THE FUNERARY TOPOGRAPHY OF PETRA PROJECT (FTPP): PRELIMINARY REPORT ON THE 2010 SEASON

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Introduction: The Topographical Setting of the Tombs at Petra

Among the monumental rock-cut tombs at Petra, there are 628 recorded façade tombs (Nehmé 2003: 158-160) and six so-called block tombs (*djinn* blocks), which are carved free from the rock on all four sides. The façade tombs at Petra are carved in the sandstone rock-faces of the mountainous terrain surrounding the city **(Fig. 1)**. There are four types of sandstone at Petra, including Smooth, Tear, Honeycomb and ad-Dīsī[1]. The majority of the rock-cut monuments are carved in the Tear sandstone since it is friable and easily carved. Only *ad-Dayr* and part of the *Khaznah* are carved in the harder Honeycomb sandstone, and some of the block tombs and the Obelisk Tomb (Br.[2] 35) are carved in the lighter coloured ad-Dīsī sandstone (Rababeh 2005: 38-39). The latter is found in the higher parts of the city, since it is the topmost layer of the sandstones. The façade tombs tend to take dominating positions in the landscape, either overlooking the city or lining the *wadis* that provide entrance to the city. The block tombs are only found in the *Bāb as-Sīq* necropolis in the east and the area around the Snake Monument in the south (Rās Sulaymān / Wādī ath-Thughra). Notably, these mark important entrances to the city and are located on high ground.

1. Façade tombs in Wādī Farasa, Petra (L. Wadeson).

Although the tombs form one huge necropolis encircling the city, they can be roughly divided into smaller cemeteries according to the area in which they are carved. These areas are by no means equal in size or in the nature of their terrain, nor do they have the same number of tombs. The cemeteries traditionally referred to in the literature include: al-Ḥabīs, Wādī Kharrūba, Wādī al-Muʿayṣara West, Wādī al-Muʿayṣara East and Wādī at-Turkmāniyyah in the north; Mughur an-Naṣāra and Wādī al-Maṭāḥa in the north-east; al-Khubthah to the east; the Theatre, Street of Façades, Outer *Sīq*, Bāb as-Sīq and Wādī al-Mudhlim to the south-east; Wādī Farasah and Wādī Rattām in the south; and the Snake Monument / Rās Sulaymān, Wādī ath-Thughra and the base of Umm al-Biyāra to the south-west. The location of the tombs seems to follow the topography and thus the groupings are not exact, with some overlap. However, the divisions are useful for scholarship.

Besides the façade tombs and block tombs, there are more than 730 non-monumental tombs carved vertically down into the rock throughout Petra (Nehmé 2003: 157), especially on the tops of rocky outcrops. The most simple are deep 'pit' graves which descend in levels to receive one or more burials. The larger 'shaft' tombs have a

1. For a summary of the geology of Petra and detailed descriptions of the types of sandstone see Rababeh 2005: 31-39.

2. Br. = Brünnow and von Domaszewski's (1904) numbering of the tombs.

similar appearance to the pit graves on the rock surface. However, these consist of a *ca.* 3 metre deep shaft with toe-holes providing access to a simple underground burial chamber carved either on one or both sides of the shaft.

The tombs are not the only rock-cut monuments carved in the surrounding mountains of Petra. There are rock-cut houses, whose presence among the tombs is a result of the expansion and later contraction of the city (McKenzie 1990: 109), and numerous hydraulic installations for which the Nabataeans were renowned (Diodorus Siculus 19. 94. 6-8; Strabo *Geog*. 16.4.21). However, the most frequently occurring non-funerary structures are those of a religious nature, including high places, altars, votive niches, triclinia, stibadia and cultic chambers. The latter sometimes include decoratively carved façades, such as the Bāb as-Sīq Triclinium (Br. 34), the Lion Chamber (Br. 452), Triclinium Br. 455, *ad-Dayr* (Br. 462), the Carmine Façade (Br. 731) and Br. 846 in Sīq al-Bārid.

Owing to the looting and reuse of the rock-cut monuments throughout the centuries, and the paucity of textual sources relating to them, we lack evidence that would otherwise inform us of the date of their carving and use. Thus, many questions remain unanswered that are related to the development of the cemeteries and the city, the chronological relationship between the different types of tombs, and the sorts of activities that were associated with the monuments and their installations. These issues are currently being tackled by the 'Funerary Topography of Petra Project' (FTPP), which is an extension of the author's doctoral research.

Background to the FTPP: Previous Research

The author's doctoral thesis, *The Façade Tombs of Petra: from Exterior to Interior* (University of Oxford, 2010), was based on a detailed and novel study of the interiors of the Nabataean façade tombs at Petra (Wadeson 2010b). Documentation and study of the tomb interiors took place between 2005 and 2007 thanks to the kind support of the late Dr Fawwaz al-Khraysheh and Sulieman Farajat, former inspector of the Petra Archaeological Park. The study was facilitated by the departure of the Bdūl tribe from most of the tombs in the 1980s and the clearance of a number of them in a World Bank-supported project in 2003. The two major aims of this research were to reconstruct the little-known funerary practices and burial customs associated with the façade tombs, and to elucidate the chronological relationship between the different façade types. Besides architectural and spatial analyses of the façade tombs at Petra, which incorporated the little surviving burial and epigraphic evidence, comparative studies were undertaken with the inscribed and dated Nabataean tombs at Madā'in Ṣāliḥ and the monumental rock-cut tombs in Alexandria and Jerusalem.

New insights were gained into the funerary customs associated with the Nabataean façade tombs, their significance and how they were conceptualised. Certain unique aspects of the Nabataean funerary tradition were revealed, such as the form of the burial installations and their use, and the placement of burials both in high places and in feasting areas (Wadeson 2011a: 31-36; 2011b: 1-24). Consequently, it was argued that the funerary practices of the Nabataeans were as characteristic as their architecture, sculpture and religion, indicative of them having a strong cultural identity of their own, despite Hellenistic and Roman cultural influences. Furthermore, no evidence was found to support the previously-proposed idea that the Nabataeans were practising secondary burial (Wadeson 2011a: 35).

A new chronological sequence was proposed for the tombs, in which the larger tombs with a more complex façade type (e.g. Hegr and Double Pylon tombs) tend to occur earlier than their smaller, simpler versions (e.g. Step, Proto-Hegr and Single Pylon tombs) (Wadeson 2010a: 48-69, 51, fig. 2). This contrasts with previous chronologies, which assume an increasing complexity in façade design over time.[3] A detailed examination of the information in the inscriptions on the façade tombs at Madā'in Ṣāliḥ in relation to their façade types and tomb plans revealed the social dynamics influencing the developments in Nabataean funerary architecture. Thus, the largest and earliest tombs (Hegr and Double Pylon types) were commissioned by

3. For example, see Brünnow and von Domaszewski 1904:139-91; Browning 1973: 79; and more recently Netzer 2003: 13-36, 39-45, 46-47.

the wealthy elite of Nabataean society, whereas the later, smaller versions of these tombs (Step, Proto-Hegr, Single Pylon types) were bought 'ready-made' by those of a lesser social and economic status, who often had to share the cost and burial space between families (Wadeson in press; 2010b: chapter 6).

Aims and Objectives of the FTPP

In order to complete the study of the façade tombs at Petra, the FTPP was set up to focus on the area outside the façades and the topographical setting of the tombs. Specific aims of the project are:

1. To determine the development of the cemeteries at Petra utilizing the chronological sequence for the different façade types established in the author's doctoral research;
2. To determine to what extent Petra's natural environment played a role in the form, layout and location of the various types of tombs;
3. To ascertain the relationship between the façade tombs and the urban environment, including houses, quarries, religious installations and hydraulic features, in order to shed light on the development and nature of the city.
4. To establish the architectural and chronological relationship between the monumental and non-monumental tombs;
5. To understand the area immediately outside the façade tombs, how it relates to the tomb interiors and how it functioned in the funerary tradition (i.e. to reconstruct funerary practices taking place outside the tombs);
6. To understand the funerary landscape of Petra in its wider regional context through a comparison with other sites with a similar urban character and funerary architecture.

FTPP Season 1: Fieldwork Strategy

The first field season of the FTPP involved resurveying all the façade tombs recorded in the author's doctoral research. The cemeteries were surveyed in the following order, based on the maps and numbering of Brünnow and von Domaszewski (1904): Bāb as-Sīq, Wādī al-Mudhlim, Outer *Sīq*, Street of Façades, Theatre, Wādī Farasa, Wādī Rattām, Snake Monument / Rās Sulaymān, Wādī ath-Thughra, base of Umm al-Biyāra, al-Ḥabīs, Wādī Kharrūba, Wādī al-Muʿayṣara West, Wādī al- Muʿayṣara East, Wādī Turkmāniyah, Mughur an-Naṣāra, Wādī al-Maṭāḥa and al-Khubtha. The following new information was recorded and studied during the survey:

1. The spatial relationship between the tombs and other rock-cut structures (of a non-funerary nature) in the vicinity, such as houses, quarries, cisterns and channels;
2. The spatial relationship between the façade tombs and other types of tombs, such as the block tombs and shaft tombs;
3. The relationship between the tombs and the natural environment (such as type and quality of the sandstone, or form of the rock-face and rock outcrops).

In addition, the typology of the façades was rechecked and further examples of relative chronology between individual façade tombs were collected (through spatial analyses of neighbouring tombs). The tombs on Brünnow and von Domaszewski's 1904 maps were colour coded according to their façade type in order to seek any potential relationship between façade type and location. Although the data collected is still under analysis, several preliminary observations can be offered at this stage.

FTPP Season 1: Preliminary Results

Chronology of the Façade tombs

Among rows of tombs, it was observed that two or three tombs carved side by side might share similar dimensions and decorative details, for example Tombs Br. 67-69 in the Outer *Sīq*, Tombs Br. 101-103 in the Street of the Façades **(Fig. 2)** and Br. 140-143 in the Theatre area. This suggests they may have been carved by the same stonemason / workshop and can be linked chronologically. With the aid of a relational database, similar tombs across different areas are being sought to determine whether they are chronologically related. Combined with the newly proposed chronological sequence for the façade types, this will allow us to establish which cemeteries were being utilised at the same time, and will hopefully provide some clues concerning the development of the Petra necropolis.

Location of the Façade Tombs and their Typology

The number of façade tombs documented

2. Façade tombs Br. 101-103, Street of Façades, Petra (L. Wadeson).

at Petra according to their location and type are listed in **Table 1**.[4] The areas with the highest number of tombs include Wādī al-Muʿayṣara West, Wādī al-Muʿayṣara East and Wādī Farasa. However, it ought to be remembered that these areas are not equal in size, and in fact the highest concentration of tombs over a small area is found in the Street of Façades. The reason for the low number of façade tombs in the Bāb as-Sīq and around the Snake Monument may be due to the topography, since the ad-Dīsī sandstone is softer in these areas and the small rocky outcrops were perhaps less suitable for carving façades **(Fig. 3)**.

Notably, patterns emerge which suggest

Table 1: The number of façade tombs documented by the author at Petra according to façade type and location.

	Single Pylon	Step	Proto-Hegr	Arch	Simple Classical	Double Pylon	Hegr	Complex Classical	TOTAL
Bāb as-Sīq	0	0	2	0	0	0	3	0	**5**
Outer *Sīq*	0	0	1	0	0	10	4	1	**16**
Street of Façades	13	1	5	1	1	10	1	0	**32**
Theatre	12	1	7	3	1	5	1	0	**30**
al-Khubtha	4	0	2	0	0	16	9	4	**35**
Wādī Farasa	5	0	7	2	4	14	12	4	**48**
Wādī Rattām	0	0	4	1	0	1	0	0	**6**
Snake Monument (*Rās Sulaymān*)	0	0	1	0	0	4	1	0	**6**
Wādī ath-Thughra	1	2	0	1	1	16	2	0	**23**
Umm al-Biyāra	7	3	1	2	0	13	6	0	**32**
al-Habīs	0	0	2	0	2	1	0	0	**5**
Wādī Kharrūba	4	0	6	2	2	2	2	0	**18**
***Wādī Muʿayṣara* West**	38	2	9	9	2	14	4	0	**78**
***Wādī Muʿayṣara* East**	14	5	15	11	0	4	4	0	**53**
Wādī Turkumāniyah	0	2	6	2	0	2	5	0	**17**
Mughur an-Naṣāra	3	2	16	2	3	5	6	0	**37**
TOTAL	**101**	**18**	**84**	**36**	**16**	**117**	**60**	**9**	**441**

4. This is based on the total number of façade tombs (441) documented by the author at Petra. Only those tombs that were accessible and had a determinable façade type were documented. The total number recorded by Nehmé (2003: 158-160) is 628.

3. Rock formation and different sandstones in Rās Sulaymān / Wādī ath-Thughra, Petra (L. Wadeson).

4. Façade tombs at the base of al-Khubtha, Petra (L. Wadeson).

there is a relation between façade type and location. For example, certain areas are dominated by the smaller, simpler Single Pylon, Step and Proto-Hegr tombs such as the Street of Façades and Theatre in the south, and Wādī Mu'ayṣara West and Wādī al-Mu'ayṣara East in the north. Whereas other areas are dominated by the larger, more complex Double Pylon and Hegr tombs, such as the Outer *Sīq*, Wādī Farasah, al-Khubtha and the base of Umm al-Biyāra. This may have some chronological bearing, suggesting some cemeteries are earlier than others. However, this can only be confirmed once the analysis of the data is complete. One difficulty is that the façade types, once introduced, continued to be made. This of course makes the task of examining the development of the cemeteries according to a chronological sequence of façade types more challenging.

Since we know there is a relation between façade type and socio-economic status of the tomb owners (Negev 1976: 219, 235; Wadeson in press), it may also be the case that certain areas of the city were more prestigious for tomb-carving, perhaps because of their visibility in the landscape, for example al-Khubtha **(Fig. 4)**. Notably, several of the smaller, simpler façade tombs are carved in less visible positions than their larger counterparts, such as in narrow gorges (Tombs Br. 124-129, south of the Street of Façades) **(Fig. 5)** and isolated areas with little or no visibility from the city centre or major routes into the city (Tombs Br. 295 - 297 in Wādī Rattām). Some of these types of façade tombs are even cut into quarries, such as Tombs Br. 394a, 528, 594a - b and 624, which had the advantage of previously worked rock surfaces and may thus have been a cheaper location. The latter is also a useful example of relative chronology between the quarries and certain tombs.

5. Façade tombs Br. 124 - 129 in a narrow gorge to the south of the Street of Façades, Petra (L. Wadeson).

However, one of the major and certain factors influencing the location of the tombs was the natural topography, including the morphology and geology of the rock. This also played a

large role in the form of certain tomb types, as the examples discussed below attest.

The Effect of Topography on the Form and Location of the Tombs

It has previously been argued how the physical setting and resources of Petra were closely related to carving and construction techniques and thus architectural style, which resulted in the distinctive appearance of Nabataean monuments (Rababeh 2005: 223-227; Bessac 2007: 141). The results of the first season of fieldwork for the FTPP can now demonstrate the close relationship between the natural environment and the form, layout and location of the different types of tombs.

Most of the tombs are carved in the Tear sandstone because it is friable, easily worked and found in prominent locations within the city. However, *ad-Dayr* and part of the *Khaznah* are carved in the harder Honeycomb sandstone, which is why they are well preserved (Rababeh 2005: 30). This is unsurprising given the quality of carving, size and decoration of these two famed monuments. Pflüger has noted how the larger and more elaborate façade tombs tend to be carved in the better quality sandstone, even if this meant they were less prominent in the landscape (1995: 285-287). Size and decoration were clearly not the only concerns of the elite owners of these tombs (McKenzie 1990: 115), but also the quality of the rock. However, in contrast to this, Pflüger observes how the prominent position of the monumental Palace Tomb, Corinthian Tomb and Urn Tomb ('Royal' tombs) overlooking the city centre took priority over the poorer quality sandstone at the base of al-Khubtha (1995: 285-287) **(Fig. 4)**. The Nabataeans attempted to protect these elaborate façades from erosion by diverting run-off water away from them and setting them back into the rock, but the crumbly Tear sandstone has not fared well over the centuries (Pflüger 1995: 285-286).

Notably, the block tombs (with all four sides carved free from the rock) are only carved in the lighter-coloured ad-Dīsī and Honeycomb sandstones, which are located in the higher parts of Petra **(Fig. 6)**. These include Tombs Br. 7, 8, 9 and 30 in Bāb as-Sīq and Tombs Br. 303 and 307 by the Snake Monument. The ad-Dīsī sandstone is in fact the topmost layer of the stones. The formation of the rock in these areas is significantly different from the high cliffs closer to the city centre, since it is naturally shaped into small, rounded outcrops, which have been likened to the shape of an elephant's head (Rababeh 2005: 37) **(Fig. 3)**. There are few façade tombs in these areas, since the form of the rock was perhaps less suitable for façade carving, which ideally requires a taller, more vertical surface. Rather, the rock in these high parts of the city lends itself to a four-sided monument which follows the shape

6. Block tombs Br. 7 and 9 in Bāb as-Sīq, Petra (L. Wadeson).

of the outcrop and has ease of accessibility. This may explain why the block tombs are carved on all four sides (Wadeson 2012). It is also notable that they are located at important entrances to the city (Browning 1973: 181; Mouton 2006: 96; 2010: 278), such as Bāb as-Sīq and by the Snake Monument, which are naturally on higher ground, as they may have had a protective role or acted as territorial markers.

The clever use of the landscape in locating and carving different types of tombs reveals the ingenuity and creativity of the architects and stonemasons, as well as their familiarity with the geological environment in which they lived and worked. The relation between the topography and the layout of the tomb complexes at Petra is also observable, but a detailed study of this is reserved for the second season of fieldwork, when the tomb complexes will be recorded and examined. Besides shedding light on the significant role that the physical environment of Petra played in the form, layout and location of the tombs, the study of their topographical setting has also allowed some new observations on the architectural and chronological relationship between different types of tombs.

The Relationship Between Different Types of Tombs

Several non-monumental tombs, such as the pit graves and shaft tombs, were in use at the same time as the façade tombs (1st century BC - 2nd century AD), such as the 1st century AD North Ridge Shaft Tombs 1 and 2 (Bikai and Perry 2001: 59-78), and the pit graves in the Soldier Tomb Complex (Schmid and Barmasse 2006: 220-227). However, it has not been determined whether the non-monumental tombs predate the façade tombs in their introduction. Isabelle Sachet's excavation of the shaft tomb behind block Tomb Br. 303 revealed that it may have been in use since the end of the 2nd century BC, based on the discovery of Hellenistic *unguentaria* (2009: 100-102). This is considerably earlier than the earliest dated façade tombs (Tombs 62D and 62E beneath the *Khaznah*) which have a *terminus ante quem* of 50 BC (Wadeson 2010a: 54, table 3; Farajat and Nawafleh 2005: 380, 386, 388).

Other evidence may suggest that shaft tombs were in use before façade tombs at Petra.[5] This concerns eleven shaft tombs that were converted into façade tombs at a later period. These include Tombs Br. 262, 361B, 540, 542, 543, 669, 672, 685, 690, 691 and 693. They are mostly found in the areas of Wādī al-Muʿayṣara and Mughur an-Naṣārā in the north, where the rocky outcrops with their multiple levels were favourable for adding façades on the next level down from the shaft entrance (Wadeson 2012: 113-117). It is clear that the façades were added subsequently since (1) they are not well-aligned with the shaft tomb chambers, (2) an intermediary corridor (deep threshold) or small chamber is often added to connect to the larger shaft tomb chamber (i.e. there is no normal façade tomb chamber) and (3) there is a difference in tooling **(Fig. 7)**. In the case of Tomb Br. 542, the original ground level of the shaft tomb chamber was lowered to meet the level of the façade entrance. This is indicated by the remains of the original floor level on the walls

It is not likely that the façades were carved without knowledge that a shaft tomb already existed in the rock behind, as Kennedy suggests (1925: 40), especially since the shaft entrance would have been visible to the stonemasons as they carved the façade. It seems that the stonemasons attempted to join the chambers, perhaps with the aim of monumentalising the pre-existing simple tomb with a decorative façade. It ought to be remembered that an older tomb was being reused, perhaps by the descendents of the family that originally owned the tomb who could

7. A view into Tomb Br. 540 through the façade entrance (note shaft entrance and chamber at the back), Wādī al-Muʿayṣara West, Petra (L. Wadeson).

5. The idea of shaft tombs predating façade tombs was suggested by Murray & Ellis (1940: 28-29) in relation to their observation of two shaft tombs with façades in Mughur an-Naṣāra and above Wādī Abū ʿUllayqah.

not afford to build an entirely new façade tomb. The conversion of these shaft tombs seems to have been aimed at 'upgrading' them in terms of decoration and monumentality, rather than providing additional burial space.

Finally, we may turn to the chronological relationship between block tombs and façade tombs. Recent studies and excavations have concluded that the block tombs may be the earliest group of monumental tombs at Petra, perhaps carved at the end of the 2nd century BC (Mouton 1997: 81-98; 2006: 79-119; 2010: 275-287; Sachet 2009: 100-102). Besides these tombs, carved free from the rock on all four sides, there are several others that take the form of both block tombs and façade tombs. More specifically, one side of the tomb is still attached to the rock while the others are free, for example Tomb Br. 824 **(Fig. 8)**, or only the top half of the tomb is carved free on all four sides, such as Tomb Br. 270 (Wadeson 2011b: 20, fig. 10a). This technique provides space for a larger burial chamber than is possible for the block tombs, while still keeping a degree of monumentality.

Such tombs may in fact be an intermediary type between the block tombs and the façade tombs (Mouton 2006: 87; Wadeson 2012: 117-121). Certain examples can be shown to predate the façade tombs carved around them. Tomb Br. 824 is earlier than the façade Tomb Br. 825 carved behind it, because if the latter was carved first, the uncarved rock into which Tomb Br. 824 was carved would have completely blocked the visibility of Tomb Br. 825 **(Fig. 8)**. It is uncommon for a Hegr façade tomb to be carved behind a rock or in a position where it cannot be seen. The same argument applies to Tomb Br. 70 which has three sides carved free from the rock and, if uncarved before the façade tombs either side, the rock would have partly concealed their view.

It ought to be emphasised here that the block tombs and semi-block tombs are typically decorated with two rows of crowsteps (the top one often freestanding) which is equivalent to the Double Pylon type of façade design (Wadeson 2010a: 51, fig. 2) **(Figs. 2, 8)**. The presence of this type of decoration on these supposedly early tombs supports the argument that the Double Pylon façade tombs were one of the earliest types to be introduced at Petra (Wadeson 2010a: 67). These observations lead us to question of whether the façade tombs should be considered as a simplified and abstract form of the block tombs.

Conclusions

Although the analysis of the data collected during the first field season of the FTPP is still in progress, preliminary results are already shedding new light on Petra's funerary landscape. Patterns have emerged which suggest a notable

8. Tomb Br. 824 (left) and Tomb Br. 825 (right), Outer Sīq, Petra (L. Wadeson).

relation between the façade type of a tomb and its location. Chronological and / or economic reasons for this have been proposed, but one of the dominating factors influencing the location of different types of façade tombs, and different types of tombs in general, appears to be the geological and geographical characteristics of the site. This demonstrates the familiarity that the stonemasons had with their environment. By studying the funerary monuments in their natural and urban landscape, it has also been possible to interpret the architectural and chronological relationships between different types of tombs. Thus, new evidence supports the early dating of the block and semi-block monuments and is beginning to elucidate the development of monumental funerary architecture at Petra. The second season of fieldwork for the FTPP will focus on documenting and examining the installations found outside the façade tombs and the layout and function of these so-called tomb complexes.

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