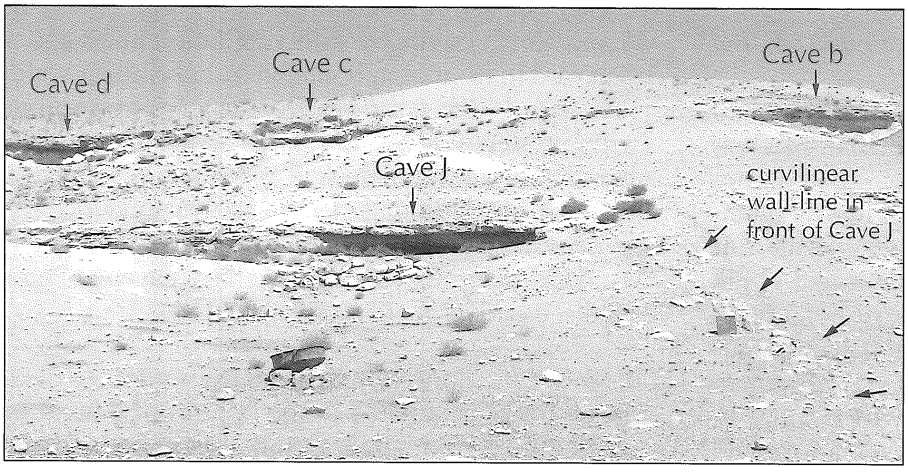
Site WT-143: Barrages and Terraced Fields

Situated in a north - south oriented gully south of the settlement itself, Site WT-143 comprises a system of gully barrages and terraced fields (FIG. 13). The upper barrages are built across the gully and consist of unshaped blocks. The lower, broader walls are probably best interpreted as agricultural terrace walls, designed to retain soil on the slopes. The upper barrages may have served to slow down the flow of the water. The long wall-line designated Feature B appears to consist of two parallel lines of stones, perhaps walls for a rudimentary channel.

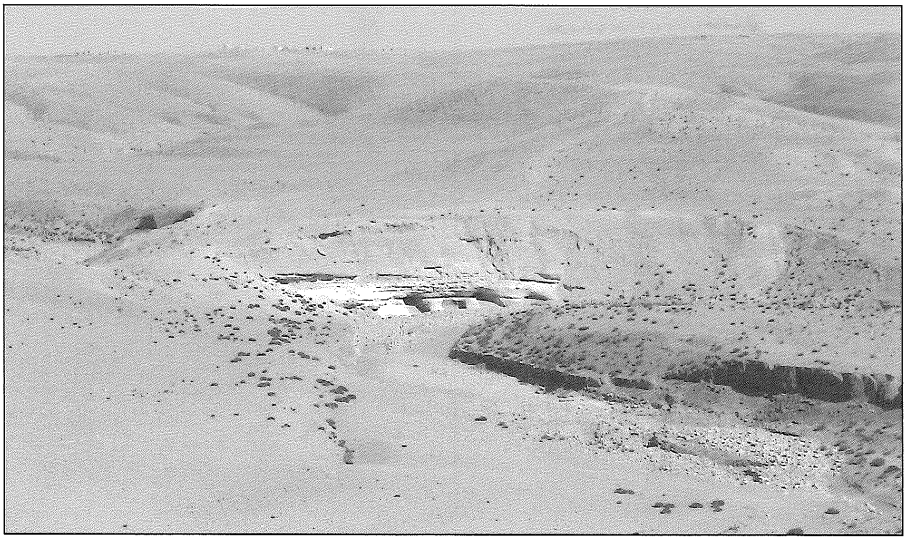
Similar sites are found throughout the Wādī ath-Thamad region (c.f. Lykke and Ladurner 2011). Although hardly any pottery was found at Site WT-143 or comparable sites in the region, Nabataean parallels from Jabal Hārūn near Petra (Lavento *et al.* 1999; Lavento *et al.* 2007) have similar characteristics.

Ceramic Assemblage of Mughur Shābik

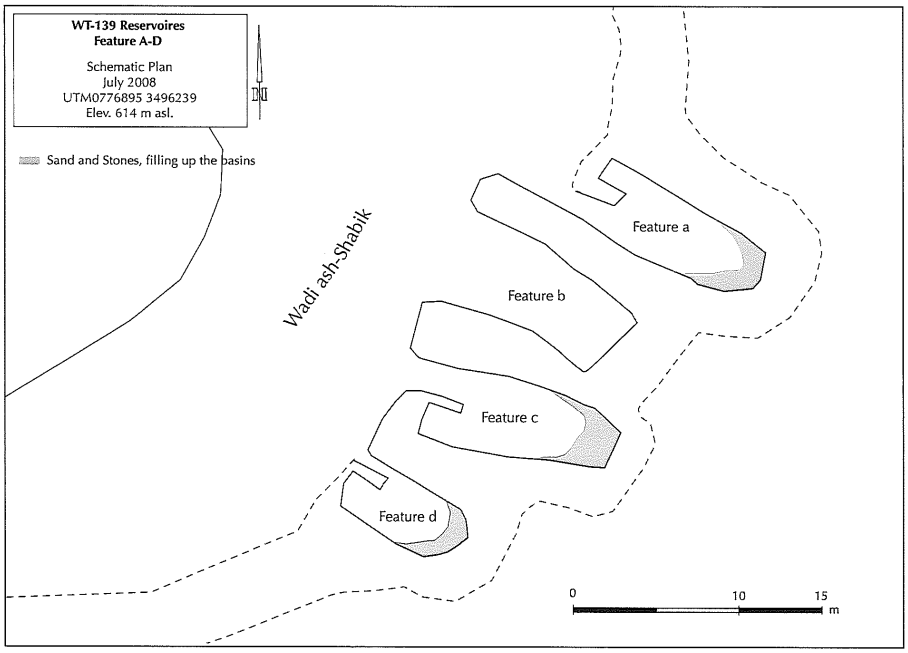
Surface pottery collected from the survey areas allows for the differentiation of two occupational periods at Mughur Shābik. The first dates to the Nabataean/ Early Roman period, more precisely to the second half/ end of the 1st century AD. This date is suggested by Painted Nabataean Fine Ware (FIGS. 14 and 15), Unpainted Fine Ware (FIG. 16) and some fragments of Eastern Sigillata A bowls



10. The dwelling (?) caves of Mughur Shābik with the remains of a curvilinear wall-line framing a small courtyard in front of Cave J.



11. The rock-cut reservoirs of WT-139 seen from the position of the watchtower/ Feature A.



12. Schematic plan of the rock-cut reservoirs of WT-139.

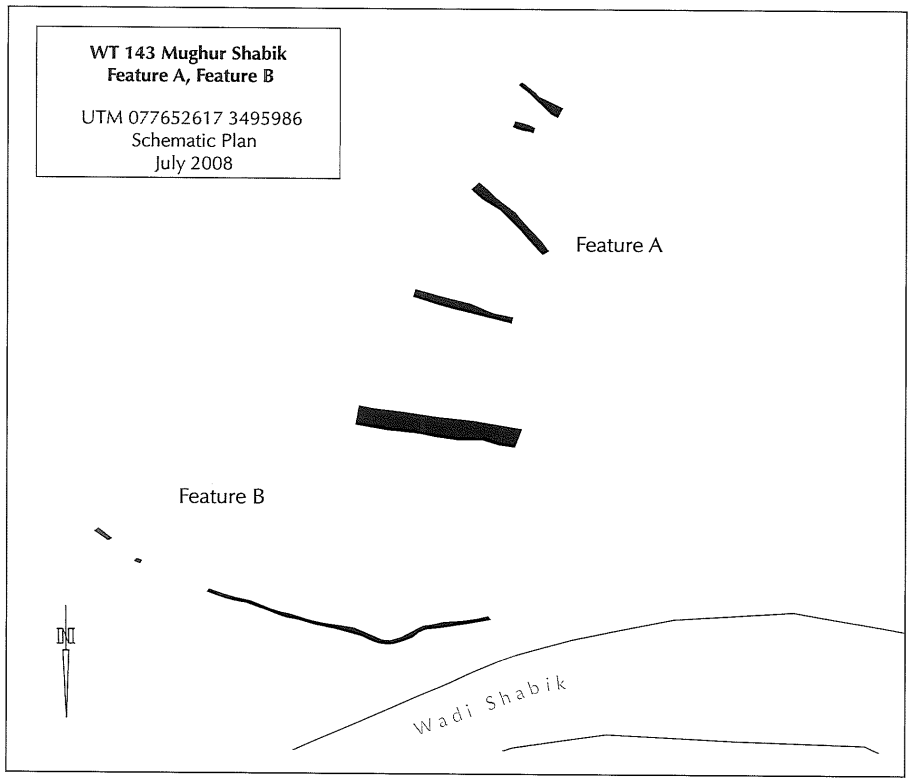
(FIG. 17). The settlement was most likely abandoned after this period and -according to surface finds- was not reoccupied before the second half of the 3rd century AD.

Conclusions

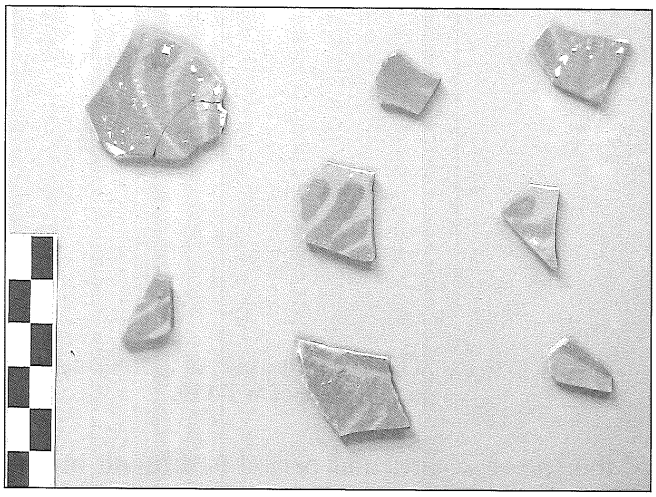
The settlement of Mughur Shābik/ WT-12 in central Jordan was first documented in 1996 and subsequently surveyed in 2007 and 2008. According to our preliminary studies, it represents a short-lived Nabataean settlement of the second half of the 1st century AD, situated in a region that was and still is famed for its agricultural productivity (Daviau and Foley 2007). Although attributing specific features of the site to a particular period is difficult on the basis of survey data, there is – as described above – some evidence that many of the architectural features, as well agricultural and hydraulic installations, at Mughur Shābik date to the Nabataean/ Early Roman period.

Acknowledgments

The author and team of the Mughur Shābik Survey would like to thank the Department of Antiquities of Jordan and former Director-General the late Fawwaz al-Khraysheh for permission and support to carry out this research. We would also like to thank Departmental representatives Ahmad al-Mo-



13. The terraced fields and barrages of WT-143.



14. Fragments of Nabataean Painted Pottery. The decorational scheme is close to the Dekorphase 3 b (70/80-100 A.D.) defined by Schmidt (1996, 2000).

mani and Salim Dhiab for their help and support in the field. This Project was supported financially by the University of Vienna and Deutsche Palästina Verein; we would particularly like to thank Robert Wenning for his commitment.

Bibliography

Brünnow, R. E. and Domaszewski, A. v. 1904. *Die Provincia Arabia auf Grund zweier in den Jahren 1897 und 1898 unternommenen Reisen und der Beschreibung früherer Reisender*, I. Strassburg.

—— 1905. *Die Provincia Arabia auf Grund zweier in den Jahren 1897 und 1898 unternommenen Reisen und der Beschreibung früherer Reisender*, II. Strassburg.

Daviau, P. M. M., Steiner, M., Weigl M. *et al.* 2006. Excavation and Survey at Khirbat al-Mudayna and its surroundings. Preliminary Report of the 2001, 2004 and 2005 Season. *ADAJ* 50: 249-283.

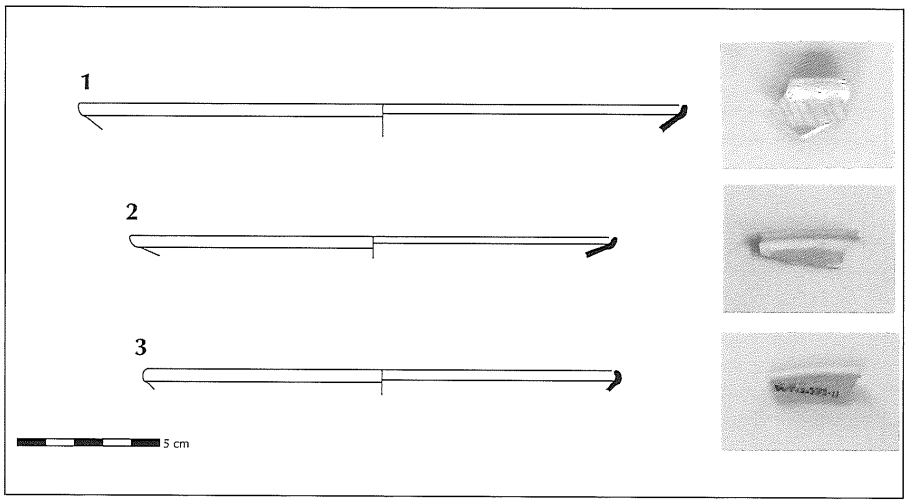
Daviau, P. M. M. 2000. Survey and Excavation in Northern Moab. Pp. 279-292. In *Proceedings of the First International Congress on the Archaeology of the Ancient Near East*. Rome.

Daviau, P. M. M., Mulder-Hymans, N., Foley, L. *et al.* 2000. Preliminary Report of Excavations at Khirbat al-Mudayna on Wadi ath-Thamad, 1996-1999. The Nabataean Buildings. *ADAJ* 44: 271-282.

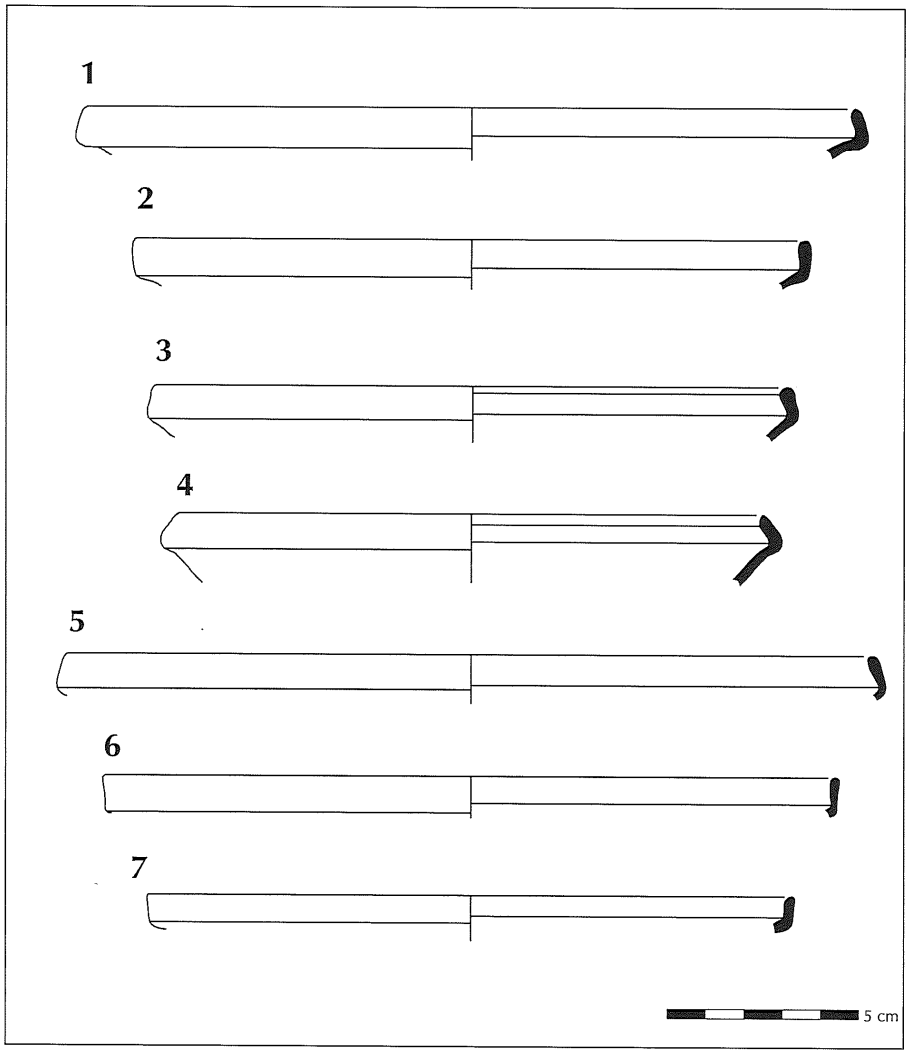
Daviau, P. M. M. and Foley, C. M. 2007. Nabataean Water Management Systems in the Wadi ath-Thamad. *SHAJ* 9: 357-365.

Daviau, P. M. M. *et al.* 2008. Preliminary Report of Excavations and Survey at Khirbat al-Mudayna ath-Thamad and in its Surroundings (2004, 2006 and 2007). *ADAJ* 52: 343-374.

Dearman, J. A. 1996. *The 1996 Regional Survey or the Wadi ath-Thamad Project*. Unpublished Report; submitted to the Department of Antiquities of Jordan.

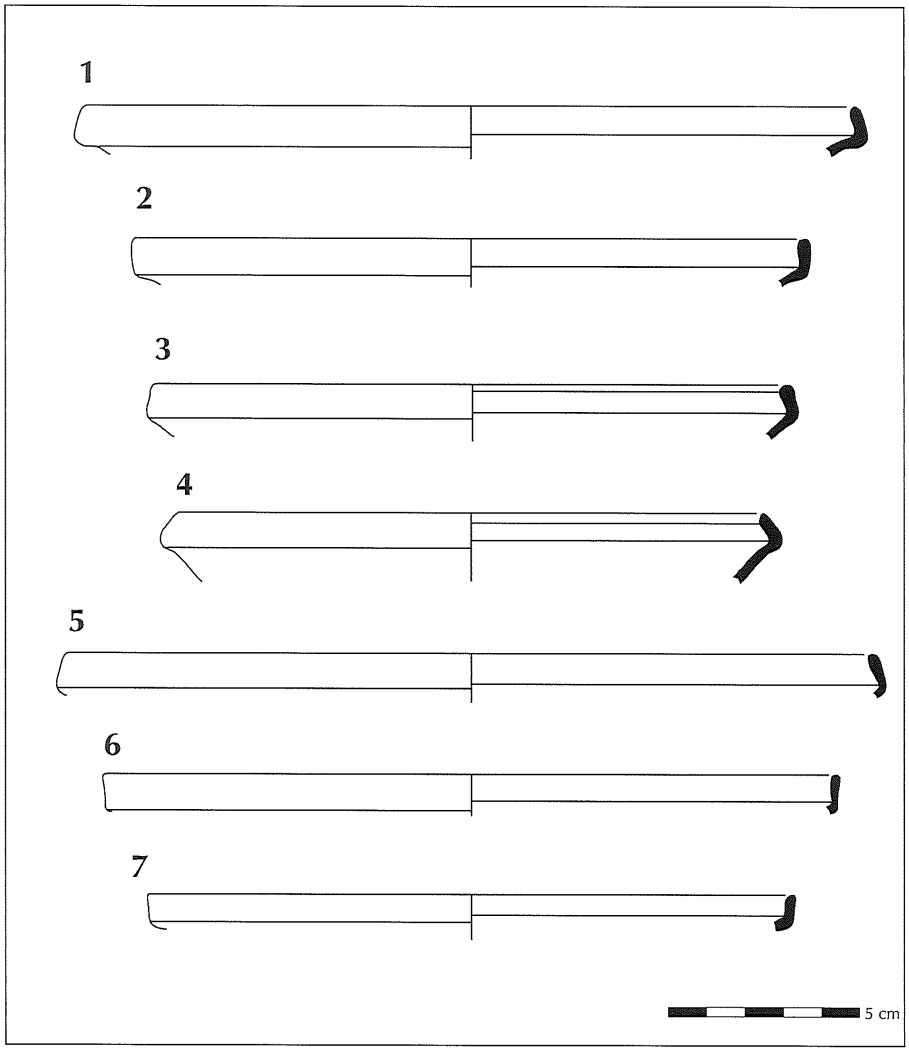


15 Examples of Nabataean Painted Pottery.
No. 1: Reg. WTR 12.10.8, painted bowl, diam. 21.2 cm, surface-colour: 2.5YR 6/6 orange-red, colour of decoration: 2.5YR 5/5 reddish brown.
No. 2: Reg. WTR 12.370.1, painted bowl, diam. 17 cm, surface-colour: 2.5YR 6/6 light red-orange, colour of decoration: 2.5YR 4/5 pale brownish red.
No. 3: Reg. WTR 12.372.11, bowl, diam. 16.4 cm, surface-colour: 2.5YR 6/6 light red-orange, no traces of paint on the rim.



16 Examples of Nabataean Plain Pottery.
No. 1: Reg. WTR 12.14.83, bowl, diam. 20 cm, surface-colour: 5YR 6/5 light reddish brown.
No. 2: Reg. WTR 12.367.14, bowl, diam. 16.8 cm, surface-colour: 5YR 6/5 light reddish brown.
No. 3: Reg. WTR 12.373.15, bowl, diam. 16.4 cm, surface-colour: 5YR 6/6 light reddish brown.
No. 4: Reg. WTR 12.373.13, bowl, diam. 15.2 cm, surface-colour: 2.5YR 6/6 red. No. 5: Reg. WTR 12.19.2, bowl, diam. 21 cm, surface-colour: 2.5YR 6/6 red.
No. 6: Reg. WTR 12.19.10, bowl, diam. 18 cm, surface-colour: 2.5YR 6/6 red. No. 7: Reg. WTR 12.370.3, bowl, diam. 16.8 cm, surface-colour: 2.5YR 6/6 red.

Foley, C. M. 1998. *The Wadi ath-Thamad Regional Survey, 1998*. Unpublished Report; submitted to the Department of Antiquities of Jordan.
—— 2001. *The Wadi ath-Thamad Regional Survey*, 2001. Unpublished Report; submitted to the Department of Antiquities of Jordan.
Glueck, N. 1934. Explorations in Eastern Palestine, I. *AASOR* 14: 1-114.



17. Examples of Eastern Sigillata A from Mughur Shābik (close to Hayes 54, dated 75/80-130/150 AD).
No. 1: Reg. WTR 12.370.14, plate, diam. over 30 cm, colour of fabric: 7.5YR 8/4 pale pink, colour of slip: 10R 5/8 red.
No. 2: Reg. WTR 12.19.33, plate, diam. 21.2 cm, colour of fabric: 5YR 7/3 pink, colour of slip: 10YR4.5/8 red.
No. 3: Reg. WTR 12.19.17, plate, diam. 18 cm, colour of fabric: 5YR 7/3 pink, colour of slip: 10YR4.5/8 red.

Hayes, J. 1985. Sigillate Orientali. Pp. 1-96 in *Enciclopedia dell'arte antica classica e orientale*. Atlante delle Forme Ceramiche II, Ceramica Fine Romana nel Bacino Mediterraneo (Tardo Ellenismo e Primo Impero), Rome.

Kolb, B. 2007. Nabataean Private Architecture. Pp. 145-172 in K. D. Politis (ed.), *The World of the Nabataeans*. Volume 2 of the International Conference «The World of the Herods and the Nabataeans» held at the British Museum, 17-19 April 2001. Stuttgart.

Lavento, M., Huotari, M., Jansson, H., Silvonen, S. and Fiema, Z. T. 1999. Ancient Water Management System in the Area of Jabal Harûn, Petra. In Bienert and Häser (eds.), *Men of Dikes and Canals. The Archaeology of Water in the Middle East. International Symposium held at Petra*, Wadi Musa 15-20 June, 1999 (Rhaden 2004).

Lavento, M., Kouki, P., Silvonen, S., Ynnilä, H. and Huotari, M. 2007. Terrace Cultivation in the Jabal Harun Area and its Relationship to the City of Petra in Southern Jordan. *SHAJ* 9: 145-156.

Lykke, A. and Ladurner, M. In press. Neue Forschungen zur nabatäischen Besiedlung der nördlichen Moabitis *ZDPV* 2011.

Mulder-Hymans, N. 2006. The Water Reservoir of Khirbat al-Mudayna. Pp. 245-248 in G. Wiplinger (ed.), *Cura Aquarum in Ephesus. Proceedings of the Twelfth International Congress on the History of Water Management and Hydraulic Engineering in the Mediterranean Region*. Ephesos/ Selçuk, Turkey, October 2-10, 2004. Leuven.

Musil, A. 1907. *Arabia Petraea I.* Moab. Vienna.

Negev, A. 1973. The Staircase-Tower in Nabatean Architecture. *RB* 80 (1973): 364-382.

—— 1988. *The Architecture of Mampsis. Final Report. Volume I: The Middle and Late Nabataean Periods*. Jerusalem, Hebrew University. Qedem 26.

Parker, S T. 1976. Archaeological Survey on the Limes

Arabicus: A Preleminary Report. *ADAJ* 22: 19-33.

___ 1986. *Romans and Saracens. A History of the Arabian Frontier* (American Schools of Oriental Research. Dissertation Series 6) (Winona Lake 1986).

Schmid, S. G. 1996. Die Feinkeramik. In *Petra, Ez Zantur I. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988-1992*. Mainz: P. von Zabern.

___ 2000. *Die Feinkeramik der Nabatäer. Typologie, Chronologie und kulturhistorische Hintergründe. Petra- Ez Zantur II 1. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen*, Terra archaeologica IV. Mainz: P. von Zabern.

Tristram, H. B. 1874. *The Land of Moab: Travels and Discoveries on the East Side of the Dead Sea and Jordan*. New York: Harper & brothers.